

July 20, 2018

Charlene Sauls PG; Licensed Professional Geologist
Pennsylvania Department of Environmental Protection
Bureau of Waste Management
909 Elmerton Avenue
Harrisburg, PA 17110-8200

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

Dear Ms. Sauls:

In accordance with the Municipal Waste Management Regulations, the Lancaster County Solid Waste Management Authority (LCSWMA) continues the above-referenced monitoring program. Attached are the Forms 19, lab reports, and excel csv file for your LandLinks Access database. I have attached per your request:

1. USEPA MCL's exceedance report; Samples 2, 3, & 28 exceeded the primary standard for nitrate, samples are consistent with historic data the cause is attributed to agricultural impacts. No other MCL's were exceeded.
2. USEPA SMCL's exceedance report; Samples 1P, 2DW, 3AW, 4AW, 5W, 17W, 18W, 26RW, 30RW, 31W, 32W, 33W exceeded the secondary standard for manganese, Samples 1P, 2DW, 2SW, 31W, 32W & 33W exceeded the secondary standard for iron, Samples 2DW, 4AW, 5W, 17W, 18W, & 26RW exceeded the secondary standard for total dissolved solids, and Samples 2DW, 4AW, 5W, 17W & 26RW exceeded the secondary standard for chlorides all samples are consistent with historic levels and exceedances are attributed to soil parent material, geologic conditions and historic land use. ARM reviews the site historic Chloride issues annually and has assessed the causes. No other SMCL's were exceeded.
3. A copy of the field sampling data sheets for all locations.

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

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

Respectfully Submitted,



Mark D. Reider
Director of Environmental Compliance

Enclosures:

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



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT

Date Prepared/Revised
07/10/2018

DEP USE ONLY

Date Received

FORM 19
MUNICIPAL WASTE LANDFILL
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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

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

SECTION A. APPLICANT IDENTIFIER

Applicant/permittee: Lancaster County Solid Waste Mana

Site Name: Frey Farm Landfill

Facility ID (as issued by DEP): 101389

SECTION B. FACILITY INFORMATION

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

Monitoring Point Number: 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: 4.87 ft Measured from: Land Surface TOC

Casing Stickup: 2.50 ft Elevation of Water Level: 460.13 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: 2.2

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

Spring Flow Rate: _____ gpm

Sample Date (mm/dd/yy): 5/21/2018 Sample Collection Time: 10:40

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2316066001 Final Lab Analysis Completion Date: 6/3/2018

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	0.244	SM20-4500D
BICARBONATE ALKALINITY	41	SM20-2320B
CALCIUM, TOTAL	38.4	SW846 6010B
CALCIUM, DISSOLVED	36.4	SW846 6010B
COD (CHEMICAL OXYGEN DEMAND)	0	EPA 410.4
CHLORIDE	86.2	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	17.1	SW846 6010B
MAGNESIUM, DISSOLVED	16.9	SW846 6010B
MANGANESE, TOTAL (ug/l)	11	SW846 6010B
MANGANESE, DISSOLVED (ug/l)	11	SW846 6010B
NITRATE-NITROGEN	20.2	EPA 300
pH-FIELD (SU)	5.08	FIELD
pH-LAB (SU)	6.32	SM20-4500B
POTASSIUM, TOTAL	2.1	SW846 6010B
POTASSIUM, DISSOLVED	2.1	SW846 6010B
SODIUM, TOTAL	27.9	SW846 6010B
SODIUM, DISSOLVED	26.8	SW846 6010B
SPEC. COND., FIELD (umhos/cm)	613	FIELD
SPEC. COND., LAB (umhos/cm)	589	EPA 120.1
SULFATE	25.9	EPA 300
ALKALINITY	41	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	440	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	1.6	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. FFMP028W

Sample Date 5/21/2018

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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

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

T Please indicate detection limit if analyte is not detected.

I.D. No. 101389

Monitoring Point No. FFMP028W

Sample Date 5/21/2018

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	69	SW846 6010B
BARIUM, DISSOLVED	69	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	13	SW846 6010B
ZINC, DISSOLVED	17	SW846 6010B

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

I.D. No 101389

Monitoring Point No. FFMP028W

Sample Date 5/21/2018

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
CHLOROENZENE	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-DICHLOROENZENE	1 ND	SW846 8260B
1,3-DICHLOROENZENE	1 ND	SW846 8260B
1,4-DICHLOROENZENE	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 5/21/2018

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.



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BUREAU OF WASTE MANAGEMENT

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FORM 19
MUNICIPAL WASTE LANDFILL
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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

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

SECTION A. APPLICANT IDENTIFIER

Applicant/permittee: Lancaster County Solid Waste Mana

Site Name: Frey Farm Landfill

Facility ID (as issued by DEP): 101389

SECTION B. FACILITY INFORMATION

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

Monitoring Point Number: FFMP005W Well Spring Stream Other
 Upgradient/Upstream Downgradient/Downstream

Location (County): Lancaster County

Municipality: Manor Township

Sampling Point: Latitude: 39 ° 57 ' 10.67 " Longitude: 76 ° 27 ' 21.3 "

Depth to Water Level: 50.57 ft Measured from: Land Surface TOC

Casing Stickup: 1.70 ft Elevation of Water Level: 486.83 ft./MSL

Sampling Depth: 135 ft Volume of Water Column: 146.03 gal

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

Well Purged: Yes No Well Volumes Purged: 1.2

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

Spring Flow Rate: gpm

Sample Date (mm/dd/yy): 5/21/2018 Sample Collection Time: 12:04

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2316066002 Final Lab Analysis Completion Date: 6/3/2018

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

Comments:

I.D. No 101389

Monitoring Point No. FFMP005W

Sample Date 5/21/2018

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

ANALYTES

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

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.1 ND	SM20-4500D
BICARBONATE ALKALINITY	42	SM20-2320B
CALCIUM, TOTAL	95.4	SW846 6010B
CALCIUM, DISSOLVED	96.6	SW846 6010B
COD (CHEMICAL OXYGEN DEMAND)	3	EPA 410.4
CHLORIDE	294	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	26.1	SW846 6010B
MAGNESIUM, DISSOLVED	25.7	SW846 6010B
MANGANESE, TOTAL (ug/l)	76	SW846 6010B
MANGANESE, DISSOLVED (ug/l)	79	SW846 6010B
NITRATE-NITROGEN	4.5	EPA 300
pH-FIELD (SU)	5.16	FIELD
pH-LAB (SU)	6.14	SM20-4500B
POTASSIUM, TOTAL	2.8	SW846 6010B
POTASSIUM, DISSOLVED	2.8	SW846 6010B
SODIUM, TOTAL	63	SW846 6010B
SODIUM, DISSOLVED	62.3	SW846 6010B
SPEC. COND., FIELD (umhos/cm)	1260	FIELD
SPEC. COND., LAB (umhos/cm)	1220	EPA 120.1
SULFATE	69.1	EPA 300
ALKALINITY	42	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	967	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	1.3	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 5/21/2018

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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

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

T Please indicate detection limit if analyte is not detected.

I.D. No. 101389

Monitoring Point No. FFMP005W

Sample Date 5/21/2018

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	69	SW846 6010B
BARIUM, DISSOLVED	68	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	8.5	SW846 6010B

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

I.D. No 101389

Monitoring Point No. FFMP005W

Sample Date 5/21/2018

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
CHLOROENZENE	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-DICHLOROENZENE	1 ND	SW846 8260B
1,3-DICHLOROENZENE	1 ND	SW846 8260B
1,4-DICHLOROENZENE	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 5/21/2018

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.



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DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT

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

SECTION A. APPLICANT IDENTIFIER

Applicant/permittee: Lancaster County Solid Waste Mana

Site Name: Frey Farm Landfill

Facility ID (as issued by DEP): 101389

SECTION B. FACILITY INFORMATION

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

Monitoring Point Number: FFMP26RW Well Spring Stream Other
 Upgradient/Upstream Downgradient/Downstream

Location (County): Lancaster County

Municipality: Manor Township

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

Depth to Water Level: 61.79 ft Measured from: Land Surface TOC

Casing Stickup: 3.30 ft Elevation of Water Level: 485.61 ft./MSL

Sampling Depth: 105 ft Volume of Water Column: 76.68 gal

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

Well Purged: Yes No Well Volumes Purged: 1.8

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

Spring Flow Rate: gpm

Sample Date (mm/dd/yy): 5/21/2018 Sample Collection Time: 13:25

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2316066003 Final Lab Analysis Completion Date: 6/3/2018

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

Comments:

I.D. No 101389

Monitoring Point No. FFMP26RW

Sample Date 5/21/2018

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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	0.24	SM20-4500D
BICARBONATE ALKALINITY	45	SM20-2320B
CALCIUM, TOTAL	83.2	SW846 6010B
CALCIUM, DISSOLVED	84.2	SW846 6010B
COD (CHEMICAL OXYGEN DEMAND)	0	EPA 410.4
CHLORIDE	263	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	22.5	SW846 6010B
MAGNESIUM, DISSOLVED	22.4	SW846 6010B
MANGANESE, TOTAL (ug/l)	760	SW846 6010B
MANGANESE, DISSOLVED (ug/l)	770	SW846 6010B
NITRATE-NITROGEN	3.1	EPA 300
pH-FIELD (SU)	5.11	FIELD
pH-LAB (SU)	5.93	SM20-4500B
POTASSIUM, TOTAL	10	SW846 6010B
POTASSIUM, DISSOLVED	9.8	SW846 6010B
SODIUM, TOTAL	65.8	SW846 6010B
SODIUM, DISSOLVED	65.5	SW846 6010B
SPEC. COND., FIELD (umhos/cm)	1178	FIELD
SPEC. COND., LAB (umhos/cm)	1150	EPA 120.1
SULFATE	78	EPA 300
ALKALINITY	45	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	830	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	1.7	SM20-5310B
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	0.23	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 5/21/2018

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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

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

T Please indicate detection limit if analyte is not detected.

I.D. No. 101389

Monitoring Point No. FFMP26RW

Sample Date 5/21/2018

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	140	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	17	SW846 6010B
ZINC, DISSOLVED	26	SW846 6010B

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

I.D. No 101389

Monitoring Point No. FFMP26RW

Sample Date 5/21/2018

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
CHLOROENZENE	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-DICHLOROENZENE	1 ND	SW846 8260B
1,3-DICHLOROENZENE	1 ND	SW846 8260B
1,4-DICHLOROENZENE	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	5/21/2018

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	36	SW846 6010B
NICKEL	6.7	SW846 6010B
THALLIUM	1.1 ND	SW846 6010B
VANADIUM	2.2 ND	SW846 6010B

T Please indicate detection limit if analyte is not detected.

I.D. No 101389

Monitoring Point No. FFMP017W

Sample Date 5/22/2018

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

ANALYTES

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

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.25	SM20-4500D
BICARBONATE ALKALINITY	38	SM20-2320B
CALCIUM, TOTAL	74.9	SW846 6010B
CALCIUM, DISSOLVED	75.9	SW846 6010B
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	308	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	70	SW846 6010B
IRON, DISSOLVED (ug/l)	56 ND	SW846 6010B
MAGNESIUM, TOTAL	36.5	SW846 6010B
MAGNESIUM, DISSOLVED	36	SW846 6010B
MANGANESE, TOTAL (ug/l)	350	SW846 6010B
MANGANESE, DISSOLVED (ug/l)	340	SW846 6010B
NITRATE-NITROGEN	3.1	EPA 300
pH-FIELD (SU)	5.16	FIELD
pH-LAB (SU)	6.21	SM20-4500B
POTASSIUM, TOTAL	4.3	SW846 6010B
POTASSIUM, DISSOLVED	4.3	SW846 6010B
SODIUM, TOTAL	70	SW846 6010B
SODIUM, DISSOLVED	71.6	SW846 6010B
SPEC. COND., FIELD (umhos/cm)	1288	FIELD
SPEC. COND., LAB (umhos/cm)	1230	EPA 120.1
SULFATE	52.1	EPA 300
ALKALINITY	38	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	879	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	1.7	SM20-5310B
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	1.42	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 5/22/2018

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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

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

T Please indicate detection limit if analyte is not detected.

I.D. No. 101389

Monitoring Point No. FFMP017W

Sample Date 5/22/2018

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	86	SW846 6010B
BARIUM, DISSOLVED	86	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	9.1	SW846 6010B
ZINC, DISSOLVED	10	SW846 6010B

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

I.D. No 101389

Monitoring Point No. FFMP017W

Sample Date 5/22/2018

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
CHLOROENZENE	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-DICHLOROENZENE	1 ND	SW846 8260B
1,3-DICHLOROENZENE	1 ND	SW846 8260B
1,4-DICHLOROENZENE	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 5/22/2018

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	9.1	SW846 6010B
THALLIUM	1.1 ND	SW846 6010B
VANADIUM	2.2 ND	SW846 6010B

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



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT

Date Prepared/Revised
07/10/2018

DEP USE ONLY

Date Received

FORM 19
MUNICIPAL WASTE LANDFILL
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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

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

SECTION A. APPLICANT IDENTIFIER

Applicant/permittee: Lancaster County Solid Waste Mana

Site Name: Frey Farm Landfill

Facility ID (as issued by DEP): 101389

SECTION B. FACILITY INFORMATION

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

Monitoring Point Number: FFMP018W Well Spring Stream Other
 Upgradient/Upstream Downgradient/Downstream

Location (County): Lancaster County

Municipality: Manor Township

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

Depth to Water Level: 21.48 ft Measured from: Land Surface TOC

Casing Stickup: 2.46 ft Elevation of Water Level: 450.72 ft./MSL

Sampling Depth: 40 ft Volume of Water Column: 19.55 gal

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

Well Purged: Yes No Well Volumes Purged: 3.1

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

Spring Flow Rate: gpm

Sample Date (mm/dd/yy): 5/22/2018 Sample Collection Time: 10:44

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2316215002 Final Lab Analysis Completion Date: 5/31/2018

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	2.04	SM20-4500D
BICARBONATE ALKALINITY	39	SM20-2320B
CALCIUM, TOTAL	51.9	SW846 6010B
CALCIUM, DISSOLVED	47.7	SW846 6010B
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	240	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	19.8	SW846 6010B
MAGNESIUM, DISSOLVED	19.4	SW846 6010B
MANGANESE, TOTAL (ug/l)	740	SW846 6010B
MANGANESE, DISSOLVED (ug/l)	740	SW846 6010B
NITRATE-NITROGEN	7.6	EPA 300
pH-FIELD (SU)	5.17	FIELD
pH-LAB (SU)	6.2	SM20-4500B
POTASSIUM, TOTAL	18.1	SW846 6010B
POTASSIUM, DISSOLVED	15	SW846 6010B
SODIUM, TOTAL	89.1	SW846 6010B
SODIUM, DISSOLVED	87.6	SW846 6010B
SPEC. COND., FIELD (umhos/cm)	1322	FIELD
SPEC. COND., LAB (umhos/cm)	1060	EPA 120.1
SULFATE	49.7	EPA 300
ALKALINITY	39	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	607	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	2	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 5/22/2018

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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

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

T Please indicate detection limit if analyte is not detected.

I.D. No. 101389

Monitoring Point No. FFMP018W

Sample Date 5/22/2018

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	140	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	16	SW846 6010B
ZINC, DISSOLVED	19	SW846 6010B

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

I.D. No 101389

Monitoring Point No. FFMP018W

Sample Date 5/22/2018

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
CHLOROENZENE	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-DICHLOROENZENE	1 ND	SW846 8260B
1,3-DICHLOROENZENE	1 ND	SW846 8260B
1,4-DICHLOROENZENE	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 5/22/2018

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	27	SW846 6010B
NICKEL	7.4	SW846 6010B
THALLIUM	1.1 ND	SW846 6010B
VANADIUM	2.2 ND	SW846 6010B

T Please indicate detection limit if analyte is not detected.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT



Date Prepared/Revised
07/10/2018

DEP USE ONLY

Date Received

FORM 19
MUNICIPAL WASTE LANDFILL
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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

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

SECTION A. APPLICANT IDENTIFIER

Applicant/permittee: Lancaster County Solid Waste Mana

Site Name: Frey Farm Landfill

Facility ID (as issued by DEP): 101389

SECTION B. FACILITY INFORMATION

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

Monitoring Point Number: FFMP019W Well Spring Stream Other
 Upgradient/Upstream Downgradient/Downstream

Location (County): Lancaster County Municipality: Manor Township

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

Depth to Water Level: 25.09 ft Measured from: Land Surface TOC

Casing Stickup: 1.79 ft Elevation of Water Level: 446.86 ft./MSL

Sampling Depth: 49 ft Volume of Water Column: 70.30 gal

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

Well Purged: Yes No Well Volumes Purged: 2.4

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

Spring Flow Rate: gpm

Sample Date (mm/dd/yy): 5/22/2018 Sample Collection Time: 11:33

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2316215003 Final Lab Analysis Completion Date: 5/31/2018

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

Comments:

I.D. No 101389

Monitoring Point No. FFMP019W

Sample Date 5/22/2018

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

ANALYTES

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

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.1 ND	SM20-4500D
BICARBONATE ALKALINITY	72	SM20-2320B
CALCIUM, TOTAL	52	SW846 6010B
CALCIUM, DISSOLVED	52.3	SW846 6010B
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	77.9	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	5.3	SW846 6010B
MAGNESIUM, DISSOLVED	5.4	SW846 6010B
MANGANESE, TOTAL (ug/l)	5.6 ND	SW846 6010B
MANGANESE, DISSOLVED (ug/l)	5.6 ND	SW846 6010B
NITRATE-NITROGEN	0.32	EPA 300
pH-FIELD (SU)	6.08	FIELD
pH-LAB (SU)	6.88	SM20-4500B
POTASSIUM, TOTAL	0.81	SW846 6010B
POTASSIUM, DISSOLVED	0.82	SW846 6010B
SODIUM, TOTAL	9.4	SW846 6010B
SODIUM, DISSOLVED	9.7	SW846 6010B
SPEC. COND., FIELD (umhos/cm)	457	FIELD
SPEC. COND., LAB (umhos/cm)	433	EPA 120.1
SULFATE	14.9	EPA 300
ALKALINITY	72	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	258	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	0.52	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 5/22/2018

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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

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

T Please indicate detection limit if analyte is not detected.

I.D. No. 101389

Monitoring Point No. FFMP019W

Sample Date 5/22/2018

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	77	SW846 6010B
BARIUM, DISSOLVED	77	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	5.7	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. FFMP019W

Sample Date 5/22/2018

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
CHLOROENZENE	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-DICHLOROENZENE	1 ND	SW846 8260B
1,3-DICHLOROENZENE	1 ND	SW846 8260B
1,4-DICHLOROENZENE	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 5/22/2018

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.

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	15	SM20-2320B
CALCIUM, TOTAL	13.9	SW846 6010B
CALCIUM, DISSOLVED	14	SW846 6010B
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	80.9	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	10	SW846 6010B
MAGNESIUM, DISSOLVED	10.3	SW846 6010B
MANGANESE, TOTAL (ug/l)	45	SW846 6010B
MANGANESE, DISSOLVED (ug/l)	44	SW846 6010B
NITRATE-NITROGEN	3.7	EPA 300
pH-FIELD (SU)	4.83	FIELD
pH-LAB (SU)	5.86	SM20-4500B
POTASSIUM, TOTAL	1.9	SW846 6010B
POTASSIUM, DISSOLVED	2	SW846 6010B
SODIUM, TOTAL	24.7	SW846 6010B
SODIUM, DISSOLVED	25.6	SW846 6010B
SPEC. COND., FIELD (umhos/cm)	354	FIELD
SPEC. COND., LAB (umhos/cm)	314	EPA 120.1
SULFATE	5.1	EPA 300
ALKALINITY	15	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	180	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	0.69	SM20-5310B
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	1.27	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 5/22/2018

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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

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

T Please indicate detection limit if analyte is not detected.

I.D. No. 101389

Monitoring Point No. FFMP029W

Sample Date 5/22/2018

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	75	SW846 6010B
BARIUM, DISSOLVED	75	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	7.6	SW846 6010B
ZINC, DISSOLVED	8.1	SW846 6010B

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

I.D. No 101389

Monitoring Point No. FFMP029W

Sample Date 5/22/2018

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
CHLOROENZENE	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-DICHLOROENZENE	1 ND	SW846 8260B
1,3-DICHLOROENZENE	1 ND	SW846 8260B
1,4-DICHLOROENZENE	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	5/22/2018

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.

I.D. No 101389

Monitoring Point No. FFMP025W

Sample Date 5/22/2018

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

ANALYTES

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

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.195	SM20-4500D
BICARBONATE ALKALINITY	31	SM20-2320B
CALCIUM, TOTAL	28.9	SW846 6010B
CALCIUM, DISSOLVED	29	SW846 6010B
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	87.9	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	16.1	SW846 6010B
MAGNESIUM, DISSOLVED	17.7	SW846 6010B
MANGANESE, TOTAL (ug/l)	6.8	SW846 6010B
MANGANESE, DISSOLVED (ug/l)	6.3	SW846 6010B
NITRATE-NITROGEN	4.8	EPA 300
pH-FIELD (SU)	5.21	FIELD
pH-LAB (SU)	6.23	SM20-4500B
POTASSIUM, TOTAL	2.1	SW846 6010B
POTASSIUM, DISSOLVED	2.3	SW846 6010B
SODIUM, TOTAL	25.2	SW846 6010B
SODIUM, DISSOLVED	25.4	SW846 6010B
SPEC. COND., FIELD (umhos/cm)	515	FIELD
SPEC. COND., LAB (umhos/cm)	492	EPA 120.1
SULFATE	40.9	EPA 300
ALKALINITY	31	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	246	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	1.6	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. FFMP025W

Sample Date 5/22/2018

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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

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

T Please indicate detection limit if analyte is not detected.

I.D. No. 101389

Monitoring Point No. FFMP025W

Sample Date 5/22/2018

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	63	SW846 6010B
BARIUM, DISSOLVED	63	SW846 6010B
CADMIUM, TOTAL	1.1 ND	SW846 6010B
CADMIUM, DISSOLVED	1.1 ND	SW846 6010B
CHROMIUM, TOTAL	3	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	6.1	SW846 6010B
ZINC, DISSOLVED	8.1	SW846 6010B

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

I.D. No 101389

Monitoring Point No. FFMP025W

Sample Date 5/22/2018

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
CHLOROENZENE	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-DICHLOROENZENE	1 ND	SW846 8260B
1,3-DICHLOROENZENE	1 ND	SW846 8260B
1,4-DICHLOROENZENE	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 5/22/2018

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	13.8	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.



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT

Date Prepared/Revised
07/10/2018

DEP USE ONLY

Date Received

FORM 19
MUNICIPAL WASTE LANDFILL
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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

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

SECTION A. APPLICANT IDENTIFIER

Applicant/permittee: Lancaster County Solid Waste Mana

Site Name: Frey Farm Landfill

Facility ID (as issued by DEP): 101389

SECTION B. FACILITY INFORMATION

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

Monitoring Point Number: FFMP002W Well Spring Stream Other
 Upgradient/Upstream Downgradient/Downstream

Location (County): Lancaster County Municipality: Manor Township

Sampling Point: Latitude: 39 ° 57 ' 32.25 " Longitude: 76 ° 27 ' 24.03 "

Depth to Water Level: 62.41 ft Measured from: Land Surface TOC

Casing Stickup: 1.60 ft Elevation of Water Level: 550.79 ft./MSL

Sampling Depth: 85 ft Volume of Water Column: 157.42 gal

Total Well Depth: 169.6 ft Sampling Method: Pumped Bailed Grab

Well Purged: Yes No Well Volumes Purged: 0.6

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

Spring Flow Rate: gpm

Sample Date (mm/dd/yy): 5/22/2018 Sample Collection Time: 13:55

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2316215006 Final Lab Analysis Completion Date: 6/6/2018

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	0.203	SM20-4500D
BICARBONATE ALKALINITY	5 ND	SM20-2320B
CALCIUM, TOTAL	20.6	SW846 6010B
CALCIUM, DISSOLVED	21.3	SW846 6010B
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	22.3	EPA 300
FLUORIDE	0.2	EPA 300
IRON, TOTAL (ug/l)	73	SW846 6010B
IRON, DISSOLVED (ug/l)	56 ND	SW846 6010B
MAGNESIUM, TOTAL	9.7	SW846 6010B
MAGNESIUM, DISSOLVED	9.6	SW846 6010B
MANGANESE, TOTAL (ug/l)	250	SW846 6010B
MANGANESE, DISSOLVED (ug/l)	260	SW846 6010B
NITRATE-NITROGEN	26.6	EPA 300
pH-FIELD (SU)	4.36	FIELD
pH-LAB (SU)	5.66	SM20-4500B
POTASSIUM, TOTAL	1.2	SW846 6010B
POTASSIUM, DISSOLVED	1.3	SW846 6010B
SODIUM, TOTAL	14.2	SW846 6010B
SODIUM, DISSOLVED	14.1	SW846 6010B
SPEC. COND., FIELD (umhos/cm)	352	FIELD
SPEC. COND., LAB (umhos/cm)	302	EPA 120.1
SULFATE	9.4	EPA 300
ALKALINITY	5 ND	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	174	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	0.71	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. FFMP002W

Sample Date 5/22/2018

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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

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

T Please indicate detection limit if analyte is not detected.

I.D. No. 101389

Monitoring Point No. FFMP002W

Sample Date 5/22/2018

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	75	SW846 6010B
BARIUM, DISSOLVED	77	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	17	SW846 6010B
COPPER, DISSOLVED	18	SW846 6010B
LEAD-FLAMELESS, TOTAL	7	SW846 6010B
LEAD, DISSOLVED	8.4	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	32	SW846 6010B
ZINC, DISSOLVED	37	SW846 6010B

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

I.D. No 101389

Monitoring Point No. FFMP002W

Sample Date 5/22/2018

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
CHLOROENZENE	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-DICHLOROENZENE	1 ND	SW846 8260B
1,3-DICHLOROENZENE	1 ND	SW846 8260B
1,4-DICHLOROENZENE	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 5/22/2018

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	11.5	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	18	SW846 6010B
NICKEL	30	SW846 6010B
THALLIUM	1.1 ND	SW846 6010B
VANADIUM	2.2 ND	SW846 6010B

T Please indicate detection limit if analyte is not detected.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT



Date Prepared/Revised
07/10/2018

DEP USE ONLY

Date Received

FORM 19
MUNICIPAL WASTE LANDFILL
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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

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

SECTION A. APPLICANT IDENTIFIER

Applicant/permittee: Lancaster County Solid Waste Mana

Site Name: Frey Farm Landfill

Facility ID (as issued by DEP): 101389

SECTION B. FACILITY INFORMATION

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

Monitoring Point Number: FFMP30RW Well Spring Stream Other
 Upgradient/Upstream Downgradient/Downstream

Location (County): Lancaster County Municipality: Manor Township

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

Depth to Water Level: 29.25 ft Measured from: Land Surface TOC

Casing Stickup: 2.20 ft Elevation of Water Level: 533.05 ft./MSL

Sampling Depth: 85 ft Volume of Water Column: 89.22 gal

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

Well Purged: 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): 5/23/2018 Sample Collection Time: 9:46

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2316494001 Final Lab Analysis Completion Date: 6/6/2018

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

Comments:

I.D. No 101389

Monitoring Point No. FFMP30RW

Sample Date 5/23/2018

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

ANALYTES

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

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.1 ND	SM20-4500D
BICARBONATE ALKALINITY	24	SM20-2320B
CALCIUM, TOTAL	10.4	SW846 6010B
CALCIUM, DISSOLVED	9.7	SW846 6010B
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	70.5	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	9.6	SW846 6010B
MAGNESIUM, DISSOLVED	10.3	SW846 6010B
MANGANESE, TOTAL (ug/l)	410	SW846 6010B
MANGANESE, DISSOLVED (ug/l)	380	SW846 6010B
NITRATE-NITROGEN	4.1	EPA 300
pH-FIELD (SU)	4.72	FIELD
pH-LAB (SU)	5.63	SM20-4500B
POTASSIUM, TOTAL	1.4	SW846 6010B
POTASSIUM, DISSOLVED	1.5	SW846 6010B
SODIUM, TOTAL	32.5	SW846 6010B
SODIUM, DISSOLVED	34.6	SW846 6010B
SPEC. COND., FIELD (umhos/cm)	341	FIELD
SPEC. COND., LAB (umhos/cm)	290	EPA 120.1
SULFATE	9.3	EPA 300
ALKALINITY	24	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	197	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	0.96	SM20-5310B
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	0.3	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 5/23/2018

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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

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

T Please indicate detection limit if analyte is not detected.

I.D. No. 101389

Monitoring Point No. FFMP30RW

Sample Date 5/23/2018

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	60	SW846 6010B
BARIUM, DISSOLVED	57	SW846 6010B
CADMIUM, TOTAL	1.1 ND	SW846 6010B
CADMIUM, DISSOLVED	1.1 ND	SW846 6010B
CHROMIUM, TOTAL	2.5	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	10	SW846 6010B

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

I.D. No 101389

Monitoring Point No. FFMP30RW

Sample Date 5/23/2018

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
CHLOROENZENE	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-DICHLOROENZENE	1 ND	SW846 8260B
1,3-DICHLOROENZENE	1 ND	SW846 8260B
1,4-DICHLOROENZENE	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 5/23/2018

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	11.8	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	6.2	SW846 6010B
NICKEL	8.7	SW846 6010B
THALLIUM	1.1 ND	SW846 6010B
VANADIUM	2.2 ND	SW846 6010B

T Please indicate detection limit if analyte is not detected.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT



Date Prepared/Revised
07/10/2018

DEP USE ONLY

Date Received

FORM 19
MUNICIPAL WASTE LANDFILL
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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

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

SECTION A. APPLICANT IDENTIFIER

Applicant/permittee: Lancaster County Solid Waste Mana

Site Name: Frey Farm Landfill

Facility ID (as issued by DEP): 101389

SECTION B. FACILITY INFORMATION

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

Monitoring Point Number: FFMP04AW Well Spring Stream Other
 Upgradient/Upstream Downgradient/Downstream

Location (County): Lancaster County Municipality: Manor Township

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

Depth to Water Level: 33.02 ft Measured from: Land Surface TOC

Casing Stickup: 2.52 ft Elevation of Water Level: 527.7 ft./MSL

Sampling Depth: 146 ft Volume of Water Column: 394.33 gal

Total Well Depth: 301.52 ft Sampling Method: Pumped Bailed Grab

Well Purged: Yes No Well Volumes Purged: 1.0

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

Spring Flow Rate: gpm

Sample Date (mm/dd/yy): 5/23/2018 Sample Collection Time: 10:56

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2316494002 Final Lab Analysis Completion Date: 6/6/2018

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

Comments:

I.D. No 101389

Monitoring Point No. FFMP04AW

Sample Date 5/23/2018

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

ANALYTES

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

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.1 ND	SM20-4500D
BICARBONATE ALKALINITY	205	SM20-2320B
CALCIUM, TOTAL	149	SW846 6010B
CALCIUM, DISSOLVED	143	SW846 6010B
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	330	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	70	SW846 6010B
IRON, DISSOLVED (ug/l)	56 ND	SW846 6010B
MAGNESIUM, TOTAL	26.1	SW846 6010B
MAGNESIUM, DISSOLVED	26.7	SW846 6010B
MANGANESE, TOTAL (ug/l)	280	SW846 6010B
MANGANESE, DISSOLVED (ug/l)	260	SW846 6010B
NITRATE-NITROGEN	0.2	EPA 300
pH-FIELD (SU)	6.64	FIELD
pH-LAB (SU)	7.28	SM20-4500B
POTASSIUM, TOTAL	2.1	SW846 6010B
POTASSIUM, DISSOLVED	2.2	SW846 6010B
SODIUM, TOTAL	87.2	SW846 6010B
SODIUM, DISSOLVED	89.1	SW846 6010B
SPEC. COND., FIELD (umhos/cm)	1502	FIELD
SPEC. COND., LAB (umhos/cm)	1440	EPA 120.1
SULFATE	50	EPA 300
ALKALINITY	205	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	958	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	0.99	SM20-5310B
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	0.43	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 5/23/2018

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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

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

T Please indicate detection limit if analyte is not detected.

I.D. No. 101389

Monitoring Point No. FFMP04AW

Sample Date 5/23/2018

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	6.3	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 5/23/2018

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
CHLOROENZENE	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-DICHLOROENZENE	1 ND	SW846 8260B
1,3-DICHLOROENZENE	1 ND	SW846 8260B
1,4-DICHLOROENZENE	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 5/23/2018

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	10.4	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.



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT

Date Prepared/Revised
07/10/2018

DEP USE ONLY

Date Received

FORM 19
MUNICIPAL WASTE LANDFILL
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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

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

SECTION A. APPLICANT IDENTIFIER

Applicant/permittee: Lancaster County Solid Waste Mana

Site Name: Frey Farm Landfill

Facility ID (as issued by DEP): 101389

SECTION B. FACILITY INFORMATION

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

Monitoring Point Number: FFMP03AW Well Spring Stream Other
 Upgradient/Upstream Downgradient/Downstream

Location (County): Lancaster County

Municipality: Manor Township

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

Depth to Water Level: 51.3 ft Measured from: Land Surface TOC

Casing Stickup: 1.20 ft Elevation of Water Level: 539.60 ft./MSL

Sampling Depth: 130 ft Volume of Water Column: 140.84 gal

Total Well Depth: 147.2 ft Sampling Method: Pumped Bailed Grab

Well Purged: Yes No Well Volumes Purged: 1.0

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

Spring Flow Rate: gpm

Sample Date (mm/dd/yy): 5/23/2018 Sample Collection Time: 12:19

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2316494003 Final Lab Analysis Completion Date: 6/6/2018

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	27	SM20-2320B
CALCIUM, TOTAL	16.6	SW846 6010B
CALCIUM, DISSOLVED	16.8	SW846 6010B
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	27.8	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	12.2	SW846 6010B
MAGNESIUM, DISSOLVED	12.8	SW846 6010B
MANGANESE, TOTAL (ug/l)	270	SW846 6010B
MANGANESE, DISSOLVED (ug/l)	260	SW846 6010B
NITRATE-NITROGEN	19.3	EPA 300
pH-FIELD (SU)	4.91	FIELD
pH-LAB (SU)	5.87	SM20-4500B
POTASSIUM, TOTAL	1.3	SW846 6010B
POTASSIUM, DISSOLVED	1.3	SW846 6010B
SODIUM, TOTAL	12.2	SW846 6010B
SODIUM, DISSOLVED	12.6	SW846 6010B
SPEC. COND., FIELD (umhos/cm)	313	FIELD
SPEC. COND., LAB (umhos/cm)	272	EPA 120.1
SULFATE	3.6	EPA 300
ALKALINITY	27	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	202	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	0.59	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 5/23/2018

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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

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

T Please indicate detection limit if analyte is not detected.

I.D. No. 101389

Monitoring Point No. FFMP03AW

Sample Date 5/23/2018

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	7.2	SW846 6010B
COPPER, DISSOLVED	7.7	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	16	SW846 6010B

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

I.D. No 101389

Monitoring Point No. FFMP03AW

Sample Date 5/23/2018

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
CHLOROENZENE	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-DICHLOROENZENE	1 ND	SW846 8260B
1,3-DICHLOROENZENE	1 ND	SW846 8260B
1,4-DICHLOROENZENE	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 5/23/2018

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	12.1	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	10	SW846 6010B
THALLIUM	1.1 ND	SW846 6010B
VANADIUM	2.2 ND	SW846 6010B

T Please indicate detection limit if analyte is not detected.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT



Date Prepared/Revised
07/10/2018

DEP USE ONLY

Date Received

FORM 19
MUNICIPAL WASTE LANDFILL
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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

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

SECTION A. APPLICANT IDENTIFIER

Applicant/permittee: Lancaster County Solid Waste Mana

Site Name: Frey Farm Landfill

Facility ID (as issued by DEP): 101389

SECTION B. FACILITY INFORMATION

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

Monitoring Point Number: FFMP031W Well Spring Stream Other
 Upgradient/Upstream Downgradient/Downstream

Location (County): Lancaster County Municipality: MANOR TOWNSHIP

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

Depth to Water Level: 66 ft Measured from: Land Surface TOC

Casing Stickup: 2.38 ft Elevation of Water Level: 546.66 ft./MSL

Sampling Depth: 130 ft Volume of Water Column: 108.68 gal

Total Well Depth: 140 ft Sampling Method: Pumped Bailed Grab

Well Purged: Yes No Well Volumes Purged: 1.0

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

Spring Flow Rate: gpm

Sample Date (mm/dd/yy): 5/23/2018 Sample Collection Time: 13:57

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2316494004 Final Lab Analysis Completion Date: 6/6/2018

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

Comments:

I.D. No 101389

Monitoring Point No. FFMP031W

Sample Date 5/23/2018

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

ANALYTES

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

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.1 ND	SM20-4500D
BICARBONATE ALKALINITY	95	SM20-2320B
CALCIUM, TOTAL	47.2	SW846 6010B
CALCIUM, DISSOLVED	47.6	SW846 6010B
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	23	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	520	SW846 6010B
IRON, DISSOLVED (ug/l)	480	SW846 6010B
MAGNESIUM, TOTAL	4.3	SW846 6010B
MAGNESIUM, DISSOLVED	3.6	SW846 6010B
MANGANESE, TOTAL (ug/l)	190	SW846 6010B
MANGANESE, DISSOLVED (ug/l)	200	SW846 6010B
NITRATE-NITROGEN	0.68	EPA 300
pH-FIELD (SU)	7.6	FIELD
pH-LAB (SU)	7.5	SM20-4500B
POTASSIUM, TOTAL	1.5	SW846 6010B
POTASSIUM, DISSOLVED	1.3	SW846 6010B
SODIUM, TOTAL	10.7	SW846 6010B
SODIUM, DISSOLVED	9	SW846 6010B
SPEC. COND., FIELD (umhos/cm)	357	FIELD
SPEC. COND., LAB (umhos/cm)	303	EPA 120.1
SULFATE	43.3	EPA 300
ALKALINITY	95	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	191	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	0.5	SM20-5310B
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	4.36	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. FFMP031W

Sample Date 5/23/2018

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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

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

T Please indicate detection limit if analyte is not detected.

I.D. No. 101389

Monitoring Point No. FFMP031W

Sample Date 5/23/2018

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	28	SW846 6010B
BARIUM, DISSOLVED	28	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. FFMP031W

Sample Date 5/23/2018

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
CHLOROENZENE	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-DICHLOROENZENE	1 ND	SW846 8260B
1,3-DICHLOROENZENE	1 ND	SW846 8260B
1,4-DICHLOROENZENE	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. FFMP031W

Sample Date 5/23/2018

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.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT



Date Prepared/Revised
07/10/2018

DEP USE ONLY

Date Received

FORM 19
MUNICIPAL WASTE LANDFILL
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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

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

SECTION A. APPLICANT IDENTIFIER

Applicant/permittee: Lancaster County Solid Waste Mana

Site Name: Frey Farm Landfill

Facility ID (as issued by DEP): 101389

SECTION B. FACILITY INFORMATION

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

Monitoring Point Number: FFMP032W Well Spring Stream Other
 Upgradient/Upstream Downgradient/Downstream

Location (County): Lancaster County Municipality: MANOR TOWNSHIP

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

Depth to Water Level: 49.56 ft Measured from: Land Surface TOC

Casing Stickup: 2.06 ft Elevation of Water Level: 544.53 ft./MSL

Sampling Depth: 62 ft Volume of Water Column: 37.36 gal

Total Well Depth: 75 ft Sampling Method: Pumped Bailed Grab

Well Purged: Yes No Well Volumes Purged: 1.0

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

Spring Flow Rate: gpm

Sample Date (mm/dd/yy): 5/23/2018 Sample Collection Time: 14:29

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2316494005 Final Lab Analysis Completion Date: 6/6/2018

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

Comments: _____

I.D. No 101389

Monitoring Point No. FFMP032W

Sample Date 5/23/2018

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

ANALYTES

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

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	1.4	SM20-4500D
BICARBONATE ALKALINITY	73	SM20-2320B
CALCIUM, TOTAL	14.8	SW846 6010B
CALCIUM, DISSOLVED	15.2	SW846 6010B
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	22.1	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	11800	SW846 6010B
IRON, DISSOLVED (ug/l)	6500	SW846 6010B
MAGNESIUM, TOTAL	5.1	SW846 6010B
MAGNESIUM, DISSOLVED	5.3	SW846 6010B
MANGANESE, TOTAL (ug/l)	620	SW846 6010B
MANGANESE, DISSOLVED (ug/l)	630	SW846 6010B
NITRATE-NITROGEN	0.2 ND	EPA 300
pH-FIELD (SU)	6.8	FIELD
pH-LAB (SU)	7.05	SM20-4500B
POTASSIUM, TOTAL	1.3	SW846 6010B
POTASSIUM, DISSOLVED	1.3	SW846 6010B
SODIUM, TOTAL	14.5	SW846 6010B
SODIUM, DISSOLVED	14.8	SW846 6010B
SPEC. COND., FIELD (umhos/cm)	26	FIELD
SPEC. COND., LAB (umhos/cm)	183	EPA 120.1
SULFATE	2.8	EPA 300
ALKALINITY	73	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	82	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	1.2	SM20-5310B
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	261	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. FFMP032W

Sample Date 5/23/2018

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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

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

T Please indicate detection limit if analyte is not detected.

I.D. No. 101389

Monitoring Point No. FFMP032W

Sample Date 5/23/2018

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	5.6 ND	SW846 6010B
BARIUM, DISSOLVED	5.6 ND	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. FFMP032W

Sample Date 5/23/2018

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
CHLOROENZENE	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-DICHLOROENZENE	1 ND	SW846 8260B
1,3-DICHLOROENZENE	1 ND	SW846 8260B
1,4-DICHLOROENZENE	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. FFMP032W

Sample Date 5/23/2018

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	11.4	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.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT



Date Prepared/Revised
07/10/2018

DEP USE ONLY

Date Received

FORM 19
MUNICIPAL WASTE LANDFILL
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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

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

SECTION A. APPLICANT IDENTIFIER

Applicant/permittee: Lancaster County Solid Waste Mana

Site Name: Frey Farm Landfill

Facility ID (as issued by DEP): 101389

SECTION B. FACILITY INFORMATION

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

Monitoring Point Number: FFMP015W Well Spring Stream Other
 Upgradient/Upstream Downgradient/Downstream

Location (County): Lancaster County Municipality: Manor Township

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

Depth to Water Level: 61.2 ft Measured from: Land Surface TOC

Casing Stickup: 1.90 ft Elevation of Water Level: 515.20 ft./MSL

Sampling Depth: 135 ft Volume of Water Column: 128.80 gal

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

Well Purged: Yes No Well Volumes Purged: 1.0

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

Spring Flow Rate: gpm

Sample Date (mm/dd/yy): 5/24/2018 Sample Collection Time: 9:43

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2317107001 Final Lab Analysis Completion Date: 6/8/2018

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

Comments: _____

I.D. No 101389

Monitoring Point No. FFMP015W

Sample Date 5/24/2018

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

ANALYTES

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

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.431	SM20-4500D
BICARBONATE ALKALINITY	24	SM20-2320B
CALCIUM, TOTAL	9.5	SW846 6010B
CALCIUM, DISSOLVED	9.1	SW846 6010B
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	9.6	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	7.2	SW846 6010B
MAGNESIUM, DISSOLVED	6.9	SW846 6010B
MANGANESE, TOTAL (ug/l)	7.3	SW846 6010B
MANGANESE, DISSOLVED (ug/l)	6.3	SW846 6010B
NITRATE-NITROGEN	6.5	EPA 300
pH-FIELD (SU)	4.78	FIELD
pH-LAB (SU)	6.19	SM20-4500B
POTASSIUM, TOTAL	1.2	SW846 6010B
POTASSIUM, DISSOLVED	1.2	SW846 6010B
SODIUM, TOTAL	10.1	SW846 6010B
SODIUM, DISSOLVED	9.5	SW846 6010B
SPEC. COND., FIELD (umhos/cm)	186	FIELD
SPEC. COND., LAB (umhos/cm)	159	EPA 120.1
SULFATE	24.7	EPA 300
ALKALINITY	24	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	91	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	0.72	SM20-5310B
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	0.12	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. FFMP015W

Sample Date 5/24/2018

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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

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

T Please indicate detection limit if analyte is not detected.

I.D. No. 101389

Monitoring Point No. FFMP015W

Sample Date 5/24/2018

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	26	SW846 6010B
BARIUM, DISSOLVED	25	SW846 6010B
CADMIUM, TOTAL	1.1 ND	SW846 6010B
CADMIUM, DISSOLVED	1.1 ND	SW846 6010B
CHROMIUM, TOTAL	2.9	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	11	SW846 6010B

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

I.D. No 101389

Monitoring Point No. FFMP015W

Sample Date 5/24/2018

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
CHLOROENZENE	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-DICHLOROENZENE	1 ND	SW846 8260B
1,3-DICHLOROENZENE	1 ND	SW846 8260B
1,4-DICHLOROENZENE	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 5/24/2018

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.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT



Date Prepared/Revised
07/10/2018

DEP USE ONLY

Date Received

FORM 19
MUNICIPAL WASTE LANDFILL
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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

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

SECTION A. APPLICANT IDENTIFIER

Applicant/permittee: Lancaster County Solid Waste Mana

Site Name: Frey Farm Landfill

Facility ID (as issued by DEP): 101389

SECTION B. FACILITY INFORMATION

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

Monitoring Point Number: FFMP033W Well Spring Stream Other
 Upgradient/Upstream Downgradient/Downstream

Location (County): Lancaster County

Municipality: MANOR TOWNSHIP

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

Depth to Water Level: 17.73 ft Measured from: Land Surface TOC

Casing Stickup: 0.49 ft Elevation of Water Level: 498.79 ft./MSL

Sampling Depth: 79 ft Volume of Water Column: 114.95 gal

Total Well Depth: 96 ft Sampling Method: Pumped Bailed Grab

Well Purged: Yes No Well Volumes Purged: 1.0

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

Spring Flow Rate: gpm

Sample Date (mm/dd/yy): 5/24/2018 Sample Collection Time: 11:15

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2317107002 Final Lab Analysis Completion Date: 6/8/2018

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	0.876	SM20-4500D
BICARBONATE ALKALINITY	54	SM20-2320B
CALCIUM, TOTAL	24.3	SW846 6010B
CALCIUM, DISSOLVED	23.7	SW846 6010B
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	43.3	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	13000	SW846 6010B
IRON, DISSOLVED (ug/l)	7700	SW846 6010B
MAGNESIUM, TOTAL	10.1	SW846 6010B
MAGNESIUM, DISSOLVED	8.5	SW846 6010B
MANGANESE, TOTAL (ug/l)	790	SW846 6010B
MANGANESE, DISSOLVED (ug/l)	720	SW846 6010B
NITRATE-NITROGEN	10	EPA 300
pH-FIELD (SU)	5.81	FIELD
pH-LAB (SU)	6.42	SM20-4500B
POTASSIUM, TOTAL	1.7	SW846 6010B
POTASSIUM, DISSOLVED	1.4	SW846 6010B
SODIUM, TOTAL	15.7	SW846 6010B
SODIUM, DISSOLVED	13.2	SW846 6010B
SPEC. COND., FIELD (umhos/cm)	375	FIELD
SPEC. COND., LAB (umhos/cm)	313	EPA 120.1
SULFATE	7.1	EPA 300
ALKALINITY	54	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	147	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	0.64	SM20-5310B
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	74.8	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. FFMP033W

Sample Date 5/24/2018

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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

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

T Please indicate detection limit if analyte is not detected.

I.D. No. 101389

Monitoring Point No. FFMP033W

Sample Date 5/24/2018

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	46	SW846 6010B
BARIUM, DISSOLVED	45	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	6.5	SW846 6010B

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

I.D. No 101389

Monitoring Point No. FFMP033W

Sample Date 5/24/2018

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
CHLOROENZENE	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-DICHLOROENZENE	1 ND	SW846 8260B
1,3-DICHLOROENZENE	1 ND	SW846 8260B
1,4-DICHLOROENZENE	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. FFMP033W

Sample Date 5/24/2018

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.



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT

Date Prepared/Revised
07/10/2018

DEP USE ONLY

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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: FFMP02DW Well Spring Stream Other
 Upgradient/Upstream Downgradient/Downstream

Location (County): Lancaster County Municipality: MANOR TOWNSHIP

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

Depth to Water Level: 19.28 ft Measured from: Land Surface TOC

Casing Stickup: ft Elevation of Water Level: 490.32 ft./MSL

Sampling Depth: 120 ft Volume of Water Column: gal

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

Well Purged: Yes No Well Volumes Purged: 1.0

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

Spring Flow Rate: gpm

Sample Date (mm/dd/yy): 5/24/2018 Sample Collection Time: 12:59

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2317107003 Final Lab Analysis Completion Date: 6/8/2018

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

Comments:

I.D. No 101389

Monitoring Point No. FFMP02DW

Sample Date 5/24/2018

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

ANALYTES

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

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.309	SM20-4500D
BICARBONATE ALKALINITY	133	SM20-2320B
CALCIUM, TOTAL	101	SW846 6010B
CALCIUM, DISSOLVED	98.2	SW846 6010B
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	283	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	1000	SW846 6010B
IRON, DISSOLVED (ug/l)	260	SW846 6010B
MAGNESIUM, TOTAL	19	SW846 6010B
MAGNESIUM, DISSOLVED	17.1	SW846 6010B
MANGANESE, TOTAL (ug/l)	500	SW846 6010B
MANGANESE, DISSOLVED (ug/l)	480	SW846 6010B
NITRATE-NITROGEN	3.9	EPA 300
pH-FIELD (SU)	7.06	FIELD
pH-LAB (SU)	7.5	SM20-4500B
POTASSIUM, TOTAL	2	SW846 6010B
POTASSIUM, DISSOLVED	1.8	SW846 6010B
SODIUM, TOTAL	95.5	SW846 6010B
SODIUM, DISSOLVED	86.2	SW846 6010B
SPEC. COND., FIELD (umhos/cm)	1290	FIELD
SPEC. COND., LAB (umhos/cm)	1240	EPA 120.1
SULFATE	32.4	EPA 300
ALKALINITY	133	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	714	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	0.75	SM20-5310B
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	9.98	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. FFMP02DW

Sample Date 5/24/2018

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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

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

T Please indicate detection limit if analyte is not detected.

I.D. No. 101389

Monitoring Point No. FFMP02DW

Sample Date 5/24/2018

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	170	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. FFMP02DW

Sample Date 5/24/2018

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
CHLOROENZENE	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-DICHLOROENZENE	1 ND	SW846 8260B
1,3-DICHLOROENZENE	1 ND	SW846 8260B
1,4-DICHLOROENZENE	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. FFMP02DW

Sample Date 5/24/2018

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	11.3	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.

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT



Date Prepared/Revised
07/10/2018

DEP USE ONLY

Date Received

FORM 19
MUNICIPAL WASTE LANDFILL
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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

SECTION A. APPLICANT IDENTIFIER

Applicant/permittee: Lancaster County Solid Waste Mana

Site Name: Frey Farm Landfill

Facility ID (as issued by DEP): 101389

SECTION B. FACILITY INFORMATION

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

Monitoring Point Number: FFMP02SW Well Spring Stream Other
 Upgradient/Upstream Downgradient/Downstream

Location (County): Lancaster County Municipality: MANOR TOWNSHIP

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

Depth to Water Level: 14.1 ft Measured from: Land Surface TOC

Casing Stickup: ft Elevation of Water Level: 495.8 ft./MSL

Sampling Depth: 18 ft Volume of Water Column: gal

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

Well Purged: Yes No Well Volumes Purged: 1.1

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

Spring Flow Rate: gpm

Sample Date (mm/dd/yy): 5/24/2018 Sample Collection Time: 13:19

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2317107004 Final Lab Analysis Completion Date: 6/8/2018

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

Comments:

I.D. No 101389

Monitoring Point No. FFMP02SW

Sample Date 5/24/2018

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

ANALYTES

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

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.512	SM20-4500D
BICARBONATE ALKALINITY	20	SM20-2320B
CALCIUM, TOTAL	13.9	SW846 6010B
CALCIUM, DISSOLVED	12.8	SW846 6010B
COD (CHEMICAL OXYGEN DEMAND)	22	EPA 410.4
CHLORIDE	51.3	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	1900	SW846 6010B
IRON, DISSOLVED (ug/l)	88	SW846 6010B
MAGNESIUM, TOTAL	5.1	SW846 6010B
MAGNESIUM, DISSOLVED	4.7	SW846 6010B
MANGANESE, TOTAL (ug/l)	15	SW846 6010B
MANGANESE, DISSOLVED (ug/l)	7.1	SW846 6010B
NITRATE-NITROGEN	4.4	EPA 300
pH-FIELD (SU)	5.87	FIELD
pH-LAB (SU)	6.37	SM20-4500B
POTASSIUM, TOTAL	5.1	SW846 6010B
POTASSIUM, DISSOLVED	4.6	SW846 6010B
SODIUM, TOTAL	34.2	SW846 6010B
SODIUM, DISSOLVED	31.6	SW846 6010B
SPEC. COND., FIELD (umhos/cm)	314	FIELD
SPEC. COND., LAB (umhos/cm)	284	EPA 120.1
SULFATE	29.6	EPA 300
ALKALINITY	20	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	175	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	5.5	SM20-5310B
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	35.5	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. FFMP02SW

Sample Date 5/24/2018

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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

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

T Please indicate detection limit if analyte is not detected.

I.D. No. 101389

Monitoring Point No. FFMP02SW

Sample Date 5/24/2018

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	54	SW846 6010B
BARIUM, DISSOLVED	46	SW846 6010B
CADMIUM, TOTAL	1.1 ND	SW846 6010B
CADMIUM, DISSOLVED	1.1 ND	SW846 6010B
CHROMIUM, TOTAL	15	SW846 6010B
CHROMIUM, DISSOLVED	2.5	SW846 6010B
COPPER, TOTAL	14	SW846 6010B
COPPER, DISSOLVED	6.1	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	7.9	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. FFMP02SW

Sample Date 5/24/2018

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
CHLOROENZENE	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-DICHLOROENZENE	1 ND	SW846 8260B
1,3-DICHLOROENZENE	1 ND	SW846 8260B
1,4-DICHLOROENZENE	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. FFMP02SW

Sample Date 5/24/2018

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	6.6	SW846 6010B
NICKEL	9.8	SW846 6010B
THALLIUM	1.1 ND	SW846 6010B
VANADIUM	2.2 ND	SW846 6010B

T Please indicate detection limit if analyte is not detected.



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT

Date Prepared/Revised
07/10/2018

DEP USE ONLY

Date Received

FORM 19
MUNICIPAL WASTE LANDFILL
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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

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

SECTION A. APPLICANT IDENTIFIER

Applicant/permittee: Lancaster County Solid Waste Mana

Site Name: Frey Farm Landfill

Facility ID (as issued by DEP): 101389

SECTION B. FACILITY INFORMATION

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

Monitoring Point Number: FFMP001P Well Spring Stream Other
 Upgradient/Upstream Downgradient/Downstream

Location (County): Lancaster County Municipality: Manor Township

Sampling Point: Latitude: 39 ° 57 ' 20 " Longitude: 76 ° 27 ' 5 "

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

Casing Stickup: 0.00 ft Elevation of Water Level: #Error ft./MSL

Sampling Depth: 0 ft Volume of Water Column: #Error gal

Total Well Depth: 0 ft Sampling Method: Pumped Bailed Grab

Well Purged: Yes No Well Volumes Purged: _____

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

Spring Flow Rate: _____ gpm

Sample Date (mm/dd/yy): 5/24/2018 Sample Collection Time: 11:42

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2317107005 Final Lab Analysis Completion Date: 6/11/2018

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	0.754	SM20-4500D
BICARBONATE ALKALINITY	37	SM20-2320B
CALCIUM, TOTAL	48.5	SW846 6010B
CALCIUM, DISSOLVED	45.2	SW846 6010B
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	185	EPA 300
FLUORIDE	0.2 ND	EPA 300
IRON, TOTAL (ug/l)	3100	SW846 6010B
IRON, DISSOLVED (ug/l)	710	SW846 6010B
MAGNESIUM, TOTAL	16.4	SW846 6010B
MAGNESIUM, DISSOLVED	14.7	SW846 6010B
MANGANESE, TOTAL (ug/l)	380	SW846 6010B
MANGANESE, DISSOLVED (ug/l)	350	SW846 6010B
NITRATE-NITROGEN	9.5	EPA 300
pH-FIELD (SU)	6.18	FIELD
pH-LAB (SU)	6.83	SM20-4500B
POTASSIUM, TOTAL	12.7	SW846 6010B
POTASSIUM, DISSOLVED	12.4	SW846 6010B
SODIUM, TOTAL	79.3	SW846 6010B
SODIUM, DISSOLVED	70.8	SW846 6010B
SPEC. COND., FIELD (umhos/cm)	861	FIELD
SPEC. COND., LAB (umhos/cm)	896	EPA 120.1
SULFATE	52.2	EPA 300
ALKALINITY	37	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	492	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	2.1	SM20-5310B
TOTAL PHENOLICS (ug/l)	5 ND	SW846 9066
TURBIDITY (N.T.U.)	1.26	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. FFMP001P

Sample Date 5/24/2018

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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

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

T Please indicate detection limit if analyte is not detected.

I.D. No. 101389

Monitoring Point No. FFMP001P

Sample Date 5/24/2018

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	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	16	SW846 6010B

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

I.D. No 101389

Monitoring Point No. FFMP001P

Sample Date 5/24/2018

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
CHLOROENZENE	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-DICHLOROENZENE	1 ND	SW846 8260B
1,3-DICHLOROENZENE	1 ND	SW846 8260B
1,4-DICHLOROENZENE	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. FFMP001P

Sample Date 5/24/2018

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	11.6	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	14	SW846 6010B
THALLIUM	1.1 ND	SW846 6010B
VANADIUM	2.2 ND	SW846 6010B

T Please indicate detection limit if analyte is not detected.



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT

Date Prepared/Revised
07/10/2018

DEP USE ONLY

Date Received

FORM 19
MUNICIPAL WASTE LANDFILL
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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

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

SECTION A. APPLICANT IDENTIFIER

Applicant/permittee: Lancaster County Solid Waste Mana

Site Name: Frey Farm Landfill

Facility ID (as issued by DEP): 101389

SECTION B. FACILITY INFORMATION

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

Monitoring Point Number: FFMP016W Well Spring Stream Other
 Upgradient/Upstream Downgradient/Downstream

Location (County): Lancaster County

Municipality: Manor Township

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

Depth to Water Level: 19.21 ft Measured from: Land Surface TOC

Casing Stickup: 1.97 ft Elevation of Water Level: 455.39 ft./MSL

Sampling Depth: 135 ft Volume of Water Column: 191.79 gal

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

Well Purged: Yes No Well Volumes Purged: _____

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

Spring Flow Rate: _____ gpm

Sample Date (mm/dd/yy): 5/24/2018 Sample Collection Time: 13:40

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 2317107006 Final Lab Analysis Completion Date: 6/8/2018

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

Comments: _____

I.D. No 101389

Monitoring Point No. FFMP016W

Sample Date 5/24/2018

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

ANALYTES

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

ANALYTE	VALUE ^T	ANALYSIS METHOD NUMBER
AMMONIA-NITROGEN	0.371	SM20-4500D
BICARBONATE ALKALINITY	30	SM20-2320B
CALCIUM, TOTAL	29.8	SW846 6010B
CALCIUM, DISSOLVED	27.5	SW846 6010B
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	79	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	15.7	SW846 6010B
MAGNESIUM, DISSOLVED	14.1	SW846 6010B
MANGANESE, TOTAL (ug/l)	20	SW846 6010B
MANGANESE, DISSOLVED (ug/l)	16	SW846 6010B
NITRATE-NITROGEN	8.1	EPA 300
pH-FIELD (SU)	5.73	FIELD
pH-LAB (SU)	6.21	SM20-4500B
POTASSIUM, TOTAL	2.1	SW846 6010B
POTASSIUM, DISSOLVED	1.9	SW846 6010B
SODIUM, TOTAL	25.3	SW846 6010B
SODIUM, DISSOLVED	22.6	SW846 6010B
SPEC. COND., FIELD (umhos/cm)	477	FIELD
SPEC. COND., LAB (umhos/cm)	452	EPA 120.1
SULFATE	34.7	EPA 300
ALKALINITY	30	SM20-2320B
TDS (TOT. DISSOLVED SOLIDS)	240	SM20-2540C
TOC (TOTAL ORGANIC CARBON)	1.4	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 5/24/2018

FORM 19
QUARTERLY AND ANNUAL WATER QUALITY ANALYSES

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

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

T Please indicate detection limit if analyte is not detected.

I.D. No. 101389

Monitoring Point No. FFMP016W

Sample Date 5/24/2018

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	58	SW846 6010B
BARIUM, DISSOLVED	54	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	10	SW846 6010B
ZINC, DISSOLVED	9.3	SW846 6010B

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

I.D. No 101389

Monitoring Point No. FFMP016W

Sample Date 5/24/2018

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
CHLOROENZENE	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-DICHLOROENZENE	1 ND	SW846 8260B
1,3-DICHLOROENZENE	1 ND	SW846 8260B
1,4-DICHLOROENZENE	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 5/24/2018

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.

June 12, 2018

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

Certificate of Analysis

Project Name:	FREY FARM	Workorder:	2317107
Purchase Order:	PO1000126	Workorder ID:	2ND QTR 2018 FFMP-FORM 19A

Dear Mr. Brown:

Enclosed are the analytical results for samples received by the laboratory on Thursday, May 24, 2018.

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

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

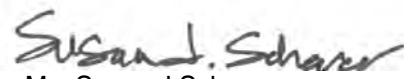
Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications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

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

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

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

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



Ms. Susan J Scherer
Project Coordinator

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SAMPLE SUMMARY

Workorder: 2317107 2ND QTR 2018 FFMP-FORM 19A

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2317107001	FFMP015W	Ground Water	5/24/2018 09:43	5/24/2018 15:21	Mr. Brian G Shade
2317107002	FFMP033W	Ground Water	5/24/2018 11:15	5/24/2018 15:21	Mr. Brian G Shade
2317107003	FFMP02DW	Ground Water	5/24/2018 12:59	5/24/2018 15:21	Mr. Brian G Shade
2317107004	FFMP02SW	Ground Water	5/24/2018 13:19	5/24/2018 15:21	Mr. Brian G Shade
2317107005	FFMP001P	Ground Water	5/24/2018 11:42	5/24/2018 15:21	Mr. Brian G Shade
2317107006	FFMP016W	Ground Water	5/24/2018 13:40	5/24/2018 15:21	Mr. Brian G Shade
2317107007	FIELD BLANK	Water	5/24/2018 13:45	5/24/2018 15:21	Mr. Brian G Shade
2317107008	TRIP BLANK	Water	5/24/2018 15:21	5/24/2018 15:21	Mr. Brian G Shade

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SAMPLE SUMMARY

Workorder: 2317107 2ND QTR 2018 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: 2317107 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2317107001**

Date Collected: 5/24/2018 09:43

Matrix: Ground Water

Sample ID: **FFMP015W**

Date Received: 5/24/2018 15:21

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Acetone	ND		ug/L	10.0	SW846 8260B			6/1/18 15:27	TMP	J
Acrylonitrile	ND		ug/L	5.0	SW846 8260B			6/1/18 15:27	TMP	J
Benzene	ND		ug/L	1.0	SW846 8260B			6/1/18 15:27	TMP	J
Bromochloromethane	ND		ug/L	1.0	SW846 8260B			6/1/18 15:27	TMP	J
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B			6/1/18 15:27	TMP	J
Bromoform	ND		ug/L	1.0	SW846 8260B			6/1/18 15:27	TMP	J
Bromomethane	ND		ug/L	1.0	SW846 8260B			6/1/18 15:27	TMP	J
2-Butanone	ND		ug/L	10.0	SW846 8260B			6/1/18 15:27	TMP	J
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B			6/1/18 15:27	TMP	J
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B			6/1/18 15:27	TMP	J
Chlorobenzene	ND		ug/L	1.0	SW846 8260B			6/1/18 15:27	TMP	J
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B			6/1/18 15:27	TMP	J
Chloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 15:27	TMP	J
Chloroform	ND		ug/L	1.0	SW846 8260B			6/1/18 15:27	TMP	J
Chloromethane	ND		ug/L	1.0	SW846 8260B			6/1/18 15:27	TMP	J
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B			6/1/18 15:27	TMP	J
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B			6/1/18 15:27	TMP	J
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			6/1/18 15:27	TMP	J
Dibromomethane	ND		ug/L	1.0	SW846 8260B			6/1/18 15:27	TMP	J
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B			6/1/18 15:27	TMP	J
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			6/1/18 15:27	TMP	J
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			6/1/18 15:27	TMP	J
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			6/1/18 15:27	TMP	J
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B			6/1/18 15:27	TMP	J
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 15:27	TMP	J
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 15:27	TMP	J
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 15:27	TMP	J
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 15:27	TMP	J
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 15:27	TMP	J
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B			6/1/18 15:27	TMP	J
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			6/1/18 15:27	TMP	J
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			6/1/18 15:27	TMP	J
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			6/1/18 15:27	TMP	J
2-Hexanone	ND		ug/L	5.0	SW846 8260B			6/1/18 15:27	TMP	J
Iodomethane	ND		ug/L	1.0	SW846 8260B			6/1/18 15:27	TMP	J
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B			6/1/18 15:27	TMP	J

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ANALYTICAL RESULTS

Workorder: 2317107 2ND QTR 2018 FFMP-FORM 19A

Lab ID: 2317107001 **Date Collected:** 5/24/2018 09:43 **Matrix:** Ground Water
Sample ID: FFMP015W **Date Received:** 5/24/2018 15:21

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			6/1/18 15:27	TMP	J
Styrene	ND	3	ug/L	1.0	SW846 8260B			6/1/18 15:27	TMP	J
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 15:27	TMP	J
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 15:27	TMP	J
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 15:27	TMP	J
Toluene	ND		ug/L	1.0	SW846 8260B			6/1/18 15:27	TMP	J
Total Xylenes	ND		ug/L	3.0	SW846 8260B			6/1/18 15:27	TMP	J
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 15:27	TMP	J
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 15:27	TMP	J
Trichloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 15:27	TMP	J
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			6/1/18 15:27	TMP	J
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			6/1/18 15:27	TMP	J
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			6/1/18 15:27	TMP	J
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			6/1/18 15:27	TMP	J
Surrogate Recoveries	Results	Flag	Units	Limits	Method	Prepared	By	Analyzed	By	Cntr
1,2-Dichloroethane-d4 (S)	101		%	62 - 133	SW846 8260B			6/1/18 15:27	TMP	J
4-Bromofluorobenzene (S)	100		%	79 - 114	SW846 8260B			6/1/18 15:27	TMP	J
Dibromofluoromethane (S)	94		%	78 - 116	SW846 8260B			6/1/18 15:27	TMP	J
Toluene-d8 (S)	98.1		%	76 - 127	SW846 8260B			6/1/18 15:27	TMP	J

LIBRARY SEARCH - VOLATILES

No TIC's Detected Lib Search VOC 6/1/18 15:27 CPK J

WET CHEMISTRY

Alkalinity, Bicarbonate	24		mg/L	5	S2320B-97			6/1/18 02:45	MSA	B
Alkalinity, Total	24	1	mg/L	5	S2320B-97			6/1/18 02:45	MSA	B
Ammonia-N	0.431		mg/L	0.100	D6919-09			6/8/18 00:53	TES	C
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4			6/5/18 16:17	AK	C
Chloride	9.6		mg/L	2.0	EPA 300.0			5/25/18 15:09	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			5/25/18 15:09	CHW	B
Nitrate-N	6.5		mg/L	0.20	EPA 300.0			5/25/18 15:09	CHW	B
pH	6.19	2	pH_Units		S4500HB-11			6/1/18 02:45	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	6/5/18 17:14	C_D	6/6/18 14:17	C_D	I
Specific Conductance	159		umhos/cm	1	S2510B-97			6/1/18 02:45	MSA	B
Sulfate	24.7		mg/L	2.0	EPA 300.0			5/25/18 15:09	CHW	B
Total Dissolved Solids	91		mg/L	5	S2540C-11			5/31/18 11:00	BMK	B
Total Organic Carbon (TOC)	0.72		mg/L	0.50	S5310B-00			5/29/18 12:08	PAG	G
Turbidity	0.12		NTU	0.10	S2130B-01			5/25/18 04:12	MSA	B

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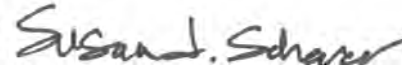
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ANALYTICAL RESULTS

Workorder: 2317107 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2317107001** Date Collected: 5/24/2018 09:43 Matrix: Ground Water
Sample ID: **FFMP015W** Date Received: 5/24/2018 15:21

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Zinc, Dissolved	0.011		mg/L	0.0056	SW846 6020A	5/31/18 15:20	AHI	6/5/18 14:57	MO	D1
FIELD PARAMETERS										
Depth to Water Level	61.200		Feet		Field			5/24/18 09:43	BGS	F
Elev Top MW Casing above MSL	576.40		Feet		Field			5/24/18 09:43	BGS	F
Flow Rate	1.78		gal/min		Field			5/24/18 09:43	BGS	F
Ground Water Elevation	515.200		ft/MSL		Field			5/24/18 09:43	BGS	F
pH, Field (SM4500B)	4.780		pH_Units		Field			5/24/18 09:43	BGS	F
Sample Depth	135.000		Feet		Field			5/24/18 09:43	BGS	F
Specific Conductance, Field	186		umhos/cm	1	Field			5/24/18 09:43	BGS	F
Temperature	12.20		Deg. C		Field			5/24/18 09:43	BGS	F
Total Well Depth	149.900		Feet		Field			5/24/18 09:43	BGS	F
Volume in Water Column	130.389		Gallons		Field			5/24/18 09:43	BGS	F
Water Level After Purge	105.640		Feet		Field			5/24/18 09:43	BGS	F
Well Volumes Purged	1.00		Vol		Field			5/24/18 09:43	BGS	F



Ms. Susan J Scherer
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2317107 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2317107002**

Date Collected: 5/24/2018 11:15

Matrix: Ground Water

Sample ID: **FFMP033W**

Date Received: 5/24/2018 15:21

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Acetone	ND		ug/L	10.0	SW846 8260B			6/1/18 15:50	TMP	J
Acrylonitrile	ND		ug/L	5.0	SW846 8260B			6/1/18 15:50	TMP	J
Benzene	ND		ug/L	1.0	SW846 8260B			6/1/18 15:50	TMP	J
Bromochloromethane	ND		ug/L	1.0	SW846 8260B			6/1/18 15:50	TMP	J
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B			6/1/18 15:50	TMP	J
Bromoform	ND		ug/L	1.0	SW846 8260B			6/1/18 15:50	TMP	J
Bromomethane	ND		ug/L	1.0	SW846 8260B			6/1/18 15:50	TMP	J
2-Butanone	ND		ug/L	10.0	SW846 8260B			6/1/18 15:50	TMP	J
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B			6/1/18 15:50	TMP	J
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B			6/1/18 15:50	TMP	J
Chlorobenzene	ND		ug/L	1.0	SW846 8260B			6/1/18 15:50	TMP	J
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B			6/1/18 15:50	TMP	J
Chloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 15:50	TMP	J
Chloroform	ND		ug/L	1.0	SW846 8260B			6/1/18 15:50	TMP	J
Chloromethane	ND		ug/L	1.0	SW846 8260B			6/1/18 15:50	TMP	J
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B			6/1/18 15:50	TMP	J
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B			6/1/18 15:50	TMP	J
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			6/1/18 15:50	TMP	J
Dibromomethane	ND		ug/L	1.0	SW846 8260B			6/1/18 15:50	TMP	J
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B			6/1/18 15:50	TMP	J
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			6/1/18 15:50	TMP	J
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			6/1/18 15:50	TMP	J
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			6/1/18 15:50	TMP	J
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B			6/1/18 15:50	TMP	J
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 15:50	TMP	J
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 15:50	TMP	J
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 15:50	TMP	J
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 15:50	TMP	J
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 15:50	TMP	J
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B			6/1/18 15:50	TMP	J
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			6/1/18 15:50	TMP	J
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			6/1/18 15:50	TMP	J
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			6/1/18 15:50	TMP	J
2-Hexanone	ND		ug/L	5.0	SW846 8260B			6/1/18 15:50	TMP	J
Iodomethane	ND		ug/L	1.0	SW846 8260B			6/1/18 15:50	TMP	J
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B			6/1/18 15:50	TMP	J

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ANALYTICAL RESULTS

Workorder: 2317107 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2317107002** Date Collected: 5/24/2018 11:15 Matrix: Ground Water
Sample ID: **FFMP033W** Date Received: 5/24/2018 15:21

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			6/1/18 15:50	TMP	J
Styrene	ND	3	ug/L	1.0	SW846 8260B			6/1/18 15:50	TMP	J
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 15:50	TMP	J
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 15:50	TMP	J
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 15:50	TMP	J
Toluene	ND		ug/L	1.0	SW846 8260B			6/1/18 15:50	TMP	J
Total Xylenes	ND		ug/L	3.0	SW846 8260B			6/1/18 15:50	TMP	J
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 15:50	TMP	J
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 15:50	TMP	J
Trichloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 15:50	TMP	J
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			6/1/18 15:50	TMP	J
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			6/1/18 15:50	TMP	J
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			6/1/18 15:50	TMP	J
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			6/1/18 15:50	TMP	J

Surrogate Recoveries	Results	Flag	Units	Limits	Method	Prepared	By	Analyzed	By	Cntr
1,2-Dichloroethane-d4 (S)	101		%	62 - 133	SW846 8260B			6/1/18 15:50	TMP	J
4-Bromofluorobenzene (S)	101		%	79 - 114	SW846 8260B			6/1/18 15:50	TMP	J
Dibromofluoromethane (S)	94.5		%	78 - 116	SW846 8260B			6/1/18 15:50	TMP	J
Toluene-d8 (S)	97		%	76 - 127	SW846 8260B			6/1/18 15:50	TMP	J

LIBRARY SEARCH - VOLATILES

No TIC's Detected . Lib Search VOC 6/1/18 15:50 CPK J

WET CHEMISTRY

Alkalinity, Bicarbonate	54		mg/L	5	S2320B-97			6/1/18 03:12	MSA	B
Alkalinity, Total	54	1	mg/L	5	S2320B-97			6/1/18 03:12	MSA	B
Ammonia-N	0.876		mg/L	0.100	D6919-09			6/8/18 01:08	TES	C
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4			6/5/18 16:17	AK	C
Chloride	43.3		mg/L	2.0	EPA 300.0			5/25/18 15:23	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			5/25/18 15:23	CHW	B
Nitrate-N	10		mg/L	0.20	EPA 300.0			5/25/18 15:23	CHW	B
pH	6.42	2	pH_Units		S4500HB-11			6/1/18 03:12	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	6/5/18 17:14	C_D	6/6/18 14:17	C_D	I
Specific Conductance	313		umhos/cm	1	S2510B-97			6/1/18 03:12	MSA	B
Sulfate	7.1		mg/L	2.0	EPA 300.0			5/25/18 15:23	CHW	B
Total Dissolved Solids	147		mg/L	5	S2540C-11			5/31/18 11:00	BMK	B
Total Organic Carbon (TOC)	0.64		mg/L	0.50	S5310B-00			5/29/18 12:08	PAG	G
Turbidity	74.8		NTU	0.10	S2130B-01			5/25/18 04:12	MSA	B

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ANALYTICAL RESULTS

Workorder: 2317107 2ND QTR 2018 FFMP-FORM 19A

Lab ID: 2317107002 **Date Collected:** 5/24/2018 11:15 **Matrix:** Ground Water
Sample ID: FFMP033W **Date Received:** 5/24/2018 15:21

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Antimony, Total	ND		mg/L	0.0022	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:50	MO	E1
Arsenic, Total	ND		mg/L	0.0033	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:50	MO	E1
Arsenic, Dissolved	ND		mg/L	0.0030	SW846 6020A	5/31/18 15:20	AHI	6/5/18 15:01	MO	D1
Barium, Total	0.046		mg/L	0.0056	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:50	MO	E1
Barium, Dissolved	0.045		mg/L	0.0056	SW846 6020A	5/31/18 15:20	AHI	6/5/18 15:01	MO	D1
Beryllium, Total	ND		mg/L	0.0011	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:50	MO	E1
Cadmium, Total	ND		mg/L	0.0011	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:50	MO	E1
Cadmium, Dissolved	ND		mg/L	0.0011	SW846 6020A	5/31/18 15:20	AHI	6/5/18 15:01	MO	D1
Calcium, Total	24.3		mg/L	0.11	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:50	MO	E1
Calcium, Dissolved	23.7		mg/L	0.11	SW846 6020A	5/31/18 15:20	AHI	6/5/18 15:01	MO	D1
Chromium, Total	ND		mg/L	0.0022	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:50	MO	E1
Chromium, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/31/18 15:20	AHI	6/5/18 15:01	MO	D1
Cobalt, Total	ND		mg/L	0.0056	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:50	MO	E1
Copper, Total	ND		mg/L	0.0056	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:50	MO	E1
Copper, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/31/18 15:20	AHI	6/5/18 15:01	MO	D1
Iron, Total	13.0		mg/L	0.056	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:50	MO	E1
Iron, Dissolved	7.7		mg/L	0.056	SW846 6020A	5/31/18 15:20	AHI	6/5/18 15:01	MO	D1
Lead, Total	ND		mg/L	0.0022	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:50	MO	E1
Lead, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/31/18 15:20	AHI	6/5/18 15:01	MO	D1
Magnesium, Total	10.1		mg/L	0.11	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:50	MO	E1
Magnesium, Dissolved	8.5		mg/L	0.11	SW846 6020A	5/31/18 15:20	AHI	6/5/18 15:01	MO	D1
Manganese, Total	0.79		mg/L	0.0056	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:50	MO	E1
Manganese, Dissolved	0.72		mg/L	0.0056	SW846 6020A	5/31/18 15:20	AHI	6/5/18 15:01	MO	D1
Mercury, Total	ND		mg/L	0.00050	SW846 7470A	6/1/18 08:30	MNP	6/1/18 11:50	MNP	E2
Mercury, Dissolved	ND		mg/L	0.00050	SW846 7470A	6/6/18 11:30	AXC	6/6/18 15:34	AXC	D2
Nickel, Total	ND		mg/L	0.0056	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:50	MO	E1
Potassium, Total	1.7		mg/L	0.11	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:50	MO	E1
Potassium, Dissolved	1.4		mg/L	0.11	SW846 6020A	5/31/18 15:20	AHI	6/5/18 15:01	MO	D1
Selenium, Total	ND		mg/L	0.0056	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:50	MO	E1
Selenium, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/31/18 15:20	AHI	6/5/18 15:01	MO	D1
Silver, Total	ND		mg/L	0.0022	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:50	MO	E1
Silver, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/31/18 15:20	AHI	6/5/18 15:01	MO	D1
Sodium, Total	15.7		mg/L	0.11	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:50	MO	E1
Sodium, Dissolved	13.2		mg/L	0.11	SW846 6020A	5/31/18 15:20	AHI	6/5/18 15:01	MO	D1
Thallium, Total	ND		mg/L	0.0011	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:50	MO	E1
Vanadium, Total	ND		mg/L	0.0022	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:50	MO	E1
Zinc, Total	ND		mg/L	0.0056	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:50	MO	E1

ALS Environmental Laboratory Locations Across North America

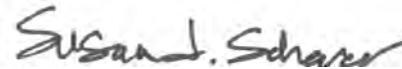
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ANALYTICAL RESULTS

Workorder: 2317107 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2317107002** Date Collected: 5/24/2018 11:15 Matrix: Ground Water
Sample ID: **FFMP033W** Date Received: 5/24/2018 15:21

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Zinc, Dissolved	0.0065		mg/L	0.0056	SW846 6020A	5/31/18 15:20	AHI	6/5/18 15:01	MO	D1
FIELD PARAMETERS										
Depth to Water Level	17.730		Feet		Field			5/24/18 11:15	BGS	F
Elev Top MW Casing above MSL	516.52		Feet		Field			5/24/18 11:15	BGS	F
Flow Rate	1.71		gal/min		Field			5/24/18 11:15	BGS	F
Ground Water Elevation	498.790		ft/MSL		Field			5/24/18 11:15	BGS	F
pH, Field (SM4500B)	5.810		pH_Units		Field			5/24/18 11:15	BGS	F
Sample Depth	79.000		Feet		Field			5/24/18 11:15	BGS	F
Specific Conductance, Field	375		umhos/cm	1	Field			5/24/18 11:15	BGS	F
Temperature	12.58		Deg. C		Field			5/24/18 11:15	BGS	F
Total Well Depth	100.000		Feet		Field			5/24/18 11:15	BGS	F
Volume in Water Column	120.937		Gallons		Field			5/24/18 11:15	BGS	F
Water Level After Purge	21.800		Feet		Field			5/24/18 11:15	BGS	F
Well Volumes Purged	1.00		Vol		Field			5/24/18 11:15	BGS	F



Ms. Susan J Scherer
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2317107 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2317107003**

Date Collected: 5/24/2018 12:59

Matrix: Ground Water

Sample ID: **FFMP02DW**

Date Received: 5/24/2018 15:21

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			6/1/18 16:13	TMP	J
Styrene	ND	3	ug/L	1.0	SW846 8260B			6/1/18 16:13	TMP	J
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 16:13	TMP	J
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 16:13	TMP	J
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 16:13	TMP	J
Toluene	ND		ug/L	1.0	SW846 8260B			6/1/18 16:13	TMP	J
Total Xylenes	ND		ug/L	3.0	SW846 8260B			6/1/18 16:13	TMP	J
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 16:13	TMP	J
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 16:13	TMP	J
Trichloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 16:13	TMP	J
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			6/1/18 16:13	TMP	J
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			6/1/18 16:13	TMP	J
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			6/1/18 16:13	TMP	J
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			6/1/18 16:13	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)	102		%	62 - 133	SW846 8260B			6/1/18 16:13	TMP	J
4-Bromofluorobenzene (S)	101		%	79 - 114	SW846 8260B			6/1/18 16:13	TMP	J
Dibromofluoromethane (S)	96.4		%	78 - 116	SW846 8260B			6/1/18 16:13	TMP	J
Toluene-d8 (S)	100		%	76 - 127	SW846 8260B			6/1/18 16:13	TMP	J

LIBRARY SEARCH - VOLATILES

No TIC's Detected . Lib Search VOC 6/1/18 16:13 CPK J

WET CHEMISTRY

Alkalinity, Bicarbonate	133		mg/L	5	S2320B-97			6/1/18 03:21	MSA	B
Alkalinity, Total	133	1	mg/L	5	S2320B-97			6/1/18 03:21	MSA	B
Ammonia-N	0.309		mg/L	0.100	D6919-09			6/8/18 01:23	TES	C
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4			6/5/18 16:17	AK	C
Chloride	283		mg/L	5.0	EPA 300.0			5/30/18 15:00	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			5/25/18 16:55	CHW	B
Nitrate-N	3.9		mg/L	0.20	EPA 300.0			5/25/18 16:55	CHW	B
pH	7.50	2	pH_Units		S4500HB-11			6/1/18 03:21	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	6/5/18 17:14	C_D	6/6/18 14:17	C_D	I
Specific Conductance	1240		umhos/cm	1	S2510B-97			6/1/18 03:21	MSA	B
Sulfate	32.4		mg/L	2.0	EPA 300.0			5/25/18 16:55	CHW	B
Total Dissolved Solids	714		mg/L	5	S2540C-11			5/31/18 11:00	BMK	B
Total Organic Carbon (TOC)	0.75		mg/L	0.50	S5310B-00			5/29/18 12:08	PAG	G
Turbidity	9.98		NTU	0.10	S2130B-01			5/25/18 04:12	MSA	B

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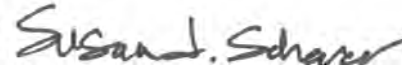
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ANALYTICAL RESULTS

Workorder: 2317107 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2317107003** Date Collected: 5/24/2018 12:59 Matrix: Ground Water
Sample ID: **FFMP02DW** Date Received: 5/24/2018 15:21

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Zinc, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/31/18 15:20	AHI	6/5/18 15:04	MO	D1
FIELD PARAMETERS										
Depth to Water Level	19.280		Feet		Field			5/24/18 12:59	BGS	F
Elev Top MW Casing above MSL	509.60		Feet		Field			5/24/18 12:59	BGS	F
Flow Rate	1.35		gal/min		Field			5/24/18 12:59	BGS	F
Ground Water Elevation	490.320		ft/MSL		Field			5/24/18 12:59	BGS	F
pH, Field (SM4500B)	7.060		pH_Units		Field			5/24/18 12:59	BGS	F
Sample Depth	120.000		Feet		Field			5/24/18 12:59	BGS	F
Specific Conductance, Field	1290		umhos/cm	1	Field			5/24/18 12:59	BGS	F
Temperature	11.36		Deg. C		Field			5/24/18 12:59	BGS	F
Total Well Depth	153.000		Feet		Field			5/24/18 12:59	BGS	F
Volume in Water Column	196.568		Gallons		Field			5/24/18 12:59	BGS	F
Water Level After Purge	51.190		Feet		Field			5/24/18 12:59	BGS	F
Well Volumes Purged	1.00		Vol		Field			5/24/18 12:59	BGS	F



Ms. Susan J Scherer
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2317107 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2317107004**

Date Collected: 5/24/2018 13:19

Matrix: Ground Water

Sample ID: **FFMP02SW**

Date Received: 5/24/2018 15:21

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Acetone	ND		ug/L	10.0	SW846 8260B			6/1/18 16:36	TMP	J
Acrylonitrile	ND		ug/L	5.0	SW846 8260B			6/1/18 16:36	TMP	J
Benzene	ND		ug/L	1.0	SW846 8260B			6/1/18 16:36	TMP	J
Bromochloromethane	ND		ug/L	1.0	SW846 8260B			6/1/18 16:36	TMP	J
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B			6/1/18 16:36	TMP	J
Bromoform	ND		ug/L	1.0	SW846 8260B			6/1/18 16:36	TMP	J
Bromomethane	ND		ug/L	1.0	SW846 8260B			6/1/18 16:36	TMP	J
2-Butanone	ND		ug/L	10.0	SW846 8260B			6/1/18 16:36	TMP	J
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B			6/1/18 16:36	TMP	J
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B			6/1/18 16:36	TMP	J
Chlorobenzene	ND		ug/L	1.0	SW846 8260B			6/1/18 16:36	TMP	J
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B			6/1/18 16:36	TMP	J
Chloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 16:36	TMP	J
Chloroform	ND		ug/L	1.0	SW846 8260B			6/1/18 16:36	TMP	J
Chloromethane	ND		ug/L	1.0	SW846 8260B			6/1/18 16:36	TMP	J
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B			6/1/18 16:36	TMP	J
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B			6/1/18 16:36	TMP	J
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			6/1/18 16:36	TMP	J
Dibromomethane	ND		ug/L	1.0	SW846 8260B			6/1/18 16:36	TMP	J
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B			6/1/18 16:36	TMP	J
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			6/1/18 16:36	TMP	J
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			6/1/18 16:36	TMP	J
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			6/1/18 16:36	TMP	J
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B			6/1/18 16:36	TMP	J
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 16:36	TMP	J
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 16:36	TMP	J
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 16:36	TMP	J
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 16:36	TMP	J
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 16:36	TMP	J
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B			6/1/18 16:36	TMP	J
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			6/1/18 16:36	TMP	J
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			6/1/18 16:36	TMP	J
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			6/1/18 16:36	TMP	J
2-Hexanone	ND		ug/L	5.0	SW846 8260B			6/1/18 16:36	TMP	J
Iodomethane	ND		ug/L	1.0	SW846 8260B			6/1/18 16:36	TMP	J
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B			6/1/18 16:36	TMP	J

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ANALYTICAL RESULTS

Workorder: 2317107 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2317107004** Date Collected: 5/24/2018 13:19 Matrix: Ground Water
Sample ID: **FFMP02SW** Date Received: 5/24/2018 15:21

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			6/1/18 16:36	TMP	J
Styrene	ND	3	ug/L	1.0	SW846 8260B			6/1/18 16:36	TMP	J
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 16:36	TMP	J
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 16:36	TMP	J
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 16:36	TMP	J
Toluene	ND		ug/L	1.0	SW846 8260B			6/1/18 16:36	TMP	J
Total Xylenes	ND		ug/L	3.0	SW846 8260B			6/1/18 16:36	TMP	J
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 16:36	TMP	J
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 16:36	TMP	J
Trichloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 16:36	TMP	J
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			6/1/18 16:36	TMP	J
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			6/1/18 16:36	TMP	J
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			6/1/18 16:36	TMP	J
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			6/1/18 16:36	TMP	J
Surrogate Recoveries	Results	Flag	Units	Limits	Method	Prepared	By	Analyzed	By	Cntr
1,2-Dichloroethane-d4 (S)	101		%	62 - 133	SW846 8260B			6/1/18 16:36	TMP	J
4-Bromofluorobenzene (S)	101		%	79 - 114	SW846 8260B			6/1/18 16:36	TMP	J
Dibromofluoromethane (S)	97.6		%	78 - 116	SW846 8260B			6/1/18 16:36	TMP	J
Toluene-d8 (S)	98.3		%	76 - 127	SW846 8260B			6/1/18 16:36	TMP	J

LIBRARY SEARCH - VOLATILES

No TIC's Detected . Lib Search VOC 6/1/18 16:36 CPK J

WET CHEMISTRY

Alkalinity, Bicarbonate	20		mg/L	5	S2320B-97			6/1/18 03:29	MSA	B
Alkalinity, Total	20	1	mg/L	5	S2320B-97			6/1/18 03:29	MSA	B
Ammonia-N	0.512		mg/L	0.100	D6919-09			6/8/18 01:38	TES	C
Chemical Oxygen Demand (COD)	22		mg/L	15	EPA 410.4			6/5/18 16:17	AK	C
Chloride	51.3		mg/L	2.0	EPA 300.0			5/25/18 17:08	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			5/25/18 17:08	CHW	B
Nitrate-N	4.4		mg/L	0.20	EPA 300.0			5/25/18 17:08	CHW	B
pH	6.37	2	pH_Units		S4500HB-11			6/1/18 03:29	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	6/5/18 17:14	C_D	6/6/18 14:17	C_D	I
Specific Conductance	284		umhos/cm	1	S2510B-97			6/1/18 03:29	MSA	B
Sulfate	29.6		mg/L	2.0	EPA 300.0			5/25/18 17:08	CHW	B
Total Dissolved Solids	175		mg/L	5	S2540C-11			5/31/18 11:00	BMK	B
Total Organic Carbon (TOC)	5.5		mg/L	0.50	S5310B-00			5/31/18 13:53	PAG	G
Turbidity	35.5		NTU	0.10	S2130B-01			5/25/18 04:12	MSA	B

ALS Environmental Laboratory Locations Across North America

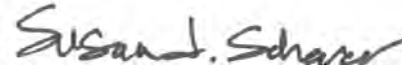
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ANALYTICAL RESULTS

Workorder: 2317107 2ND QTR 2018 FFMP-FORM 19A

 Lab ID: **2317107004** Date Collected: 5/24/2018 13:19 Matrix: Ground Water
 Sample ID: **FFMP02SW** Date Received: 5/24/2018 15:21

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Zinc, Dissolved	0.0069		mg/L	0.0056	SW846 6020A	5/31/18 15:20	AHI	6/5/18 15:08	MO	D1
FIELD PARAMETERS										
Depth to Water Level	14.100		Feet		Field			5/24/18 13:19	BGS	F
Elev Top MW Casing above MSL	509.90		Feet		Field			5/24/18 13:19	BGS	F
Flow Rate	1.00		gal/min		Field			5/24/18 13:19	BGS	F
Ground Water Elevation	495.800		ft/MSL		Field			5/24/18 13:19	BGS	F
pH, Field (SM4500B)	5.870		pH_Units		Field			5/24/18 13:19	BGS	F
Sample Depth	18.000		Feet		Field			5/24/18 13:19	BGS	F
Specific Conductance, Field	314		umhos/cm	1	Field			5/24/18 13:19	BGS	F
Temperature	10.78		Deg. C		Field			5/24/18 13:19	BGS	F
Total Well Depth	22.700		Feet		Field			5/24/18 13:19	BGS	F
Volume in Water Column	5.590		Gallons		Field			5/24/18 13:19	BGS	F
Water Level After Purge	17.320		Feet		Field			5/24/18 13:19	BGS	F
Well Volumes Purged	1.07		Vol		Field			5/24/18 13:19	BGS	F



 Ms. Susan J Scherer
 Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2317107 2ND QTR 2018 FFMP-FORM 19A

Lab ID: 2317107005 **Date Collected:** 5/24/2018 11:42 **Matrix:** Ground Water
Sample ID: FFMP001P **Date Received:** 5/24/2018 15:21

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Acetone	11.6		ug/L	10.0	SW846 8260B			6/1/18 16:59	TMP	J
Acrylonitrile	ND		ug/L	5.0	SW846 8260B			6/1/18 16:59	TMP	J
Benzene	ND		ug/L	1.0	SW846 8260B			6/1/18 16:59	TMP	J
Bromochloromethane	ND		ug/L	1.0	SW846 8260B			6/1/18 16:59	TMP	J
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B			6/1/18 16:59	TMP	J
Bromoform	ND		ug/L	1.0	SW846 8260B			6/1/18 16:59	TMP	J
Bromomethane	ND		ug/L	1.0	SW846 8260B			6/1/18 16:59	TMP	J
2-Butanone	ND		ug/L	10.0	SW846 8260B			6/1/18 16:59	TMP	J
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B			6/1/18 16:59	TMP	J
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B			6/1/18 16:59	TMP	J
Chlorobenzene	ND		ug/L	1.0	SW846 8260B			6/1/18 16:59	TMP	J
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B			6/1/18 16:59	TMP	J
Chloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 16:59	TMP	J
Chloroform	ND		ug/L	1.0	SW846 8260B			6/1/18 16:59	TMP	J
Chloromethane	ND		ug/L	1.0	SW846 8260B			6/1/18 16:59	TMP	J
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B			6/1/18 16:59	TMP	J
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B			6/1/18 16:59	TMP	J
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			6/1/18 16:59	TMP	J
Dibromomethane	ND		ug/L	1.0	SW846 8260B			6/1/18 16:59	TMP	J
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B			6/1/18 16:59	TMP	J
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			6/1/18 16:59	TMP	J
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			6/1/18 16:59	TMP	J
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			6/1/18 16:59	TMP	J
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B			6/1/18 16:59	TMP	J
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 16:59	TMP	J
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 16:59	TMP	J
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 16:59	TMP	J
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 16:59	TMP	J
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 16:59	TMP	J
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B			6/1/18 16:59	TMP	J
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			6/1/18 16:59	TMP	J
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			6/1/18 16:59	TMP	J
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			6/1/18 16:59	TMP	J
2-Hexanone	ND		ug/L	5.0	SW846 8260B			6/1/18 16:59	TMP	J
Iodomethane	ND		ug/L	1.0	SW846 8260B			6/1/18 16:59	TMP	J
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B			6/1/18 16:59	TMP	J

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ANALYTICAL RESULTS

Workorder: 2317107 2ND QTR 2018 FFMP-FORM 19A

Lab ID: 2317107005 **Date Collected:** 5/24/2018 11:42 **Matrix:** Ground Water
Sample ID: FFMP001P **Date Received:** 5/24/2018 15:21

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			6/1/18 16:59	TMP	J
Styrene	ND	3	ug/L	1.0	SW846 8260B			6/1/18 16:59	TMP	J
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 16:59	TMP	J
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 16:59	TMP	J
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 16:59	TMP	J
Toluene	ND		ug/L	1.0	SW846 8260B			6/1/18 16:59	TMP	J
Total Xylenes	ND		ug/L	3.0	SW846 8260B			6/1/18 16:59	TMP	J
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 16:59	TMP	J
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 16:59	TMP	J
Trichloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 16:59	TMP	J
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			6/1/18 16:59	TMP	J
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			6/1/18 16:59	TMP	J
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			6/1/18 16:59	TMP	J
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			6/1/18 16:59	TMP	J
Surrogate Recoveries	Results	Flag	Units	Limits	Method	Prepared	By	Analyzed	By	Cntr
1,2-Dichloroethane-d4 (S)	104		%	62 - 133	SW846 8260B			6/1/18 16:59	TMP	J
4-Bromofluorobenzene (S)	99.9		%	79 - 114	SW846 8260B			6/1/18 16:59	TMP	J
Dibromofluoromethane (S)	96.7		%	78 - 116	SW846 8260B			6/1/18 16:59	TMP	J
Toluene-d8 (S)	98.7		%	76 - 127	SW846 8260B			6/1/18 16:59	TMP	J

LIBRARY SEARCH - VOLATILES

No TIC's Detected Lib Search VOC 6/1/18 16:59 CPK J

WET CHEMISTRY

Alkalinity, Bicarbonate	37		mg/L	5	S2320B-97			6/1/18 03:38	MSA	B
Alkalinity, Total	37	1	mg/L	5	S2320B-97			6/1/18 03:38	MSA	B
Ammonia-N	0.754		mg/L	0.100	D6919-09			6/11/18 02:00	CMM	C
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4			6/5/18 16:17	AK	C
Chloride	185		mg/L	2.0	EPA 300.0			5/25/18 17:21	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			5/25/18 17:21	CHW	B
Nitrate-N	9.5		mg/L	0.20	EPA 300.0			5/25/18 17:21	CHW	B
pH	6.83	2	pH_Units		S4500HB-11			6/1/18 03:38	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	6/5/18 17:14	C_D	6/6/18 14:17	C_D	I
Specific Conductance	896		umhos/cm	1	S2510B-97			6/1/18 03:38	MSA	B
Sulfate	52.2		mg/L	2.0	EPA 300.0			5/25/18 17:21	CHW	B
Total Dissolved Solids	492		mg/L	5	S2540C-11			5/31/18 11:00	BMK	B
Total Organic Carbon (TOC)	2.1		mg/L	0.50	S5310B-00			5/29/18 12:08	PAG	G
Turbidity	1.26		NTU	0.10	S2130B-01			5/25/18 04:12	MSA	B

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ANALYTICAL RESULTS

Workorder: 2317107 2ND QTR 2018 FFMP-FORM 19A

Lab ID: 2317107005 **Date Collected:** 5/24/2018 11:42 **Matrix:** Ground Water
Sample ID: FFMP001P **Date Received:** 5/24/2018 15:21

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Antimony, Total	ND		mg/L	0.0022	SW846 6020A	5/26/18 16:55	AHI	6/4/18 16:01	MO	E1
Arsenic, Total	ND		mg/L	0.0033	SW846 6020A	5/26/18 16:55	AHI	6/4/18 16:01	MO	E1
Arsenic, Dissolved	ND		mg/L	0.0030	SW846 6020A	5/31/18 15:20	AHI	6/5/18 15:31	MO	D1
Barium, Total	0.12		mg/L	0.0056	SW846 6020A	5/26/18 16:55	AHI	6/4/18 16:01	MO	E1
Barium, Dissolved	0.11		mg/L	0.0056	SW846 6020A	5/31/18 15:20	AHI	6/5/18 15:31	MO	D1
Beryllium, Total	ND		mg/L	0.0011	SW846 6020A	5/26/18 16:55	AHI	6/4/18 16:01	MO	E1
Cadmium, Total	ND		mg/L	0.0011	SW846 6020A	5/26/18 16:55	AHI	6/4/18 16:01	MO	E1
Cadmium, Dissolved	ND		mg/L	0.0011	SW846 6020A	5/31/18 15:20	AHI	6/5/18 15:31	MO	D1
Calcium, Total	48.5		mg/L	0.11	SW846 6020A	5/26/18 16:55	AHI	6/4/18 16:01	MO	E1
Calcium, Dissolved	45.2		mg/L	0.11	SW846 6020A	5/31/18 15:20	AHI	6/5/18 15:31	MO	D1
Chromium, Total	ND		mg/L	0.0022	SW846 6020A	5/26/18 16:55	AHI	6/4/18 16:01	MO	E1
Chromium, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/31/18 15:20	AHI	6/5/18 15:31	MO	D1
Cobalt, Total	ND		mg/L	0.0056	SW846 6020A	5/26/18 16:55	AHI	6/4/18 16:01	MO	E1
Copper, Total	ND		mg/L	0.0056	SW846 6020A	5/26/18 16:55	AHI	6/4/18 16:01	MO	E1
Copper, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/31/18 15:20	AHI	6/5/18 15:31	MO	D1
Iron, Total	3.1		mg/L	0.056	SW846 6020A	5/26/18 16:55	AHI	6/4/18 16:01	MO	E1
Iron, Dissolved	0.71		mg/L	0.056	SW846 6020A	5/31/18 15:20	AHI	6/5/18 15:31	MO	D1
Lead, Total	ND		mg/L	0.0022	SW846 6020A	5/26/18 16:55	AHI	6/4/18 16:01	MO	E1
Lead, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/31/18 15:20	AHI	6/5/18 15:31	MO	D1
Magnesium, Total	16.4		mg/L	0.11	SW846 6020A	5/26/18 16:55	AHI	6/4/18 16:01	MO	E1
Magnesium, Dissolved	14.7		mg/L	0.11	SW846 6020A	5/31/18 15:20	AHI	6/5/18 15:31	MO	D1
Manganese, Total	0.38		mg/L	0.0056	SW846 6020A	5/26/18 16:55	AHI	6/4/18 16:01	MO	E1
Manganese, Dissolved	0.35		mg/L	0.0056	SW846 6020A	5/31/18 15:20	AHI	6/5/18 15:31	MO	D1
Mercury, Total	ND		mg/L	0.00050	SW846 7470A	6/1/18 08:30	MNP	6/1/18 11:57	MNP	E2
Mercury, Dissolved	ND		mg/L	0.00050	SW846 7470A	6/6/18 11:30	AXC	6/6/18 15:37	AXC	D2
Nickel, Total	0.014		mg/L	0.0056	SW846 6020A	5/26/18 16:55	AHI	6/4/18 16:01	MO	E1
Potassium, Total	12.7		mg/L	0.11	SW846 6020A	5/26/18 16:55	AHI	6/4/18 16:01	MO	E1
Potassium, Dissolved	12.4		mg/L	0.11	SW846 6020A	5/31/18 15:20	AHI	6/5/18 15:31	MO	D1
Selenium, Total	ND		mg/L	0.0056	SW846 6020A	5/26/18 16:55	AHI	6/4/18 16:01	MO	E1
Selenium, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/31/18 15:20	AHI	6/5/18 15:31	MO	D1
Silver, Total	ND		mg/L	0.0022	SW846 6020A	5/26/18 16:55	AHI	6/4/18 16:01	MO	E1
Silver, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/31/18 15:20	AHI	6/5/18 15:31	MO	D1
Sodium, Total	79.3		mg/L	0.11	SW846 6020A	5/26/18 16:55	AHI	6/4/18 16:01	MO	E1
Sodium, Dissolved	70.8		mg/L	0.11	SW846 6020A	5/31/18 15:20	AHI	6/5/18 15:31	MO	D1
Thallium, Total	ND		mg/L	0.0011	SW846 6020A	5/26/18 16:55	AHI	6/4/18 16:01	MO	E1
Vanadium, Total	ND		mg/L	0.0022	SW846 6020A	5/26/18 16:55	AHI	6/4/18 16:01	MO	E1
Zinc, Total	0.014		mg/L	0.0056	SW846 6020A	5/26/18 16:55	AHI	6/4/18 16:01	MO	E1

ALS Environmental Laboratory Locations Across North America

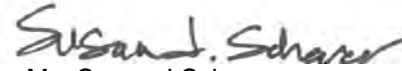
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ANALYTICAL RESULTS

Workorder: 2317107 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2317107005** Date Collected: 5/24/2018 11:42 Matrix: Ground Water
Sample ID: **FFMP001P** Date Received: 5/24/2018 15:21

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Zinc, Dissolved	0.016		mg/L	0.0056	SW846 6020A	5/31/18 15:20	AHI	6/5/18 15:31	MO	D1
FIELD PARAMETERS										
Flow Rate	0.53		gal/min		Field			5/24/18 11:42	BGS	F
pH, Field (SM4500B)	6.180		pH_Units		Field			5/24/18 11:42	BGS	F
Specific Conductance, Field	861		umhos/cm	1	Field			5/24/18 11:42	BGS	F
Temperature	16.50		Deg. C		Field			5/24/18 11:42	BGS	F



Ms. Susan J Scherer
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2317107 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2317107006** Date Collected: 5/24/2018 13:40 Matrix: Ground Water
Sample ID: **FFMP016W** Date Received: 5/24/2018 15:21

Parameters	Results	Flag	Units	RDL	Method	Prepared By	Analyzed By	Cntr
VOLATILE ORGANICS								
Acetone	ND		ug/L	10.0	SW846 8260B		6/1/18 17:21	TMP J
Acrylonitrile	ND		ug/L	5.0	SW846 8260B		6/1/18 17:21	TMP J
Benzene	ND		ug/L	1.0	SW846 8260B		6/1/18 17:21	TMP J
Bromochloromethane	ND		ug/L	1.0	SW846 8260B		6/1/18 17:21	TMP J
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B		6/1/18 17:21	TMP J
Bromoform	ND		ug/L	1.0	SW846 8260B		6/1/18 17:21	TMP J
Bromomethane	ND		ug/L	1.0	SW846 8260B		6/1/18 17:21	TMP J
2-Butanone	ND		ug/L	10.0	SW846 8260B		6/1/18 17:21	TMP J
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B		6/1/18 17:21	TMP J
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B		6/1/18 17:21	TMP J
Chlorobenzene	ND		ug/L	1.0	SW846 8260B		6/1/18 17:21	TMP J
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B		6/1/18 17:21	TMP J
Chloroethane	ND		ug/L	1.0	SW846 8260B		6/1/18 17:21	TMP J
Chloroform	ND		ug/L	1.0	SW846 8260B		6/1/18 17:21	TMP J
Chloromethane	ND		ug/L	1.0	SW846 8260B		6/1/18 17:21	TMP J
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B		6/1/18 17:21	TMP J
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B		6/1/18 17:21	TMP J
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B		6/1/18 17:21	TMP J
Dibromomethane	ND		ug/L	1.0	SW846 8260B		6/1/18 17:21	TMP J
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B		6/1/18 17:21	TMP J
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		6/1/18 17:21	TMP J
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		6/1/18 17:21	TMP J
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		6/1/18 17:21	TMP J
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B		6/1/18 17:21	TMP J
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B		6/1/18 17:21	TMP J
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B		6/1/18 17:21	TMP J
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B		6/1/18 17:21	TMP J
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B		6/1/18 17:21	TMP J
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B		6/1/18 17:21	TMP J
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B		6/1/18 17:21	TMP J
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B		6/1/18 17:21	TMP J
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B		6/1/18 17:21	TMP J
Ethylbenzene	ND		ug/L	1.0	SW846 8260B		6/1/18 17:21	TMP J
2-Hexanone	ND		ug/L	5.0	SW846 8260B		6/1/18 17:21	TMP J
Iodomethane	ND		ug/L	1.0	SW846 8260B		6/1/18 17:21	TMP J
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B		6/1/18 17:21	TMP J

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ANALYTICAL RESULTS

Workorder: 2317107 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2317107006** Date Collected: 5/24/2018 13:40 Matrix: Ground Water
Sample ID: **FFMP016W** Date Received: 5/24/2018 15:21

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			6/1/18 17:21	TMP	J
Styrene	ND	3	ug/L	1.0	SW846 8260B			6/1/18 17:21	TMP	J
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 17:21	TMP	J
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 17:21	TMP	J
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 17:21	TMP	J
Toluene	ND		ug/L	1.0	SW846 8260B			6/1/18 17:21	TMP	J
Total Xylenes	ND		ug/L	3.0	SW846 8260B			6/1/18 17:21	TMP	J
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 17:21	TMP	J
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 17:21	TMP	J
Trichloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 17:21	TMP	J
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			6/1/18 17:21	TMP	J
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			6/1/18 17:21	TMP	J
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			6/1/18 17:21	TMP	J
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			6/1/18 17:21	TMP	J
Surrogate Recoveries	Results	Flag	Units	Limits	Method	Prepared	By	Analyzed	By	Cntr
1,2-Dichloroethane-d4 (S)	102		%	62 - 133	SW846 8260B			6/1/18 17:21	TMP	J
4-Bromofluorobenzene (S)	101		%	79 - 114	SW846 8260B			6/1/18 17:21	TMP	J
Dibromofluoromethane (S)	95.8		%	78 - 116	SW846 8260B			6/1/18 17:21	TMP	J
Toluene-d8 (S)	97.5		%	76 - 127	SW846 8260B			6/1/18 17:21	TMP	J

LIBRARY SEARCH - VOLATILES

No TIC's Detected . Lib Search VOC 6/1/18 17:21 CPK J

WET CHEMISTRY

Alkalinity, Bicarbonate	30		mg/L	5	S2320B-97			6/1/18 03:47	MSA	B
Alkalinity, Total	30	1	mg/L	5	S2320B-97			6/1/18 03:47	MSA	B
Ammonia-N	0.371		mg/L	0.100	D6919-09			6/8/18 02:08	TES	C
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4			6/5/18 16:17	AK	C
Chloride	79.0		mg/L	2.0	EPA 300.0			5/25/18 17:35	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			5/25/18 17:35	CHW	B
Nitrate-N	8.1		mg/L	0.20	EPA 300.0			5/25/18 17:35	CHW	B
pH	6.21	2	pH_Units		S4500HB-11			6/1/18 03:47	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	6/5/18 17:14	C_D	6/6/18 14:17	C_D	I
Specific Conductance	452		umhos/cm	1	S2510B-97			6/1/18 03:47	MSA	B
Sulfate	34.7		mg/L	2.0	EPA 300.0			5/25/18 17:35	CHW	B
Total Dissolved Solids	240		mg/L	5	S2540C-11			5/31/18 13:30	BMK	B
Total Organic Carbon (TOC)	1.4		mg/L	0.50	S5310B-00			5/29/18 12:08	PAG	G
Turbidity	ND		NTU	0.10	S2130B-01			5/25/18 04:12	MSA	B

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ANALYTICAL RESULTS

Workorder: 2317107 2ND QTR 2018 FFMP-FORM 19A

Lab ID: 2317107006 **Date Collected:** 5/24/2018 13:40 **Matrix:** Ground Water
Sample ID: FFMP016W **Date Received:** 5/24/2018 15:21

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Antimony, Total	ND		mg/L	0.0022	SW846 6020A	5/26/18 16:55	AHI	6/4/18 16:05	MO	E1
Arsenic, Total	ND		mg/L	0.0033	SW846 6020A	5/26/18 16:55	AHI	6/4/18 16:05	MO	E1
Arsenic, Dissolved	ND		mg/L	0.0030	SW846 6020A	5/31/18 15:20	AHI	6/5/18 15:35	MO	D1
Barium, Total	0.058		mg/L	0.0056	SW846 6020A	5/26/18 16:55	AHI	6/4/18 16:05	MO	E1
Barium, Dissolved	0.054		mg/L	0.0056	SW846 6020A	5/31/18 15:20	AHI	6/5/18 15:35	MO	D1
Beryllium, Total	ND		mg/L	0.0011	SW846 6020A	5/26/18 16:55	AHI	6/4/18 16:05	MO	E1
Cadmium, Total	ND		mg/L	0.0011	SW846 6020A	5/26/18 16:55	AHI	6/4/18 16:05	MO	E1
Cadmium, Dissolved	ND		mg/L	0.0011	SW846 6020A	5/31/18 15:20	AHI	6/5/18 15:35	MO	D1
Calcium, Total	29.8		mg/L	0.11	SW846 6020A	5/26/18 16:55	AHI	6/4/18 16:05	MO	E1
Calcium, Dissolved	27.5		mg/L	0.11	SW846 6020A	5/31/18 15:20	AHI	6/5/18 15:35	MO	D1
Chromium, Total	ND		mg/L	0.0022	SW846 6020A	5/26/18 16:55	AHI	6/4/18 16:05	MO	E1
Chromium, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/31/18 15:20	AHI	6/5/18 15:35	MO	D1
Cobalt, Total	ND		mg/L	0.0056	SW846 6020A	5/26/18 16:55	AHI	6/4/18 16:05	MO	E1
Copper, Total	ND		mg/L	0.0056	SW846 6020A	5/26/18 16:55	AHI	6/4/18 16:05	MO	E1
Copper, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/31/18 15:20	AHI	6/5/18 15:35	MO	D1
Iron, Total	ND		mg/L	0.056	SW846 6020A	5/26/18 16:55	AHI	6/4/18 16:05	MO	E1
Iron, Dissolved	ND		mg/L	0.056	SW846 6020A	5/31/18 15:20	AHI	6/5/18 15:35	MO	D1
Lead, Total	ND		mg/L	0.0022	SW846 6020A	5/26/18 16:55	AHI	6/4/18 16:05	MO	E1
Lead, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/31/18 15:20	AHI	6/5/18 15:35	MO	D1
Magnesium, Total	15.7		mg/L	0.11	SW846 6020A	5/26/18 16:55	AHI	6/4/18 16:05	MO	E1
Magnesium, Dissolved	14.1		mg/L	0.11	SW846 6020A	5/31/18 15:20	AHI	6/5/18 15:35	MO	D1
Manganese, Total	0.020		mg/L	0.0056	SW846 6020A	5/26/18 16:55	AHI	6/4/18 16:05	MO	E1
Manganese, Dissolved	0.016		mg/L	0.0056	SW846 6020A	5/31/18 15:20	AHI	6/5/18 15:35	MO	D1
Mercury, Total	ND		mg/L	0.00050	SW846 7470A	5/31/18 09:50	MNP	5/31/18 13:13	MNP	E2
Mercury, Dissolved	ND		mg/L	0.00050	SW846 7470A	6/6/18 11:30	AXC	6/6/18 15:40	AXC	D2
Nickel, Total	ND		mg/L	0.0056	SW846 6020A	5/26/18 16:55	AHI	6/4/18 16:05	MO	E1
Potassium, Total	2.1		mg/L	0.11	SW846 6020A	5/26/18 16:55	AHI	6/4/18 16:05	MO	E1
Potassium, Dissolved	1.9		mg/L	0.11	SW846 6020A	5/31/18 15:20	AHI	6/5/18 15:35	MO	D1
Selenium, Total	ND		mg/L	0.0056	SW846 6020A	5/26/18 16:55	AHI	6/4/18 16:05	MO	E1
Selenium, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/31/18 15:20	AHI	6/5/18 15:35	MO	D1
Silver, Total	ND		mg/L	0.0022	SW846 6020A	5/26/18 16:55	AHI	6/4/18 16:05	MO	E1
Silver, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/31/18 15:20	AHI	6/5/18 15:35	MO	D1
Sodium, Total	25.3		mg/L	0.11	SW846 6020A	5/26/18 16:55	AHI	6/4/18 16:05	MO	E1
Sodium, Dissolved	22.6		mg/L	0.11	SW846 6020A	5/31/18 15:20	AHI	6/5/18 15:35	MO	D1
Thallium, Total	ND		mg/L	0.0011	SW846 6020A	5/26/18 16:55	AHI	6/4/18 16:05	MO	E1
Vanadium, Total	ND		mg/L	0.0022	SW846 6020A	5/26/18 16:55	AHI	6/4/18 16:05	MO	E1
Zinc, Total	0.010		mg/L	0.0056	SW846 6020A	5/26/18 16:55	AHI	6/4/18 16:05	MO	E1

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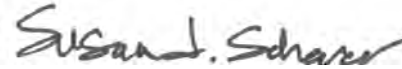
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ANALYTICAL RESULTS

Workorder: 2317107 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2317107006** Date Collected: 5/24/2018 13:40 Matrix: Ground Water
Sample ID: **FFMP016W** Date Received: 5/24/2018 15:21

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Zinc, Dissolved	0.0093		mg/L	0.0056	SW846 6020A	5/31/18 15:20	AHI	6/5/18 15:35	MO	D1
FIELD PARAMETERS										
Depth to Water Level	19.210		Feet		Field			5/24/18 13:38	BGS	F
Elev Top MW Casing above MSL	474.60		Feet		Field			5/24/18 13:38	BGS	F
Ground Water Elevation	455.390		ft/MSL		Field			5/24/18 13:38	BGS	F
pH, Field (SM4500B)	5.730		pH_Units		Field			5/24/18 13:38	BGS	F
Sample Depth	135.000		Feet		Field			5/24/18 13:38	BGS	F
Specific Conductance, Field	477		umhos/cm	1	Field			5/24/18 13:38	BGS	F
Temperature	10.89		Deg. C		Field			5/24/18 13:38	BGS	F
Total Well Depth	149.800		Feet		Field			5/24/18 13:38	BGS	F
Volume in Water Column	340.840		Gallons		Field			5/24/18 13:38	BGS	F



Ms. Susan J Scherer
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2317107 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2317107007**
Sample ID: **FIELD BLANK**

Date Collected: 5/24/2018 13:45 Matrix: Water
Date Received: 5/24/2018 15:21

Parameters	Results	Flag	Units	RDL	Method	Prepared By	Analyzed By	Cntr
VOLATILE ORGANICS								
Acetone	ND		ug/L	10.0	SW846 8260B		6/1/18 15:04	TMP J
Acrylonitrile	ND		ug/L	5.0	SW846 8260B		6/1/18 15:04	TMP J
Benzene	ND		ug/L	1.0	SW846 8260B		6/1/18 15:04	TMP J
Bromochloromethane	ND		ug/L	1.0	SW846 8260B		6/1/18 15:04	TMP J
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B		6/1/18 15:04	TMP J
Bromoform	ND		ug/L	1.0	SW846 8260B		6/1/18 15:04	TMP J
Bromomethane	ND		ug/L	1.0	SW846 8260B		6/1/18 15:04	TMP J
2-Butanone	ND		ug/L	10.0	SW846 8260B		6/1/18 15:04	TMP J
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B		6/1/18 15:04	TMP J
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B		6/1/18 15:04	TMP J
Chlorobenzene	ND		ug/L	1.0	SW846 8260B		6/1/18 15:04	TMP J
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B		6/1/18 15:04	TMP J
Chloroethane	ND		ug/L	1.0	SW846 8260B		6/1/18 15:04	TMP J
Chloroform	ND		ug/L	1.0	SW846 8260B		6/1/18 15:04	TMP J
Chloromethane	ND		ug/L	1.0	SW846 8260B		6/1/18 15:04	TMP J
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B		6/1/18 15:04	TMP J
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B		6/1/18 15:04	TMP J
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B		6/1/18 15:04	TMP J
Dibromomethane	ND		ug/L	1.0	SW846 8260B		6/1/18 15:04	TMP J
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B		6/1/18 15:04	TMP J
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		6/1/18 15:04	TMP J
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		6/1/18 15:04	TMP J
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		6/1/18 15:04	TMP J
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B		6/1/18 15:04	TMP J
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B		6/1/18 15:04	TMP J
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B		6/1/18 15:04	TMP J
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B		6/1/18 15:04	TMP J
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B		6/1/18 15:04	TMP J
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B		6/1/18 15:04	TMP J
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B		6/1/18 15:04	TMP J
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B		6/1/18 15:04	TMP J
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B		6/1/18 15:04	TMP J
Ethylbenzene	ND		ug/L	1.0	SW846 8260B		6/1/18 15:04	TMP J
2-Hexanone	ND		ug/L	5.0	SW846 8260B		6/1/18 15:04	TMP J
Iodomethane	ND		ug/L	1.0	SW846 8260B		6/1/18 15:04	TMP J
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B		6/1/18 15:04	TMP J

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ANALYTICAL RESULTS

Workorder: 2317107 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2317107007** Date Collected: 5/24/2018 13:45 Matrix: Water
Sample ID: **FIELD BLANK** Date Received: 5/24/2018 15:21

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			6/1/18 15:04	TMP	J
Styrene	ND	3	ug/L	1.0	SW846 8260B			6/1/18 15:04	TMP	J
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 15:04	TMP	J
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 15:04	TMP	J
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 15:04	TMP	J
Toluene	ND		ug/L	1.0	SW846 8260B			6/1/18 15:04	TMP	J
Total Xylenes	ND		ug/L	3.0	SW846 8260B			6/1/18 15:04	TMP	J
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 15:04	TMP	J
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 15:04	TMP	J
Trichloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 15:04	TMP	J
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			6/1/18 15:04	TMP	J
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			6/1/18 15:04	TMP	J
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			6/1/18 15:04	TMP	J
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			6/1/18 15:04	TMP	J

Surrogate Recoveries	Results	Flag	Units	Limits	Method	Prepared	By	Analyzed	By	Cntr
1,2-Dichloroethane-d4 (S)	96		%	62 - 133	SW846 8260B			6/1/18 15:04	TMP	J
4-Bromofluorobenzene (S)	100		%	79 - 114	SW846 8260B			6/1/18 15:04	TMP	J
Dibromofluoromethane (S)	92.5		%	78 - 116	SW846 8260B			6/1/18 15:04	TMP	J
Toluene-d8 (S)	96.6		%	76 - 127	SW846 8260B			6/1/18 15:04	TMP	J

LIBRARY SEARCH - VOLATILES

No TIC's Detected . Lib Search VOC 6/1/18 15:04 CPK J

WET CHEMISTRY

Alkalinity, Bicarbonate	ND		mg/L	5	S2320B-97			6/1/18 03:57	MSA	B
Alkalinity, Total	ND	1	mg/L	5	S2320B-97			6/1/18 03:57	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			6/11/18 02:15	CMM	C
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4			6/5/18 16:17	AK	C
Chloride	ND		mg/L	1.0	EPA 300.0			5/25/18 17:48	CHW	B
Fluoride	ND		mg/L	0.10	EPA 300.0			5/25/18 17:48	CHW	B
Nitrate-N	ND		mg/L	0.10	EPA 300.0			5/25/18 17:48	CHW	B
pH	6.53	2	pH_Units		S4500HB-11			6/1/18 03:57	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	6/5/18 17:14	C_D	6/6/18 14:17	C_D	I
Specific Conductance	1		umhos/cm	1	S2510B-97			6/3/18 23:09	MSA	B
Sulfate	ND		mg/L	1.0	EPA 300.0			5/25/18 17:48	CHW	B
Total Dissolved Solids	ND		mg/L	5	S2540C-11			5/31/18 13:30	BMK	B
Total Organic Carbon (TOC)	ND		mg/L	0.50	S5310B-00			5/29/18 12:08	PAG	G
Turbidity	ND		NTU	0.10	S2130B-01			5/25/18 04:12	MSA	B

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ANALYTICAL RESULTS

Workorder: 2317107 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2317107007** Date Collected: 5/24/2018 13:45 Matrix: Water
Sample ID: **FIELD BLANK** Date Received: 5/24/2018 15:21

Parameters	Results	Flag	Units	RDL	Method	Prepared By	Analyzed By	Cntr
Zinc, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/31/18 15:20 AHI	6/5/18 15:39 MO	D1


Ms. Susan J Scherer
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2317107 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2317107008**
Sample ID: **TRIP BLANK**

Date Collected: 5/24/2018 15:21 Matrix: Water
Date Received: 5/24/2018 15:21

Parameters	Results	Flag	Units	RDL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS									
Acetone	ND		ug/L	10.0	SW846 8260B		6/1/18 14:41	TMP	A
Acrylonitrile	ND		ug/L	5.0	SW846 8260B		6/1/18 14:41	TMP	A
Benzene	ND		ug/L	1.0	SW846 8260B		6/1/18 14:41	TMP	A
Bromochloromethane	ND		ug/L	1.0	SW846 8260B		6/1/18 14:41	TMP	A
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B		6/1/18 14:41	TMP	A
Bromoform	ND		ug/L	1.0	SW846 8260B		6/1/18 14:41	TMP	A
Bromomethane	ND		ug/L	1.0	SW846 8260B		6/1/18 14:41	TMP	A
2-Butanone	ND		ug/L	10.0	SW846 8260B		6/1/18 14:41	TMP	A
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B		6/1/18 14:41	TMP	A
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B		6/1/18 14:41	TMP	A
Chlorobenzene	ND		ug/L	1.0	SW846 8260B		6/1/18 14:41	TMP	A
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B		6/1/18 14:41	TMP	A
Chloroethane	ND		ug/L	1.0	SW846 8260B		6/1/18 14:41	TMP	A
Chloroform	ND		ug/L	1.0	SW846 8260B		6/1/18 14:41	TMP	A
Chloromethane	ND		ug/L	1.0	SW846 8260B		6/1/18 14:41	TMP	A
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B		6/1/18 14:41	TMP	A
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B		6/1/18 14:41	TMP	A
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B		6/1/18 14:41	TMP	A
Dibromomethane	ND		ug/L	1.0	SW846 8260B		6/1/18 14:41	TMP	A
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B		6/1/18 14:41	TMP	A
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		6/1/18 14:41	TMP	A
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		6/1/18 14:41	TMP	A
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		6/1/18 14:41	TMP	A
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B		6/1/18 14:41	TMP	A
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B		6/1/18 14:41	TMP	A
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B		6/1/18 14:41	TMP	A
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B		6/1/18 14:41	TMP	A
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B		6/1/18 14:41	TMP	A
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B		6/1/18 14:41	TMP	A
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B		6/1/18 14:41	TMP	A
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B		6/1/18 14:41	TMP	A
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B		6/1/18 14:41	TMP	A
Ethylbenzene	ND		ug/L	1.0	SW846 8260B		6/1/18 14:41	TMP	A
2-Hexanone	ND		ug/L	5.0	SW846 8260B		6/1/18 14:41	TMP	A
Iodomethane	ND		ug/L	1.0	SW846 8260B		6/1/18 14:41	TMP	A
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B		6/1/18 14:41	TMP	A

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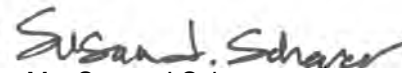
ANALYTICAL RESULTS

Workorder: 2317107 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2317107008**
Sample ID: **TRIP BLANK**

Date Collected: 5/24/2018 15:21 Matrix: Water
Date Received: 5/24/2018 15:21

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			6/1/18 14:41	TMP	A
Styrene	ND	1	ug/L	1.0	SW846 8260B			6/1/18 14:41	TMP	A
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 14:41	TMP	A
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 14:41	TMP	A
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 14:41	TMP	A
Toluene	ND		ug/L	1.0	SW846 8260B			6/1/18 14:41	TMP	A
Total Xylenes	ND		ug/L	3.0	SW846 8260B			6/1/18 14:41	TMP	A
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 14:41	TMP	A
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 14:41	TMP	A
Trichloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 14:41	TMP	A
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			6/1/18 14:41	TMP	A
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			6/1/18 14:41	TMP	A
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			6/1/18 14:41	TMP	A
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			6/1/18 14:41	TMP	A
<i>Surrogate Recoveries</i>	<i>Results</i>	<i>Flag</i>	<i>Units</i>	<i>Limits</i>	<i>Method</i>	<i>Prepared</i>	<i>By</i>	<i>Analyzed</i>	<i>By</i>	<i>Cntr</i>
1,2-Dichloroethane-d4 (S)	97.6		%	62 - 133	SW846 8260B			6/1/18 14:41	TMP	A
4-Bromofluorobenzene (S)	100		%	79 - 114	SW846 8260B			6/1/18 14:41	TMP	A
Dibromofluoromethane (S)	92.6		%	78 - 116	SW846 8260B			6/1/18 14:41	TMP	A
Toluene-d8 (S)	98.4		%	76 - 127	SW846 8260B			6/1/18 14:41	TMP	A
LIBRARY SEARCH - VOLATILES										
No TIC's Detected	.				Lib Search VOC			6/1/18 14:41	CPK	A



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ANALYTICAL RESULTS

Workorder: 2317107 2ND QTR 2018 FFMP-FORM 19A

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
2317107001	1	FFMP015W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2317107001	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.				
2317107001	3	FFMP015W	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 78.2 and the control limits were 79 to 123.				
2317107002	1	FFMP033W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2317107002	2	FFMP033W	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2317107002	3	FFMP033W	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 78.2 and the control limits were 79 to 123.				
2317107003	1	FFMP02DW	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2317107003	2	FFMP02DW	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2317107003	3	FFMP02DW	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 78.2 and the control limits were 79 to 123.				
2317107004	1	FFMP02SW	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2317107004	2	FFMP02SW	S4500HB-11	pH
The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.				
2317107004	3	FFMP02SW	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 78.2 and the control limits were 79 to 123.				
2317107005	1	FFMP001P	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2317107005	2	FFMP001P	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.				
2317107005	3	FFMP001P	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 78.2 and the control limits were 79 to 123.				
2317107006	1	FFMP016W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				

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ANALYTICAL RESULTS

Workorder: 2317107 2ND QTR 2018 FFMP-FORM 19A

2317107006	2	FFMP016W	S4500HB-11	pH
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The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.

2317107006	3	FFMP016W	SW846 8260B	Styrene
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The QC sample type LCS for method SW846 8260B was outside the control limits for the analyte Styrene. The % Recovery was reported as 78.2 and the control limits were 79 to 123.

2317107007	1	FIELD BLANK	S2320B-97	Alkalinity, Total
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The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO₃/L.

2317107007	2	FIELD BLANK	S4500HB-11	pH
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The pH analysis is an "analyze immediately" analysis. Parameters identified as "analyze immediately" require analysis within 15 minutes of collection, and are therefore analyzed outside of the method holding time when analyzed in the laboratory.

2317107007	3	FIELD BLANK	SW846 8260B	Styrene
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The QC sample type LCS for method SW846 8260B was outside the control limits for the analyte Styrene. The % Recovery was reported as 78.2 and the control limits were 79 to 123.

2317107008	1	TRIP BLANK	SW846 8260B	Styrene
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The QC sample type LCS for method SW846 8260B was outside the control limits for the analyte Styrene. The % Recovery was reported as 78.2 and the control limits were 79 to 123.

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ANALYSIS - PREP METHOD CROSS REFERENCE TABLE

Workorder: 2317107 2ND QTR 2018 FFMP-FORM 19A

Lab ID	Sample ID	Analysis Method	Prep Method
2317107001	FFMP015W	D6919-09	
2317107001	FFMP015W	EPA 300.0	
2317107001	FFMP015W	EPA 410.4	
2317107001	FFMP015W	Field	
2317107001	FFMP015W	Lib Search VOC	
2317107001	FFMP015W	S2130B-01	
2317107001	FFMP015W	S2320B-97	
2317107001	FFMP015W	S2510B-97	
2317107001	FFMP015W	S2540C-11	
2317107001	FFMP015W	S4500HB-11	
2317107001	FFMP015W	S5310B-00	
2317107001	FFMP015W	SW846 6020A	SW846 3015
2317107001	FFMP015W	SW846 7470A	SW846 7470A
2317107001	FFMP015W	SW846 8260B	
2317107001	FFMP015W	SW846 9066	420.4/9066
2317107002	FFMP033W	D6919-09	
2317107002	FFMP033W	EPA 300.0	
2317107002	FFMP033W	EPA 410.4	
2317107002	FFMP033W	Field	
2317107002	FFMP033W	Lib Search VOC	
2317107002	FFMP033W	S2130B-01	
2317107002	FFMP033W	S2320B-97	
2317107002	FFMP033W	S2510B-97	
2317107002	FFMP033W	S2540C-11	
2317107002	FFMP033W	S4500HB-11	
2317107002	FFMP033W	S5310B-00	
2317107002	FFMP033W	SW846 6020A	SW846 3015
2317107002	FFMP033W	SW846 7470A	SW846 7470A
2317107002	FFMP033W	SW846 8260B	
2317107002	FFMP033W	SW846 9066	420.4/9066
2317107003	FFMP02DW	D6919-09	
2317107003	FFMP02DW	EPA 300.0	
2317107003	FFMP02DW	EPA 410.4	
2317107003	FFMP02DW	Field	
2317107003	FFMP02DW	Lib Search VOC	
2317107003	FFMP02DW	S2130B-01	
2317107003	FFMP02DW	S2320B-97	
2317107003	FFMP02DW	S2510B-97	
2317107003	FFMP02DW	S2540C-11	
2317107003	FFMP02DW	S4500HB-11	
2317107003	FFMP02DW	S5310B-00	
2317107003	FFMP02DW	SW846 6020A	SW846 3015
2317107003	FFMP02DW	SW846 7470A	SW846 7470A
2317107003	FFMP02DW	SW846 8260B	
2317107003	FFMP02DW	SW846 9066	420.4/9066
2317107004	FFMP02SW	D6919-09	

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ANALYSIS - PREP METHOD CROSS REFERENCE TABLE

Workorder: 2317107 2ND QTR 2018 FFMP-FORM 19A

Lab ID	Sample ID	Analysis Method	Prep Method
2317107004	FFMP02SW	EPA 300.0	
2317107004	FFMP02SW	EPA 410.4	
2317107004	FFMP02SW	Field	
2317107004	FFMP02SW	Lib Search VOC	
2317107004	FFMP02SW	S2130B-01	
2317107004	FFMP02SW	S2320B-97	
2317107004	FFMP02SW	S2510B-97	
2317107004	FFMP02SW	S2540C-11	
2317107004	FFMP02SW	S4500HB-11	
2317107004	FFMP02SW	S5310B-00	
2317107004	FFMP02SW	SW846 6020A	SW846 3015
2317107004	FFMP02SW	SW846 7470A	SW846 7470A
2317107004	FFMP02SW	SW846 8260B	
2317107004	FFMP02SW	SW846 9066	420.4/9066
2317107005	FFMP001P	D6919-09	
2317107005	FFMP001P	EPA 300.0	
2317107005	FFMP001P	EPA 410.4	
2317107005	FFMP001P	Field	
2317107005	FFMP001P	Lib Search VOC	
2317107005	FFMP001P	S2130B-01	
2317107005	FFMP001P	S2320B-97	
2317107005	FFMP001P	S2510B-97	
2317107005	FFMP001P	S2540C-11	
2317107005	FFMP001P	S4500HB-11	
2317107005	FFMP001P	S5310B-00	
2317107005	FFMP001P	SW846 6020A	SW846 3015
2317107005	FFMP001P	SW846 7470A	SW846 7470A
2317107005	FFMP001P	SW846 8260B	
2317107005	FFMP001P	SW846 9066	420.4/9066
2317107006	FFMP016W	D6919-09	
2317107006	FFMP016W	EPA 300.0	
2317107006	FFMP016W	EPA 410.4	
2317107006	FFMP016W	Field	
2317107006	FFMP016W	Lib Search VOC	
2317107006	FFMP016W	S2130B-01	
2317107006	FFMP016W	S2320B-97	
2317107006	FFMP016W	S2510B-97	
2317107006	FFMP016W	S2540C-11	
2317107006	FFMP016W	S4500HB-11	
2317107006	FFMP016W	S5310B-00	
2317107006	FFMP016W	SW846 6020A	SW846 3015
2317107006	FFMP016W	SW846 7470A	SW846 7470A
2317107006	FFMP016W	SW846 8260B	
2317107006	FFMP016W	SW846 9066	420.4/9066
2317107007	FIELD BLANK	D6919-09	
2317107007	FIELD BLANK	EPA 300.0	

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ANALYSIS - PREP METHOD CROSS REFERENCE TABLE

Workorder: 2317107 2ND QTR 2018 FFMP-FORM 19A

Lab ID	Sample ID	Analysis Method	Prep Method
2317107007	FIELD BLANK	EPA 410.4	
2317107007	FIELD BLANK	Lib Search VOC	
2317107007	FIELD BLANK	S2130B-01	
2317107007	FIELD BLANK	S2320B-97	
2317107007	FIELD BLANK	S2510B-97	
2317107007	FIELD BLANK	S2540C-11	
2317107007	FIELD BLANK	S4500HB-11	
2317107007	FIELD BLANK	S5310B-00	
2317107007	FIELD BLANK	SW846 6020A	SW846 3015
2317107007	FIELD BLANK	SW846 7470A	SW846 7470A
2317107007	FIELD BLANK	SW846 8260B	
2317107007	FIELD BLANK	SW846 9066	420.4/9066
2317107008	TRIP BLANK	Lib Search VOC	
2317107008	TRIP BLANK	SW846 8260B	

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ALS Environmental
 34 Dogwood Lane • Middletown, PA 17057 • Tel: 717.944.5541 • Fax: 717.944.1430
 1100 Pennsylvania Avenue, Suite 200 • P.O. Box 100 • Tel: 717.944.5541 • Fax: 717.944.1430

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

Generated by ALS
 COC# ALS
 2 3 1 7 1 0 7
 Receipt Information (Completing Lab)
 Cooler Temp: 5.62 Tharm ID: 402
 No. of Coolers: L Y N Initial
 Custody Seats Present? X 308
 (if present) Seats Present? X
 Received on Ice? X
 COC Labels Complete/Accurate? X
 Cont. In Good Cond.? X
 Correct Containers? X
 Correct Sample Volumes? X
 Correct Preservation? X
 Headspace/Volatiles? X

Client Name: Lancaster County Solid Waste MA
 Address: 1299 Harnsburg Pike, P.O. Box 4424
Lancaster, PA 17604
 Contact: Mark Reider
 Phone#: (717) 735-0193
 Project Name#: Frey Farm Annual
 Bill To: Lancaster County Solid Waste MA

TAT Normal-Standard TAT is 10-12 business days.
 Rush-Subject to ALS approval and surcharges.
 Date Required: Approved By:
 Email? -Y
 Fax? -Y No: (717) 397-9973

Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	ANALYSES/METHOD REQUESTED										Matrix	Enter Number of Containers Per Sample or Field Results Below.	Courier/Tracking #:	Sampler/COC Comments	
			TOC	O-OH	VOC (from 19A) + LS	Field Measurements	Sample Depth for AUX Data	NH3-N, COD	Dissoved: Fe, Mn, Na, Ba, Cr, Cu, Pb, Mg, K, Zn, As, Cd, Se, Ag, Hg, Ca	Metals: Fe, Mn, Na, Ba, Cr, Cu, Pb, Mg, K, Zn, As, Cd, Se, Ag, Hg, Ca	pH, Cl, Spc, F, SO4, TDS, NO3, Turb.	Alkalinity, HCO3					
1. FFMP015W	5-24-18	0943	2	1	2	X	X	1	1	1	1	1	1	1			
2. FFMP033W		1115															
3. FFMP02DW		1259															
4. FFMP025W		1319															
5. FFM0001P		1142															
6. FFMP016W		1340															
7. Field Blank		1345															
8. Trip Blank		1521															
9.																	
10.																	

Project Comments:
 Requisitioned By / Company Name:
 Date: 5/24/18 Time: 1521
 Received By / Company Name:
 Date: 5/24/18 Time: 1521
 State Samples Collected In:
 Special Processing:
 USACE Navy
 Reportable to PADEP?
 Yes No
 PWSID #
 EODS: Format Type:

* G=Grab; C=Composite
 ** Matrix: AL=Air; DW=Drinking Water; GW=Groundwater; OI=Oil; OL=Other Liquid; SL=Sludge; SO=Soil; WP=Wipe; WW=Wastewater
 ALS ENVIRONMENTAL SHIPPING ADDRESS: 34 DOGWOOD LANE, MIDDLETOWN, PA 17057
 Rev 8/04



June 8, 2018

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

Certificate of Analysis

Project Name:	FREY FARM	Workorder:	2316215
Purchase Order:	PO1000126	Workorder ID:	2ND QTR 2018 FFMP-FORM 19A

Dear Mr. Brown:

Enclosed are the analytical results for samples received by the laboratory on Tuesday, May 22, 2018.

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

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

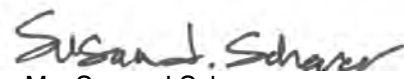
Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications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

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

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

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

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



Ms. Susan J Scherer
Project Coordinator

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SAMPLE SUMMARY

Workorder: 2316215 2ND QTR 2018 FFMP-FORM 19A

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2316215001	FFMP017W	Ground Water	5/22/2018 10:00	5/22/2018 15:25	Mr. Brian G Shade
2316215002	FFMP018W	Ground Water	5/22/2018 10:44	5/22/2018 15:25	Mr. Brian G Shade
2316215003	FFMP019W	Ground Water	5/22/2018 11:33	5/22/2018 15:25	Mr. Brian G Shade
2316215004	FFMP029W	Ground Water	5/22/2018 12:28	5/22/2018 15:25	Mr. Brian G Shade
2316215005	FFMP025W	Ground Water	5/22/2018 13:13	5/22/2018 15:25	Mr. Brian G Shade
2316215006	FFMP002W	Ground Water	5/22/2018 13:55	5/22/2018 15:25	Mr. Brian G Shade
2316215007	FIELD BLANK	Water	5/22/2018 14:00	5/22/2018 15:25	Mr. Brian G Shade
2316215008	TRIP BLANK	Water	5/22/2018 15:25	5/22/2018 15:25	Mr. Brian G Shade

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SAMPLE SUMMARY

Workorder: 2316215 2ND QTR 2018 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: 2316215 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316215001** Date Collected: 5/22/2018 10:00 Matrix: Ground Water
Sample ID: **FFMP017W** Date Received: 5/22/2018 15:25

Parameters	Results	Flag	Units	RDL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS									
Acetone	ND		ug/L	10.0	SW846 8260B		5/31/18 00:14	PDK	J
Acrylonitrile	ND		ug/L	5.0	SW846 8260B		5/31/18 00:14	PDK	J
Benzene	ND		ug/L	1.0	SW846 8260B		5/31/18 00:14	PDK	J
Bromochloromethane	ND		ug/L	1.0	SW846 8260B		5/31/18 00:14	PDK	J
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B		5/31/18 00:14	PDK	J
Bromoform	ND		ug/L	1.0	SW846 8260B		5/31/18 00:14	PDK	J
Bromomethane	ND		ug/L	1.0	SW846 8260B		5/31/18 00:14	PDK	J
2-Butanone	ND		ug/L	10.0	SW846 8260B		5/31/18 00:14	PDK	J
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B		5/31/18 00:14	PDK	J
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B		5/31/18 00:14	PDK	J
Chlorobenzene	ND		ug/L	1.0	SW846 8260B		5/31/18 00:14	PDK	J
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B		5/31/18 00:14	PDK	J
Chloroethane	ND		ug/L	1.0	SW846 8260B		5/31/18 00:14	PDK	J
Chloroform	ND		ug/L	1.0	SW846 8260B		5/31/18 00:14	PDK	J
Chloromethane	ND		ug/L	1.0	SW846 8260B		5/31/18 00:14	PDK	J
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B		5/31/18 00:14	PDK	J
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B		5/31/18 00:14	PDK	J
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B		5/31/18 00:14	PDK	J
Dibromomethane	ND		ug/L	1.0	SW846 8260B		5/31/18 00:14	PDK	J
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B		5/31/18 00:14	PDK	J
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		5/31/18 00:14	PDK	J
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		5/31/18 00:14	PDK	J
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		5/31/18 00:14	PDK	J
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B		5/31/18 00:14	PDK	J
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B		5/31/18 00:14	PDK	J
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B		5/31/18 00:14	PDK	J
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B		5/31/18 00:14	PDK	J
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B		5/31/18 00:14	PDK	J
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B		5/31/18 00:14	PDK	J
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B		5/31/18 00:14	PDK	J
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B		5/31/18 00:14	PDK	J
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B		5/31/18 00:14	PDK	J
Ethylbenzene	ND		ug/L	1.0	SW846 8260B		5/31/18 00:14	PDK	J
2-Hexanone	ND		ug/L	5.0	SW846 8260B		5/31/18 00:14	PDK	J
Iodomethane	ND		ug/L	1.0	SW846 8260B		5/31/18 00:14	PDK	J
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B		5/31/18 00:14	PDK	J

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ANALYTICAL RESULTS

Workorder: 2316215 2ND QTR 2018 FFMP-FORM 19A

Lab ID: 2316215001 **Date Collected:** 5/22/2018 10:00 **Matrix:** Ground Water
Sample ID: FFMP017W **Date Received:** 5/22/2018 15:25

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			5/31/18 00:14	PDK	J
Styrene	ND		ug/L	1.0	SW846 8260B			5/31/18 00:14	PDK	J
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/31/18 00:14	PDK	J
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/31/18 00:14	PDK	J
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			5/31/18 00:14	PDK	J
Toluene	ND		ug/L	1.0	SW846 8260B			5/31/18 00:14	PDK	J
Total Xylenes	ND		ug/L	3.0	SW846 8260B			5/31/18 00:14	PDK	J
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/31/18 00:14	PDK	J
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/31/18 00:14	PDK	J
Trichloroethene	ND		ug/L	1.0	SW846 8260B			5/31/18 00:14	PDK	J
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			5/31/18 00:14	PDK	J
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			5/31/18 00:14	PDK	J
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			5/31/18 00:14	PDK	J
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			5/31/18 00:14	PDK	J
Surrogate Recoveries	Results	Flag	Units	Limits	Method	Prepared	By	Analyzed	By	Cntr
1,2-Dichloroethane-d4 (S)	103		%	62 - 133	SW846 8260B			5/31/18 00:14	PDK	J
4-Bromofluorobenzene (S)	99.9		%	79 - 114	SW846 8260B			5/31/18 00:14	PDK	J
Dibromofluoromethane (S)	94.2		%	78 - 116	SW846 8260B			5/31/18 00:14	PDK	J
Toluene-d8 (S)	97.5		%	76 - 127	SW846 8260B			5/31/18 00:14	PDK	J

LIBRARY SEARCH - VOLATILES

No TIC's Detected Lib Search VOC 5/31/18 00:14 CPK J

WET CHEMISTRY

Alkalinity, Bicarbonate	38		mg/L	5	S2320B-97			5/24/18 08:45	MSA	B
Alkalinity, Total	38	1	mg/L	5	S2320B-97			5/24/18 08:45	MSA	B
Ammonia-N	0.250		mg/L	0.100	D6919-09			5/31/18 08:30	TES	C
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4			5/30/18 14:57	AK	C
Chloride	308		mg/L	10.0	EPA 300.0			5/23/18 09:52	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			5/23/18 09:37	CHW	B
Nitrate-N	3.1		mg/L	0.20	EPA 300.0			5/23/18 09:37	CHW	B
pH	6.21	2	pH_Units		S4500HB-11			5/24/18 08:45	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	5/30/18 12:00	NJA	5/30/18 13:40	NJA	I
Specific Conductance	1230		umhos/cm	1	S2510B-97			5/24/18 08:45	MSA	B
Sulfate	52.1		mg/L	2.0	EPA 300.0			5/23/18 09:37	CHW	B
Total Dissolved Solids	879		mg/L	5	S2540C-11			5/25/18 10:15	BMK	B
Total Organic Carbon (TOC)	1.7		mg/L	0.50	S5310B-00			5/23/18 16:03	PAG	G
Turbidity	1.42		NTU	0.10	S2130B-01			5/24/18 05:50	MSA	B

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ANALYTICAL RESULTS

Workorder: 2316215 2ND QTR 2018 FFMP-FORM 19A

Lab ID: 2316215001 **Date Collected:** 5/22/2018 10:00 **Matrix:** Ground Water
Sample ID: FFMP017W **Date Received:** 5/22/2018 15:25

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Antimony, Total	ND		mg/L	0.0022	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:46	MO	E1
Arsenic, Total	ND		mg/L	0.0033	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:46	MO	E1
Arsenic, Dissolved	ND		mg/L	0.0030	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:27	MO	D1
Barium, Total	0.086		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:46	MO	E1
Barium, Dissolved	0.086		mg/L	0.0056	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:27	MO	D1
Beryllium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:46	MO	E1
Cadmium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:46	MO	E1
Cadmium, Dissolved	ND		mg/L	0.0011	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:27	MO	D1
Calcium, Total	74.9		mg/L	0.11	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:46	MO	E1
Calcium, Dissolved	75.9		mg/L	0.11	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:27	MO	D1
Chromium, Total	ND		mg/L	0.0022	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:46	MO	E1
Chromium, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:27	MO	D1
Cobalt, Total	ND		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:46	MO	E1
Copper, Total	ND		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:46	MO	E1
Copper, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:27	MO	D1
Iron, Total	0.070		mg/L	0.056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 15:43	MO	E1
Iron, Dissolved	ND		mg/L	0.056	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:27	MO	D1
Lead, Total	ND		mg/L	0.0022	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:46	MO	E1
Lead, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:27	MO	D1
Magnesium, Total	36.5		mg/L	0.11	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:46	MO	E1
Magnesium, Dissolved	36.0		mg/L	0.11	SW846 6020A	5/24/18 17:10	AHI	5/31/18 15:50	MO	D1
Manganese, Total	0.35		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:46	MO	E1
Manganese, Dissolved	0.34		mg/L	0.0056	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:27	MO	D1
Mercury, Total	ND		mg/L	0.00050	SW846 7470A	5/29/18 06:10	AXC	5/29/18 10:34	AXC	E3
Mercury, Dissolved	ND		mg/L	0.00050	SW846 7470A	5/25/18 18:00	AXC	5/26/18 11:12	AXC	D2
Nickel, Total	0.0091		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:46	MO	E1
Potassium, Total	4.3		mg/L	0.11	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:46	MO	E1
Potassium, Dissolved	4.3		mg/L	0.11	SW846 6020A	5/24/18 17:10	AHI	5/31/18 15:50	MO	D1
Selenium, Total	ND		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:46	MO	E1
Selenium, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:27	MO	D1
Silver, Total	ND		mg/L	0.0022	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:46	MO	E1
Silver, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:27	MO	D1
Sodium, Total	70.0		mg/L	0.11	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:46	MO	E1
Sodium, Dissolved	71.6		mg/L	0.11	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:27	MO	D1
Thallium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:46	MO	E1
Vanadium, Total	ND		mg/L	0.0022	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:46	MO	E1
Zinc, Total	0.0091		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:46	MO	E1

ALS Environmental Laboratory Locations Across North America

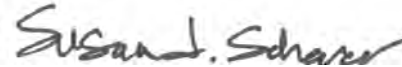
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ANALYTICAL RESULTS

Workorder: 2316215 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316215001** Date Collected: 5/22/2018 10:00 Matrix: Ground Water
Sample ID: **FFMP017W** Date Received: 5/22/2018 15:25

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Zinc, Dissolved	0.010		mg/L	0.0056	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:27	MO	D1
FIELD PARAMETERS										
Depth to Water Level	36.820		Feet		Field			5/22/18 10:00	BGS	F
Elev Top MW Casing above MSL	480.70		Feet		Field			5/22/18 10:00	BGS	F
Flow Rate	4.10		gal/min		Field			5/22/18 10:00	BGS	F
Ground Water Elevation	443.880		ft/MSL		Field			5/22/18 10:00	BGS	F
pH, Field (SM4500B)	5.160		pH_Units		Field			5/22/18 10:00	BGS	F
Sample Depth	135.000		Feet		Field			5/22/18 10:00	BGS	F
Specific Conductance, Field	1288		umhos/cm	1	Field			5/22/18 10:00	BGS	F
Temperature	10.84		Deg. C		Field			5/22/18 10:00	BGS	F
Total Well Depth	150.500		Feet		Field			5/22/18 10:00	BGS	F
Volume in Water Column	167.110		Gallons		Field			5/22/18 10:00	BGS	F
Water Level After Purge	50.840		Feet		Field			5/22/18 10:00	BGS	F
Well Volumes Purged	2.45		Vol		Field			5/22/18 10:00	BGS	F



Ms. Susan J Scherer
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2316215 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316215002**
Sample ID: **FFMP018W**

Date Collected: 5/22/2018 10:44 Matrix: Ground Water
Date Received: 5/22/2018 15:25

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Acetone	ND		ug/L	10.0	SW846 8260B			5/31/18 00:37	PDK	J
Acrylonitrile	ND		ug/L	5.0	SW846 8260B			5/31/18 00:37	PDK	J
Benzene	ND		ug/L	1.0	SW846 8260B			5/31/18 00:37	PDK	J
Bromochloromethane	ND		ug/L	1.0	SW846 8260B			5/31/18 00:37	PDK	J
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B			5/31/18 00:37	PDK	J
Bromoform	ND		ug/L	1.0	SW846 8260B			5/31/18 00:37	PDK	J
Bromomethane	ND		ug/L	1.0	SW846 8260B			5/31/18 00:37	PDK	J
2-Butanone	ND		ug/L	10.0	SW846 8260B			5/31/18 00:37	PDK	J
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B			5/31/18 00:37	PDK	J
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B			5/31/18 00:37	PDK	J
Chlorobenzene	ND		ug/L	1.0	SW846 8260B			5/31/18 00:37	PDK	J
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B			5/31/18 00:37	PDK	J
Chloroethane	ND		ug/L	1.0	SW846 8260B			5/31/18 00:37	PDK	J
Chloroform	ND		ug/L	1.0	SW846 8260B			5/31/18 00:37	PDK	J
Chloromethane	ND		ug/L	1.0	SW846 8260B			5/31/18 00:37	PDK	J
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B			5/31/18 00:37	PDK	J
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B			5/31/18 00:37	PDK	J
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			5/31/18 00:37	PDK	J
Dibromomethane	ND		ug/L	1.0	SW846 8260B			5/31/18 00:37	PDK	J
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B			5/31/18 00:37	PDK	J
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/31/18 00:37	PDK	J
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/31/18 00:37	PDK	J
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/31/18 00:37	PDK	J
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B			5/31/18 00:37	PDK	J
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/31/18 00:37	PDK	J
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/31/18 00:37	PDK	J
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/31/18 00:37	PDK	J
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/31/18 00:37	PDK	J
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/31/18 00:37	PDK	J
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B			5/31/18 00:37	PDK	J
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/31/18 00:37	PDK	J
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/31/18 00:37	PDK	J
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			5/31/18 00:37	PDK	J
2-Hexanone	ND		ug/L	5.0	SW846 8260B			5/31/18 00:37	PDK	J
Iodomethane	ND		ug/L	1.0	SW846 8260B			5/31/18 00:37	PDK	J
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B			5/31/18 00:37	PDK	J

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ANALYTICAL RESULTS

Workorder: 2316215 2ND QTR 2018 FFMP-FORM 19A

Lab ID: 2316215002 **Date Collected:** 5/22/2018 10:44 **Matrix:** Ground Water
Sample ID: FFMP018W **Date Received:** 5/22/2018 15:25

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			5/31/18 00:37	PDK	J
Styrene	ND		ug/L	1.0	SW846 8260B			5/31/18 00:37	PDK	J
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/31/18 00:37	PDK	J
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/31/18 00:37	PDK	J
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			5/31/18 00:37	PDK	J
Toluene	ND		ug/L	1.0	SW846 8260B			5/31/18 00:37	PDK	J
Total Xylenes	ND		ug/L	3.0	SW846 8260B			5/31/18 00:37	PDK	J
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/31/18 00:37	PDK	J
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/31/18 00:37	PDK	J
Trichloroethene	ND		ug/L	1.0	SW846 8260B			5/31/18 00:37	PDK	J
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			5/31/18 00:37	PDK	J
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			5/31/18 00:37	PDK	J
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			5/31/18 00:37	PDK	J
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			5/31/18 00:37	PDK	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)	103		%	62 - 133	SW846 8260B			5/31/18 00:37	PDK	J
4-Bromofluorobenzene (S)	102		%	79 - 114	SW846 8260B			5/31/18 00:37	PDK	J
Dibromofluoromethane (S)	93.8		%	78 - 116	SW846 8260B			5/31/18 00:37	PDK	J
Toluene-d8 (S)	98.5		%	76 - 127	SW846 8260B			5/31/18 00:37	PDK	J
Library Search - Volatiles										
Silanol, trimethyl-	1.9	J N	ug/L		SW846 8260B			5/31/18 00:37	PDK	J
WET CHEMISTRY										
Alkalinity, Bicarbonate	39		mg/L	5	S2320B-97			5/24/18 09:45	MSA	B
Alkalinity, Total	39	1	mg/L	5	S2320B-97			5/24/18 09:45	MSA	B
Ammonia-N	2.04		mg/L	0.100	D6919-09			5/31/18 08:45	TES	C
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4			5/30/18 14:57	AK	C
Chloride	240		mg/L	10.0	EPA 300.0			5/23/18 10:22	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			5/23/18 10:07	CHW	B
Nitrate-N	7.6		mg/L	0.20	EPA 300.0			5/23/18 10:07	CHW	B
pH	6.20	2	pH_Units		S4500HB-11			5/24/18 09:45	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	5/30/18 12:00	NJA	5/30/18 13:40	NJA	I
Specific Conductance	1060		umhos/cm	1	S2510B-97			5/24/18 09:45	MSA	B
Sulfate	49.7		mg/L	2.0	EPA 300.0			5/23/18 10:07	CHW	B
Total Dissolved Solids	607		mg/L	5	S2540C-11			5/25/18 10:15	BMK	B
Total Organic Carbon (TOC)	2.0		mg/L	0.50	S5310B-00			5/23/18 16:03	PAG	G
Turbidity	ND		NTU	0.10	S2130B-01			5/24/18 05:50	MSA	B

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ANALYTICAL RESULTS

Workorder: 2316215 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316215002** Date Collected: 5/22/2018 10:44 Matrix: Ground Water
Sample ID: **FFMP018W** Date Received: 5/22/2018 15:25

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Antimony, Total	ND		mg/L	0.0022	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:50	MO	E1
Arsenic, Total	ND		mg/L	0.0033	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:50	MO	E1
Arsenic, Dissolved	ND		mg/L	0.0030	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:31	MO	D1
Barium, Total	0.14		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:50	MO	E1
Barium, Dissolved	0.14		mg/L	0.0056	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:31	MO	D1
Beryllium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:50	MO	E1
Cadmium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:50	MO	E1
Cadmium, Dissolved	ND		mg/L	0.0011	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:31	MO	D1
Calcium, Total	51.9		mg/L	0.11	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:50	MO	E1
Calcium, Dissolved	47.7		mg/L	0.11	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:31	MO	D1
Chromium, Total	ND		mg/L	0.0022	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:50	MO	E1
Chromium, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:31	MO	D1
Cobalt, Total	0.027		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:50	MO	E1
Copper, Total	ND		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:50	MO	E1
Copper, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:31	MO	D1
Iron, Total	ND		mg/L	0.056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 15:47	MO	E1
Iron, Dissolved	ND		mg/L	0.056	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:31	MO	D1
Lead, Total	ND		mg/L	0.0022	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:50	MO	E1
Lead, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:31	MO	D1
Magnesium, Total	19.8		mg/L	0.11	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:50	MO	E1
Magnesium, Dissolved	19.4		mg/L	0.11	SW846 6020A	5/24/18 17:10	AHI	5/31/18 16:05	MO	D1
Manganese, Total	0.74		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:50	MO	E1
Manganese, Dissolved	0.74		mg/L	0.0056	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:31	MO	D1
Mercury, Total	ND		mg/L	0.00050	SW846 7470A	5/29/18 06:10	AXC	5/29/18 10:36	AXC	E3
Mercury, Dissolved	ND		mg/L	0.00050	SW846 7470A	5/25/18 18:00	AXC	5/26/18 11:13	AXC	D2
Nickel, Total	0.0074		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:50	MO	E1
Potassium, Total	18.1		mg/L	0.11	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:50	MO	E1
Potassium, Dissolved	15.0		mg/L	0.11	SW846 6020A	5/24/18 17:10	AHI	5/31/18 16:05	MO	D1
Selenium, Total	ND		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:50	MO	E1
Selenium, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:31	MO	D1
Silver, Total	ND		mg/L	0.0022	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:50	MO	E1
Silver, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:31	MO	D1
Sodium, Total	89.1		mg/L	0.11	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:50	MO	E1
Sodium, Dissolved	87.6		mg/L	0.11	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:31	MO	D1
Thallium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:50	MO	E1
Vanadium, Total	ND		mg/L	0.0022	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:50	MO	E1
Zinc, Total	0.016		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:50	MO	E1

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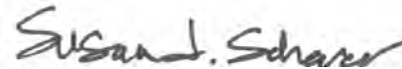
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ANALYTICAL RESULTS

Workorder: 2316215 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316215002** Date Collected: 5/22/2018 10:44 Matrix: Ground Water
Sample ID: **FFMP018W** Date Received: 5/22/2018 15:25

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Zinc, Dissolved	0.019		mg/L	0.0056	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:31	MO	D1
FIELD PARAMETERS										
Depth to Water Level	21.480		Feet		Field			5/22/18 10:45	BGS	F
Elev Top MW Casing above MSL	472.20		Feet		Field			5/22/18 10:45	BGS	F
Flow Rate	5.05		gal/min		Field			5/22/18 10:45	BGS	F
Ground Water Elevation	450.720		ft/MSL		Field			5/22/18 10:45	BGS	F
pH, Field (SM4500B)	5.170		pH_Units		Field			5/22/18 10:45	BGS	F
Sample Depth	40.000		Feet		Field			5/22/18 10:45	BGS	F
Specific Conductance, Field	1322		umhos/cm	1	Field			5/22/18 10:45	BGS	F
Temperature	13.11		Deg. C		Field			5/22/18 10:45	BGS	F
Total Well Depth	51.460		Feet		Field			5/22/18 10:45	BGS	F
Volume in Water Column	19.487		Gallons		Field			5/22/18 10:45	BGS	F
Water Level After Purge	24.350		Feet		Field			5/22/18 10:45	BGS	F
Well Volumes Purged	3.11		Vol		Field			5/22/18 10:45	BGS	F



Ms. Susan J Scherer
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2316215 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316215003** Date Collected: 5/22/2018 11:33 Matrix: Ground Water
Sample ID: **FFMP019W** Date Received: 5/22/2018 15:25

Parameters	Results	Flag	Units	RDL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS									
Acetone	ND		ug/L	10.0	SW846 8260B		5/31/18 00:59	PDK	J
Acrylonitrile	ND		ug/L	5.0	SW846 8260B		5/31/18 00:59	PDK	J
Benzene	ND		ug/L	1.0	SW846 8260B		5/31/18 00:59	PDK	J
Bromochloromethane	ND		ug/L	1.0	SW846 8260B		5/31/18 00:59	PDK	J
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B		5/31/18 00:59	PDK	J
Bromoform	ND		ug/L	1.0	SW846 8260B		5/31/18 00:59	PDK	J
Bromomethane	ND		ug/L	1.0	SW846 8260B		5/31/18 00:59	PDK	J
2-Butanone	ND		ug/L	10.0	SW846 8260B		5/31/18 00:59	PDK	J
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B		5/31/18 00:59	PDK	J
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B		5/31/18 00:59	PDK	J
Chlorobenzene	ND		ug/L	1.0	SW846 8260B		5/31/18 00:59	PDK	J
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B		5/31/18 00:59	PDK	J
Chloroethane	ND		ug/L	1.0	SW846 8260B		5/31/18 00:59	PDK	J
Chloroform	ND		ug/L	1.0	SW846 8260B		5/31/18 00:59	PDK	J
Chloromethane	ND		ug/L	1.0	SW846 8260B		5/31/18 00:59	PDK	J
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B		5/31/18 00:59	PDK	J
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B		5/31/18 00:59	PDK	J
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B		5/31/18 00:59	PDK	J
Dibromomethane	ND		ug/L	1.0	SW846 8260B		5/31/18 00:59	PDK	J
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B		5/31/18 00:59	PDK	J
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		5/31/18 00:59	PDK	J
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		5/31/18 00:59	PDK	J
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		5/31/18 00:59	PDK	J
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B		5/31/18 00:59	PDK	J
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B		5/31/18 00:59	PDK	J
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B		5/31/18 00:59	PDK	J
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B		5/31/18 00:59	PDK	J
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B		5/31/18 00:59	PDK	J
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B		5/31/18 00:59	PDK	J
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B		5/31/18 00:59	PDK	J
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B		5/31/18 00:59	PDK	J
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B		5/31/18 00:59	PDK	J
Ethylbenzene	ND		ug/L	1.0	SW846 8260B		5/31/18 00:59	PDK	J
2-Hexanone	ND		ug/L	5.0	SW846 8260B		5/31/18 00:59	PDK	J
Iodomethane	ND		ug/L	1.0	SW846 8260B		5/31/18 00:59	PDK	J
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B		5/31/18 00:59	PDK	J

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ANALYTICAL RESULTS

Workorder: 2316215 2ND QTR 2018 FFMP-FORM 19A

Lab ID: 2316215003 **Date Collected:** 5/22/2018 11:33 **Matrix:** Ground Water
Sample ID: FFMP019W **Date Received:** 5/22/2018 15:25

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			5/31/18 00:59	PDK	J
Styrene	ND		ug/L	1.0	SW846 8260B			5/31/18 00:59	PDK	J
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/31/18 00:59	PDK	J
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/31/18 00:59	PDK	J
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			5/31/18 00:59	PDK	J
Toluene	ND		ug/L	1.0	SW846 8260B			5/31/18 00:59	PDK	J
Total Xylenes	ND		ug/L	3.0	SW846 8260B			5/31/18 00:59	PDK	J
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/31/18 00:59	PDK	J
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/31/18 00:59	PDK	J
Trichloroethene	ND		ug/L	1.0	SW846 8260B			5/31/18 00:59	PDK	J
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			5/31/18 00:59	PDK	J
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			5/31/18 00:59	PDK	J
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			5/31/18 00:59	PDK	J
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			5/31/18 00:59	PDK	J

Surrogate Recoveries	Results	Flag	Units	Limits	Method	Prepared	By	Analyzed	By	Cntr
1,2-Dichloroethane-d4 (S)	104		%	62 - 133	SW846 8260B			5/31/18 00:59	PDK	J
4-Bromofluorobenzene (S)	98.5		%	79 - 114	SW846 8260B			5/31/18 00:59	PDK	J
Dibromofluoromethane (S)	93.5		%	78 - 116	SW846 8260B			5/31/18 00:59	PDK	J
Toluene-d8 (S)	99.5		%	76 - 127	SW846 8260B			5/31/18 00:59	PDK	J

LIBRARY SEARCH - VOLATILES

No TIC's Detected Lib Search VOC 5/31/18 00:59 CPK J

WET CHEMISTRY

Alkalinity, Bicarbonate	72		mg/L	5	S2320B-97			5/24/18 09:54	MSA	B
Alkalinity, Total	72	1	mg/L	5	S2320B-97			5/24/18 09:54	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			5/31/18 10:22	TES	C
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4			5/30/18 14:57	AK	C
Chloride	77.9		mg/L	2.0	EPA 300.0			5/23/18 10:37	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			5/23/18 10:37	CHW	B
Nitrate-N	0.32		mg/L	0.20	EPA 300.0			5/23/18 10:37	CHW	B
pH	6.88	2	pH_Units		S4500HB-11			5/24/18 09:54	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	5/30/18 12:00	NJA	5/30/18 13:40	NJA	I
Specific Conductance	433		umhos/cm	1	S2510B-97			5/24/18 09:54	MSA	B
Sulfate	14.9		mg/L	2.0	EPA 300.0			5/23/18 10:37	CHW	B
Total Dissolved Solids	258		mg/L	5	S2540C-11			5/25/18 10:15	BMK	B
Total Organic Carbon (TOC)	0.52		mg/L	0.50	S5310B-00			5/23/18 16:03	PAG	G
Turbidity	ND		NTU	0.10	S2130B-01			5/24/18 05:50	MSA	B

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ANALYTICAL RESULTS

Workorder: 2316215 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316215003** Date Collected: 5/22/2018 11:33 Matrix: Ground Water
Sample ID: **FFMP019W** Date Received: 5/22/2018 15:25

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Antimony, Total	ND		mg/L	0.0022	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:54	MO	E1
Arsenic, Total	ND		mg/L	0.0033	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:54	MO	E1
Arsenic, Dissolved	ND		mg/L	0.0030	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:35	MO	D1
Barium, Total	0.077		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:54	MO	E1
Barium, Dissolved	0.077		mg/L	0.0056	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:35	MO	D1
Beryllium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:54	MO	E1
Cadmium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:54	MO	E1
Cadmium, Dissolved	ND		mg/L	0.0011	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:35	MO	D1
Calcium, Total	52.0		mg/L	0.11	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:54	MO	E1
Calcium, Dissolved	52.3		mg/L	0.11	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:35	MO	D1
Chromium, Total	ND		mg/L	0.0022	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:54	MO	E1
Chromium, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:35	MO	D1
Cobalt, Total	ND		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:54	MO	E1
Copper, Total	ND		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:54	MO	E1
Copper, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:35	MO	D1
Iron, Total	ND		mg/L	0.056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 15:51	MO	E1
Iron, Dissolved	ND		mg/L	0.056	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:35	MO	D1
Lead, Total	ND		mg/L	0.0022	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:54	MO	E1
Lead, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:35	MO	D1
Magnesium, Total	5.3		mg/L	0.11	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:54	MO	E1
Magnesium, Dissolved	5.4		mg/L	0.11	SW846 6020A	5/24/18 17:10	AHI	5/31/18 16:09	MO	D1
Manganese, Total	ND		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:54	MO	E1
Manganese, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:35	MO	D1
Mercury, Total	ND		mg/L	0.00050	SW846 7470A	5/29/18 06:10	AXC	5/29/18 10:39	AXC	E3
Mercury, Dissolved	ND		mg/L	0.00050	SW846 7470A	5/25/18 18:00	AXC	5/26/18 11:14	AXC	D2
Nickel, Total	ND		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:54	MO	E1
Potassium, Total	0.81		mg/L	0.11	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:54	MO	E1
Potassium, Dissolved	0.82		mg/L	0.11	SW846 6020A	5/24/18 17:10	AHI	5/31/18 16:09	MO	D1
Selenium, Total	ND		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:54	MO	E1
Selenium, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:35	MO	D1
Silver, Total	ND		mg/L	0.0022	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:54	MO	E1
Silver, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:35	MO	D1
Sodium, Total	9.4		mg/L	0.11	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:54	MO	E1
Sodium, Dissolved	9.7		mg/L	0.11	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:35	MO	D1
Thallium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:54	MO	E1
Vanadium, Total	ND		mg/L	0.0022	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:54	MO	E1
Zinc, Total	0.0057		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:54	MO	E1

ALS Environmental Laboratory Locations Across North America

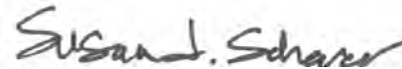
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ANALYTICAL RESULTS

Workorder: 2316215 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316215003** Date Collected: 5/22/2018 11:33 Matrix: Ground Water
Sample ID: **FFMP019W** Date Received: 5/22/2018 15:25

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Zinc, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:35	MO	D1
FIELD PARAMETERS										
Depth to Water Level	25.090		Feet		Field			5/22/18 11:33	BGS	F
Elev Top MW Casing above MSL	471.95		Feet		Field			5/22/18 11:33	BGS	F
Flow Rate	4.26		gal/min		Field			5/22/18 11:33	BGS	F
Ground Water Elevation	446.860		ft/MSL		Field			5/22/18 11:33	BGS	F
pH, Field (SM4500B)	6.080		pH_Units		Field			5/22/18 11:33	BGS	F
Sample Depth	49.000		Feet		Field			5/22/18 11:33	BGS	F
Specific Conductance, Field	457		umhos/cm	1	Field			5/22/18 11:33	BGS	F
Temperature	11.73		Deg. C		Field			5/22/18 11:33	BGS	F
Total Well Depth	132.790		Feet		Field			5/22/18 11:33	BGS	F
Volume in Water Column	70.005		Gallons		Field			5/22/18 11:33	BGS	F
Water Level After Purge	31.830		Feet		Field			5/22/18 11:33	BGS	F
Well Volumes Purged	2.44		Vol		Field			5/22/18 11:33	BGS	F



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ANALYTICAL RESULTS

Workorder: 2316215 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316215004** Date Collected: 5/22/2018 12:28 Matrix: Ground Water
Sample ID: **FFMP029W** Date Received: 5/22/2018 15:25

Parameters	Results	Flag	Units	RDL	Method	Prepared By	Analyzed By	Cntr
VOLATILE ORGANICS								
Acetone	ND		ug/L	10.0	SW846 8260B		5/31/18 01:22	PDK J
Acrylonitrile	ND		ug/L	5.0	SW846 8260B		5/31/18 01:22	PDK J
Benzene	ND		ug/L	1.0	SW846 8260B		5/31/18 01:22	PDK J
Bromochloromethane	ND		ug/L	1.0	SW846 8260B		5/31/18 01:22	PDK J
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B		5/31/18 01:22	PDK J
Bromoform	ND		ug/L	1.0	SW846 8260B		5/31/18 01:22	PDK J
Bromomethane	ND		ug/L	1.0	SW846 8260B		5/31/18 01:22	PDK J
2-Butanone	ND		ug/L	10.0	SW846 8260B		5/31/18 01:22	PDK J
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B		5/31/18 01:22	PDK J
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B		5/31/18 01:22	PDK J
Chlorobenzene	ND		ug/L	1.0	SW846 8260B		5/31/18 01:22	PDK J
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B		5/31/18 01:22	PDK J
Chloroethane	ND		ug/L	1.0	SW846 8260B		5/31/18 01:22	PDK J
Chloroform	ND		ug/L	1.0	SW846 8260B		5/31/18 01:22	PDK J
Chloromethane	ND		ug/L	1.0	SW846 8260B		5/31/18 01:22	PDK J
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B		5/31/18 01:22	PDK J
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B		5/31/18 01:22	PDK J
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B		5/31/18 01:22	PDK J
Dibromomethane	ND		ug/L	1.0	SW846 8260B		5/31/18 01:22	PDK J
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B		5/31/18 01:22	PDK J
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		5/31/18 01:22	PDK J
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		5/31/18 01:22	PDK J
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		5/31/18 01:22	PDK J
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B		5/31/18 01:22	PDK J
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B		5/31/18 01:22	PDK J
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B		5/31/18 01:22	PDK J
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B		5/31/18 01:22	PDK J
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B		5/31/18 01:22	PDK J
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B		5/31/18 01:22	PDK J
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B		5/31/18 01:22	PDK J
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B		5/31/18 01:22	PDK J
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B		5/31/18 01:22	PDK J
Ethylbenzene	ND		ug/L	1.0	SW846 8260B		5/31/18 01:22	PDK J
2-Hexanone	ND		ug/L	5.0	SW846 8260B		5/31/18 01:22	PDK J
Iodomethane	ND		ug/L	1.0	SW846 8260B		5/31/18 01:22	PDK J
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B		5/31/18 01:22	PDK J

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ANALYTICAL RESULTS

Workorder: 2316215 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316215004** Date Collected: 5/22/2018 12:28 Matrix: Ground Water
Sample ID: **FFMP029W** Date Received: 5/22/2018 15:25

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			5/31/18 01:22	PDK	J
Styrene	ND		ug/L	1.0	SW846 8260B			5/31/18 01:22	PDK	J
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/31/18 01:22	PDK	J
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/31/18 01:22	PDK	J
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			5/31/18 01:22	PDK	J
Toluene	ND		ug/L	1.0	SW846 8260B			5/31/18 01:22	PDK	J
Total Xylenes	ND		ug/L	3.0	SW846 8260B			5/31/18 01:22	PDK	J
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/31/18 01:22	PDK	J
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/31/18 01:22	PDK	J
Trichloroethene	ND		ug/L	1.0	SW846 8260B			5/31/18 01:22	PDK	J
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			5/31/18 01:22	PDK	J
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			5/31/18 01:22	PDK	J
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			5/31/18 01:22	PDK	J
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			5/31/18 01:22	PDK	J
Surrogate Recoveries	Results	Flag	Units	Limits	Method	Prepared	By	Analyzed	By	Cntr
1,2-Dichloroethane-d4 (S)	104		%	62 - 133	SW846 8260B			5/31/18 01:22	PDK	J
4-Bromofluorobenzene (S)	99.7		%	79 - 114	SW846 8260B			5/31/18 01:22	PDK	J
Dibromofluoromethane (S)	96.9		%	78 - 116	SW846 8260B			5/31/18 01:22	PDK	J
Toluene-d8 (S)	100		%	76 - 127	SW846 8260B			5/31/18 01:22	PDK	J

LIBRARY SEARCH - VOLATILES

No TIC's Detected . Lib Search VOC 5/31/18 01:22 CPK J

WET CHEMISTRY

Alkalinity, Bicarbonate	15		mg/L	5	S2320B-97			5/24/18 10:03	MSA	B
Alkalinity, Total	15	1	mg/L	5	S2320B-97			5/24/18 10:03	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			6/6/18 20:35	TES	C
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4			5/30/18 14:57	AK	C
Chloride	80.9		mg/L	2.0	EPA 300.0			5/23/18 10:51	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			5/23/18 10:51	CHW	B
Nitrate-N	3.7		mg/L	0.20	EPA 300.0			5/23/18 10:51	CHW	B
pH	5.86	2	pH_Units		S4500HB-11			5/24/18 10:03	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	5/30/18 12:00	NJA	5/30/18 13:40	NJA	I
Specific Conductance	314		umhos/cm	1	S2510B-97			5/24/18 10:03	MSA	B
Sulfate	5.1		mg/L	2.0	EPA 300.0			5/23/18 10:51	CHW	B
Total Dissolved Solids	180		mg/L	5	S2540C-11			5/25/18 10:15	BMK	B
Total Organic Carbon (TOC)	0.69		mg/L	0.50	S5310B-00			5/23/18 16:03	PAG	G
Turbidity	1.27		NTU	0.10	S2130B-01			5/24/18 05:50	MSA	B

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ANALYTICAL RESULTS

Workorder: 2316215 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316215004** Date Collected: 5/22/2018 12:28 Matrix: Ground Water
Sample ID: **FFMP029W** Date Received: 5/22/2018 15:25

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Antimony, Total	ND		mg/L	0.0022	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:57	MO	E1
Arsenic, Total	ND		mg/L	0.0033	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:57	MO	E1
Arsenic, Dissolved	ND		mg/L	0.0030	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:39	MO	D1
Barium, Total	0.075		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:57	MO	E1
Barium, Dissolved	0.075		mg/L	0.0056	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:39	MO	D1
Beryllium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:57	MO	E1
Cadmium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:57	MO	E1
Cadmium, Dissolved	ND		mg/L	0.0011	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:39	MO	D1
Calcium, Total	13.9		mg/L	0.11	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:57	MO	E1
Calcium, Dissolved	14.0		mg/L	0.11	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:39	MO	D1
Chromium, Total	ND		mg/L	0.0022	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:57	MO	E1
Chromium, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:39	MO	D1
Cobalt, Total	ND		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:57	MO	E1
Copper, Total	ND		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:57	MO	E1
Copper, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:39	MO	D1
Iron, Total	ND		mg/L	0.056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 15:55	MO	E1
Iron, Dissolved	ND		mg/L	0.056	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:39	MO	D1
Lead, Total	ND		mg/L	0.0022	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:57	MO	E1
Lead, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:39	MO	D1
Magnesium, Total	10		mg/L	0.11	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:57	MO	E1
Magnesium, Dissolved	10.3		mg/L	0.11	SW846 6020A	5/24/18 17:10	AHI	5/31/18 16:13	MO	D1
Manganese, Total	0.045		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:57	MO	E1
Manganese, Dissolved	0.044		mg/L	0.0056	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:39	MO	D1
Mercury, Total	ND		mg/L	0.00050	SW846 7470A	5/29/18 06:10	AXC	5/29/18 10:40	AXC	E3
Mercury, Dissolved	ND		mg/L	0.00050	SW846 7470A	5/25/18 18:00	AXC	5/26/18 11:17	AXC	D2
Nickel, Total	ND		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:57	MO	E1
Potassium, Total	1.9		mg/L	0.11	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:57	MO	E1
Potassium, Dissolved	2.0		mg/L	0.11	SW846 6020A	5/24/18 17:10	AHI	5/31/18 16:13	MO	D1
Selenium, Total	ND		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:57	MO	E1
Selenium, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:39	MO	D1
Silver, Total	ND		mg/L	0.0022	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:57	MO	E1
Silver, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:39	MO	D1
Sodium, Total	24.7		mg/L	0.11	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:57	MO	E1
Sodium, Dissolved	25.6		mg/L	0.11	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:39	MO	D1
Thallium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:57	MO	E1
Vanadium, Total	ND		mg/L	0.0022	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:57	MO	E1
Zinc, Total	0.0076		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:57	MO	E1

ALS Environmental Laboratory Locations Across North America

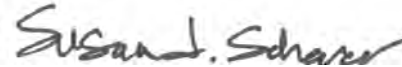
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ANALYTICAL RESULTS

Workorder: 2316215 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316215004** Date Collected: 5/22/2018 12:28 Matrix: Ground Water
Sample ID: **FFMP029W** Date Received: 5/22/2018 15:25

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Zinc, Dissolved	0.0081		mg/L	0.0056	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:39	MO	D1
FIELD PARAMETERS										
Depth to Water Level	35.340		Feet		Field			5/22/18 12:28	BGS	F
Elev Top MW Casing above MSL	477.30		Feet		Field			5/22/18 12:28	BGS	F
Flow Rate	2.56		gal/min		Field			5/22/18 12:28	BGS	F
Ground Water Elevation	441.960		ft/MSL		Field			5/22/18 12:28	BGS	F
pH, Field (SM4500B)	4.830		pH_Units		Field			5/22/18 12:28	BGS	F
Sample Depth	55.000		Feet		Field			5/22/18 12:28	BGS	F
Specific Conductance, Field	354		umhos/cm	1	Field			5/22/18 12:28	BGS	F
Temperature	12.40		Deg. C		Field			5/22/18 12:28	BGS	F
Total Well Depth	60.500		Feet		Field			5/22/18 12:28	BGS	F
Volume in Water Column	36.985		Gallons		Field			5/22/18 12:28	BGS	F
Water Level After Purge	41.590		Feet		Field			5/22/18 12:28	BGS	F
Well Volumes Purged	2.77		Vol		Field			5/22/18 12:28	BGS	F



Ms. Susan J Scherer
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2316215 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316215005** Date Collected: 5/22/2018 13:13 Matrix: Ground Water
Sample ID: **FFMP025W** Date Received: 5/22/2018 15:25

Parameters	Results	Flag	Units	RDL	Method	Prepared By	Analyzed By	Cntr
VOLATILE ORGANICS								
Acetone	13.8		ug/L	10.0	SW846 8260B		5/31/18 01:45	PDK J
Acrylonitrile	ND		ug/L	5.0	SW846 8260B		5/31/18 01:45	PDK J
Benzene	ND		ug/L	1.0	SW846 8260B		5/31/18 01:45	PDK J
Bromochloromethane	ND		ug/L	1.0	SW846 8260B		5/31/18 01:45	PDK J
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B		5/31/18 01:45	PDK J
Bromoform	ND		ug/L	1.0	SW846 8260B		5/31/18 01:45	PDK J
Bromomethane	ND		ug/L	1.0	SW846 8260B		5/31/18 01:45	PDK J
2-Butanone	ND		ug/L	10.0	SW846 8260B		5/31/18 01:45	PDK J
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B		5/31/18 01:45	PDK J
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B		5/31/18 01:45	PDK J
Chlorobenzene	ND		ug/L	1.0	SW846 8260B		5/31/18 01:45	PDK J
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B		5/31/18 01:45	PDK J
Chloroethane	ND		ug/L	1.0	SW846 8260B		5/31/18 01:45	PDK J
Chloroform	ND		ug/L	1.0	SW846 8260B		5/31/18 01:45	PDK J
Chloromethane	ND		ug/L	1.0	SW846 8260B		5/31/18 01:45	PDK J
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B		5/31/18 01:45	PDK J
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B		5/31/18 01:45	PDK J
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B		5/31/18 01:45	PDK J
Dibromomethane	ND		ug/L	1.0	SW846 8260B		5/31/18 01:45	PDK J
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B		5/31/18 01:45	PDK J
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		5/31/18 01:45	PDK J
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		5/31/18 01:45	PDK J
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		5/31/18 01:45	PDK J
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B		5/31/18 01:45	PDK J
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B		5/31/18 01:45	PDK J
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B		5/31/18 01:45	PDK J
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B		5/31/18 01:45	PDK J
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B		5/31/18 01:45	PDK J
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B		5/31/18 01:45	PDK J
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B		5/31/18 01:45	PDK J
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B		5/31/18 01:45	PDK J
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B		5/31/18 01:45	PDK J
Ethylbenzene	ND		ug/L	1.0	SW846 8260B		5/31/18 01:45	PDK J
2-Hexanone	ND		ug/L	5.0	SW846 8260B		5/31/18 01:45	PDK J
Iodomethane	ND		ug/L	1.0	SW846 8260B		5/31/18 01:45	PDK J
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B		5/31/18 01:45	PDK J

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ANALYTICAL RESULTS

Workorder: 2316215 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316215005** Date Collected: 5/22/2018 13:13 Matrix: Ground Water
Sample ID: **FFMP025W** Date Received: 5/22/2018 15:25

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			5/31/18 01:45	PDK	J
Styrene	ND		ug/L	1.0	SW846 8260B			5/31/18 01:45	PDK	J
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/31/18 01:45	PDK	J
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/31/18 01:45	PDK	J
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			5/31/18 01:45	PDK	J
Toluene	ND		ug/L	1.0	SW846 8260B			5/31/18 01:45	PDK	J
Total Xylenes	ND		ug/L	3.0	SW846 8260B			5/31/18 01:45	PDK	J
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/31/18 01:45	PDK	J
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/31/18 01:45	PDK	J
Trichloroethene	ND		ug/L	1.0	SW846 8260B			5/31/18 01:45	PDK	J
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			5/31/18 01:45	PDK	J
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			5/31/18 01:45	PDK	J
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			5/31/18 01:45	PDK	J
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			5/31/18 01:45	PDK	J
Surrogate Recoveries	Results	Flag	Units	Limits	Method	Prepared	By	Analyzed	By	Cntr
1,2-Dichloroethane-d4 (S)	105		%	62 - 133	SW846 8260B			5/31/18 01:45	PDK	J
4-Bromofluorobenzene (S)	102		%	79 - 114	SW846 8260B			5/31/18 01:45	PDK	J
Dibromofluoromethane (S)	96.5		%	78 - 116	SW846 8260B			5/31/18 01:45	PDK	J
Toluene-d8 (S)	99.7		%	76 - 127	SW846 8260B			5/31/18 01:45	PDK	J

LIBRARY SEARCH - VOLATILES

No TIC's Detected . Lib Search VOC 5/31/18 01:45 CPK J

WET CHEMISTRY

Alkalinity, Bicarbonate	31		mg/L	5	S2320B-97			5/24/18 10:11	MSA	B
Alkalinity, Total	31	1	mg/L	5	S2320B-97			5/24/18 10:11	MSA	B
Ammonia-N	0.195		mg/L	0.100	D6919-09			6/6/18 20:50	TES	C
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4			5/30/18 14:57	AK	C
Chloride	87.9		mg/L	2.0	EPA 300.0			5/23/18 11:06	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			5/23/18 11:06	CHW	B
Nitrate-N	4.8		mg/L	0.20	EPA 300.0			5/23/18 11:06	CHW	B
pH	6.23	2	pH_Units		S4500HB-11			5/24/18 10:11	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	5/30/18 12:00	NJA	5/30/18 13:40	NJA	I
Specific Conductance	492		umhos/cm	1	S2510B-97			5/24/18 10:11	MSA	B
Sulfate	40.9		mg/L	2.0	EPA 300.0			5/23/18 11:06	CHW	B
Total Dissolved Solids	246		mg/L	5	S2540C-11			5/25/18 10:15	BMK	B
Total Organic Carbon (TOC)	1.6		mg/L	0.50	S5310B-00			5/23/18 16:03	PAG	G
Turbidity	ND		NTU	0.10	S2130B-01			5/24/18 05:50	MSA	B

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ANALYTICAL RESULTS

Workorder: 2316215 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316215005** Date Collected: 5/22/2018 13:13 Matrix: Ground Water
Sample ID: **FFMP025W** Date Received: 5/22/2018 15:25

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Antimony, Total	ND		mg/L	0.0022	SW846 6020A	5/23/18 14:00	DXC	5/31/18 14:01	MO	E1
Arsenic, Total	ND		mg/L	0.0033	SW846 6020A	5/23/18 14:00	DXC	5/31/18 14:01	MO	E1
Arsenic, Dissolved	ND		mg/L	0.0030	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:43	MO	D1
Barium, Total	0.063		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 14:01	MO	E1
Barium, Dissolved	0.063		mg/L	0.0056	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:43	MO	D1
Beryllium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/18 14:00	DXC	5/31/18 14:01	MO	E1
Cadmium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/18 14:00	DXC	5/31/18 14:01	MO	E1
Cadmium, Dissolved	ND		mg/L	0.0011	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:43	MO	D1
Calcium, Total	28.9		mg/L	0.11	SW846 6020A	5/23/18 14:00	DXC	5/31/18 14:01	MO	E1
Calcium, Dissolved	29.0		mg/L	0.11	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:43	MO	D1
Chromium, Total	0.0030		mg/L	0.0022	SW846 6020A	5/23/18 14:00	DXC	5/31/18 14:01	MO	E1
Chromium, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:43	MO	D1
Cobalt, Total	ND		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 14:01	MO	E1
Copper, Total	ND		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 14:01	MO	E1
Copper, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:43	MO	D1
Iron, Total	ND		mg/L	0.056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 15:59	MO	E1
Iron, Dissolved	ND		mg/L	0.056	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:43	MO	D1
Lead, Total	ND		mg/L	0.0022	SW846 6020A	5/23/18 14:00	DXC	5/31/18 14:01	MO	E1
Lead, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:43	MO	D1
Magnesium, Total	16.1		mg/L	0.11	SW846 6020A	5/23/18 14:00	DXC	5/31/18 14:01	MO	E1
Magnesium, Dissolved	17.7		mg/L	0.11	SW846 6020A	5/24/18 17:10	AHI	5/31/18 16:16	MO	D1
Manganese, Total	0.0068		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 14:01	MO	E1
Manganese, Dissolved	0.0063		mg/L	0.0056	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:43	MO	D1
Mercury, Total	ND		mg/L	0.00050	SW846 7470A	5/29/18 06:10	AXC	5/29/18 10:41	AXC	E3
Mercury, Dissolved	ND		mg/L	0.00050	SW846 7470A	5/25/18 18:00	AXC	5/26/18 11:18	AXC	D2
Nickel, Total	ND		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 14:01	MO	E1
Potassium, Total	2.1		mg/L	0.11	SW846 6020A	5/23/18 14:00	DXC	5/31/18 14:01	MO	E1
Potassium, Dissolved	2.3		mg/L	0.11	SW846 6020A	5/24/18 17:10	AHI	5/31/18 16:16	MO	D1
Selenium, Total	ND		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 14:01	MO	E1
Selenium, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:43	MO	D1
Silver, Total	ND		mg/L	0.0022	SW846 6020A	5/23/18 14:00	DXC	5/31/18 14:01	MO	E1
Silver, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:43	MO	D1
Sodium, Total	25.2		mg/L	0.11	SW846 6020A	5/23/18 14:00	DXC	5/31/18 14:01	MO	E1
Sodium, Dissolved	25.4		mg/L	0.11	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:43	MO	D1
Thallium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/18 14:00	DXC	5/31/18 14:01	MO	E1
Vanadium, Total	ND		mg/L	0.0022	SW846 6020A	5/23/18 14:00	DXC	5/31/18 14:01	MO	E1
Zinc, Total	0.0061		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 14:01	MO	E1

ALS Environmental Laboratory Locations Across North America

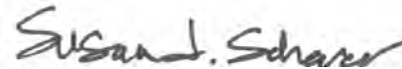
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ANALYTICAL RESULTS

Workorder: 2316215 2ND QTR 2018 FFMP-FORM 19A

 Lab ID: **2316215005** Date Collected: 5/22/2018 13:13 Matrix: Ground Water
 Sample ID: **FFMP025W** Date Received: 5/22/2018 15:25

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Zinc, Dissolved	0.0081		mg/L	0.0056	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:43	MO	D1
FIELD PARAMETERS										
Depth to Water Level	21.440		Feet		Field			5/22/18 13:13	BGS	F
Elev Top MW Casing above MSL	476.80		Feet		Field			5/22/18 13:13	BGS	F
Flow Rate	2.83		gal/min		Field			5/22/18 13:13	BGS	F
Ground Water Elevation	455.360		ft/MSL		Field			5/22/18 13:13	BGS	F
pH, Field (SM4500B)	5.210		pH_Units		Field			5/22/18 13:13	BGS	F
Sample Depth	39.000		Feet		Field			5/22/18 13:13	BGS	F
Specific Conductance, Field	515		umhos/cm	1	Field			5/22/18 13:13	BGS	F
Temperature	10.50		Deg. C		Field			5/22/18 13:13	BGS	F
Total Well Depth	41.500		Feet		Field			5/22/18 13:13	BGS	F
Volume in Water Column	29.488		Gallons		Field			5/22/18 13:13	BGS	F
Water Level After Purge	21.890		Feet		Field			5/22/18 13:13	BGS	F
Well Volumes Purged	2.88		Vol		Field			5/22/18 13:13	BGS	F



 Ms. Susan J Scherer
 Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2316215 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316215006** Date Collected: 5/22/2018 13:55 Matrix: Ground Water
Sample ID: **FFMP002W** Date Received: 5/22/2018 15:25

Parameters	Results	Flag	Units	RDL	Method	Prepared By	Analyzed By	Cntr
VOLATILE ORGANICS								
Acetone	11.5		ug/L	10.0	SW846 8260B		5/31/18 02:08	PDK J
Acrylonitrile	ND		ug/L	5.0	SW846 8260B		5/31/18 02:08	PDK J
Benzene	ND		ug/L	1.0	SW846 8260B		5/31/18 02:08	PDK J
Bromochloromethane	ND		ug/L	1.0	SW846 8260B		5/31/18 02:08	PDK J
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B		5/31/18 02:08	PDK J
Bromoform	ND		ug/L	1.0	SW846 8260B		5/31/18 02:08	PDK J
Bromomethane	ND		ug/L	1.0	SW846 8260B		5/31/18 02:08	PDK J
2-Butanone	ND		ug/L	10.0	SW846 8260B		5/31/18 02:08	PDK J
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B		5/31/18 02:08	PDK J
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B		5/31/18 02:08	PDK J
Chlorobenzene	ND		ug/L	1.0	SW846 8260B		5/31/18 02:08	PDK J
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B		5/31/18 02:08	PDK J
Chloroethane	ND		ug/L	1.0	SW846 8260B		5/31/18 02:08	PDK J
Chloroform	ND		ug/L	1.0	SW846 8260B		5/31/18 02:08	PDK J
Chloromethane	ND		ug/L	1.0	SW846 8260B		5/31/18 02:08	PDK J
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B		5/31/18 02:08	PDK J
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B		5/31/18 02:08	PDK J
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B		5/31/18 02:08	PDK J
Dibromomethane	ND		ug/L	1.0	SW846 8260B		5/31/18 02:08	PDK J
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B		5/31/18 02:08	PDK J
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		5/31/18 02:08	PDK J
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		5/31/18 02:08	PDK J
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		5/31/18 02:08	PDK J
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B		5/31/18 02:08	PDK J
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B		5/31/18 02:08	PDK J
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B		5/31/18 02:08	PDK J
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B		5/31/18 02:08	PDK J
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B		5/31/18 02:08	PDK J
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B		5/31/18 02:08	PDK J
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B		5/31/18 02:08	PDK J
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B		5/31/18 02:08	PDK J
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B		5/31/18 02:08	PDK J
Ethylbenzene	ND		ug/L	1.0	SW846 8260B		5/31/18 02:08	PDK J
2-Hexanone	ND		ug/L	5.0	SW846 8260B		5/31/18 02:08	PDK J
Iodomethane	ND		ug/L	1.0	SW846 8260B		5/31/18 02:08	PDK J
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B		5/31/18 02:08	PDK J

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ANALYTICAL RESULTS

Workorder: 2316215 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316215006**

Date Collected: 5/22/2018 13:55

Matrix: Ground Water

Sample ID: **FFMP002W**

Date Received: 5/22/2018 15:25

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			5/31/18 02:08	PDK	J
Styrene	ND		ug/L	1.0	SW846 8260B			5/31/18 02:08	PDK	J
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/31/18 02:08	PDK	J
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/31/18 02:08	PDK	J
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			5/31/18 02:08	PDK	J
Toluene	ND		ug/L	1.0	SW846 8260B			5/31/18 02:08	PDK	J
Total Xylenes	ND		ug/L	3.0	SW846 8260B			5/31/18 02:08	PDK	J
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/31/18 02:08	PDK	J
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/31/18 02:08	PDK	J
Trichloroethene	ND		ug/L	1.0	SW846 8260B			5/31/18 02:08	PDK	J
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			5/31/18 02:08	PDK	J
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			5/31/18 02:08	PDK	J
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			5/31/18 02:08	PDK	J
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			5/31/18 02:08	PDK	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)	103		%	62 - 133	SW846 8260B			5/31/18 02:08	PDK	J
4-Bromofluorobenzene (S)	101		%	79 - 114	SW846 8260B			5/31/18 02:08	PDK	J
Dibromofluoromethane (S)	94.2		%	78 - 116	SW846 8260B			5/31/18 02:08	PDK	J
Toluene-d8 (S)	99.6		%	76 - 127	SW846 8260B			5/31/18 02:08	PDK	J
Library Search - Volatiles										
Isopropyl Alcohol	2.6	J N	ug/L		SW846 8260B			5/31/18 02:08	PDK	J
Silanol, trimethyl-	1.8	J N	ug/L		SW846 8260B			5/31/18 02:08	PDK	J
WET CHEMISTRY										
Alkalinity, Bicarbonate	ND		mg/L	5	S2320B-97			5/24/18 10:57	MSA	B
Alkalinity, Total	ND	1	mg/L	5	S2320B-97			5/24/18 10:57	MSA	B
Ammonia-N	0.203		mg/L	0.100	D6919-09			6/6/18 21:05	TES	C
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4			5/30/18 14:57	AK	C
Chloride	22.3		mg/L	2.0	EPA 300.0			5/23/18 11:21	CHW	B
Fluoride	0.20		mg/L	0.20	EPA 300.0			5/23/18 11:21	CHW	B
Nitrate-N	26.6		mg/L	0.50	EPA 300.0			5/24/18 08:22	CHW	B
pH	5.66	2	pH_Units		S4500HB-11			5/31/18 02:15	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	5/30/18 12:00	NJA	5/30/18 13:40	NJA	I
Specific Conductance	302		umhos/cm	1	S2510B-97			5/24/18 10:57	MSA	B
Sulfate	9.4		mg/L	2.0	EPA 300.0			5/23/18 11:21	CHW	B
Total Dissolved Solids	174		mg/L	5	S2540C-11			5/25/18 10:15	BMK	B
Total Organic Carbon (TOC)	0.71		mg/L	0.50	S5310B-00			5/23/18 16:03	PAG	G

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ANALYTICAL RESULTS

Workorder: 2316215 2ND QTR 2018 FFMP-FORM 19A

Lab ID: 2316215006 **Date Collected:** 5/22/2018 13:55 **Matrix:** Ground Water
Sample ID: FFMP002W **Date Received:** 5/22/2018 15:25

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Turbidity	0.16		NTU	0.10	S2130B-01			5/24/18 05:50	MSA	B
METALS										
Antimony, Total	ND		mg/L	0.0022	SW846 6020A	5/23/18 14:00	DXC	5/31/18 14:05	MO	E1
Arsenic, Total	ND		mg/L	0.0033	SW846 6020A	5/23/18 14:00	DXC	5/31/18 14:05	MO	E1
Arsenic, Dissolved	ND		mg/L	0.0030	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:47	MO	D1
Barium, Total	0.075		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 14:05	MO	E1
Barium, Dissolved	0.077		mg/L	0.0056	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:47	MO	D1
Beryllium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/18 14:00	DXC	5/31/18 14:05	MO	E1
Cadmium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/18 14:00	DXC	5/31/18 14:05	MO	E1
Cadmium, Dissolved	ND		mg/L	0.0011	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:47	MO	D1
Calcium, Total	20.6		mg/L	0.11	SW846 6020A	5/23/18 14:00	DXC	5/31/18 14:05	MO	E1
Calcium, Dissolved	21.3		mg/L	0.11	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:47	MO	D1
Chromium, Total	ND		mg/L	0.0022	SW846 6020A	5/23/18 14:00	DXC	5/31/18 14:05	MO	E1
Chromium, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:47	MO	D1
Cobalt, Total	0.018		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 14:05	MO	E1
Copper, Total	0.017		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 14:05	MO	E1
Copper, Dissolved	0.018		mg/L	0.0056	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:47	MO	D1
Iron, Total	0.073		mg/L	0.056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 16:02	MO	E1
Iron, Dissolved	ND		mg/L	0.056	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:47	MO	D1
Lead, Total	0.0070		mg/L	0.0022	SW846 6020A	5/23/18 14:00	DXC	5/31/18 14:05	MO	E1
Lead, Dissolved	0.0084		mg/L	0.0022	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:47	MO	D1
Magnesium, Total	9.7		mg/L	0.11	SW846 6020A	5/23/18 14:00	DXC	5/31/18 14:05	MO	E1
Magnesium, Dissolved	9.6		mg/L	0.11	SW846 6020A	5/24/18 17:10	AHI	5/31/18 16:20	MO	D1
Manganese, Total	0.25		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 14:05	MO	E1
Manganese, Dissolved	0.26		mg/L	0.0056	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:47	MO	D1
Mercury, Total	ND		mg/L	0.00050	SW846 7470A	5/29/18 06:10	AXC	5/29/18 10:46	AXC	E3
Mercury, Dissolved	ND		mg/L	0.00050	SW846 7470A	5/25/18 18:00	AXC	5/26/18 11:19	AXC	D2
Nickel, Total	0.030		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 14:05	MO	E1
Potassium, Total	1.2		mg/L	0.11	SW846 6020A	5/23/18 14:00	DXC	5/31/18 14:05	MO	E1
Potassium, Dissolved	1.3		mg/L	0.11	SW846 6020A	5/24/18 17:10	AHI	5/31/18 16:20	MO	D1
Selenium, Total	ND		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 14:05	MO	E1
Selenium, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:47	MO	D1
Silver, Total	ND		mg/L	0.0022	SW846 6020A	5/23/18 14:00	DXC	5/31/18 14:05	MO	E1
Silver, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:47	MO	D1
Sodium, Total	14.2		mg/L	0.11	SW846 6020A	5/23/18 14:00	DXC	5/31/18 14:05	MO	E1
Sodium, Dissolved	14.1		mg/L	0.11	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:47	MO	D1
Thallium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/18 14:00	DXC	5/31/18 14:05	MO	E1
Vanadium, Total	ND		mg/L	0.0022	SW846 6020A	5/23/18 14:00	DXC	5/31/18 14:05	MO	E1

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ANALYTICAL RESULTS

Workorder: 2316215 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316215006** Date Collected: 5/22/2018 13:55 Matrix: Ground Water
Sample ID: **FFMP002W** Date Received: 5/22/2018 15:25

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Zinc, Total	0.032		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 14:05	MO	E1
Zinc, Dissolved	0.037		mg/L	0.0056	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:47	MO	D1
FIELD PARAMETERS										
Depth to Water Level	62.410		Feet		Field			5/22/18 13:55	BGS	F
Elev Top MW Casing above MSL	613.20		Feet		Field			5/22/18 13:55	BGS	F
Flow Rate	1.22		gal/min		Field			5/22/18 13:55	BGS	F
Ground Water Elevation	550.790		ft/MSL		Field			5/22/18 13:55	BGS	F
pH, Field (SM4500B)	4.360		pH_Units		Field			5/22/18 13:55	BGS	F
Sample Depth	85.000		Feet		Field			5/22/18 13:55	BGS	F
Specific Conductance, Field	352		umhos/cm	1	Field			5/22/18 13:55	BGS	F
Temperature	11.85		Deg. C		Field			5/22/18 13:55	BGS	F
Total Well Depth	90.020		Feet		Field			5/22/18 13:55	BGS	F
Volume in Water Column	40.587		Gallons		Field			5/22/18 13:55	BGS	F
Water Level After Purge	75.560		Feet		Field			5/22/18 13:55	BGS	F
Well Volumes Purged	0.60		Vol		Field			5/22/18 13:55	BGS	F


Ms. Susan J Scherer
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ANALYTICAL RESULTS

Workorder: 2316215 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316215007** Date Collected: 5/22/2018 14:00 Matrix: Water
Sample ID: **FIELD BLANK** Date Received: 5/22/2018 15:25

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Acetone	ND		ug/L	10.0	SW846 8260B			5/30/18 23:05	PDK	A
Acrylonitrile	ND		ug/L	5.0	SW846 8260B			5/30/18 23:05	PDK	A
Benzene	ND		ug/L	1.0	SW846 8260B			5/30/18 23:05	PDK	A
Bromochloromethane	ND		ug/L	1.0	SW846 8260B			5/30/18 23:05	PDK	A
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B			5/30/18 23:05	PDK	A
Bromoform	ND		ug/L	1.0	SW846 8260B			5/30/18 23:05	PDK	A
Bromomethane	ND		ug/L	1.0	SW846 8260B			5/30/18 23:05	PDK	A
2-Butanone	ND		ug/L	10.0	SW846 8260B			5/30/18 23:05	PDK	A
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B			5/30/18 23:05	PDK	A
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B			5/30/18 23:05	PDK	A
Chlorobenzene	ND		ug/L	1.0	SW846 8260B			5/30/18 23:05	PDK	A
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B			5/30/18 23:05	PDK	A
Chloroethane	ND		ug/L	1.0	SW846 8260B			5/30/18 23:05	PDK	A
Chloroform	ND		ug/L	1.0	SW846 8260B			5/30/18 23:05	PDK	A
Chloromethane	ND		ug/L	1.0	SW846 8260B			5/30/18 23:05	PDK	A
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B			5/30/18 23:05	PDK	A
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B			5/30/18 23:05	PDK	A
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			5/30/18 23:05	PDK	A
Dibromomethane	ND		ug/L	1.0	SW846 8260B			5/30/18 23:05	PDK	A
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B			5/30/18 23:05	PDK	A
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/30/18 23:05	PDK	A
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/30/18 23:05	PDK	A
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/30/18 23:05	PDK	A
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B			5/30/18 23:05	PDK	A
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/30/18 23:05	PDK	A
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/30/18 23:05	PDK	A
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/30/18 23:05	PDK	A
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/30/18 23:05	PDK	A
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/30/18 23:05	PDK	A
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B			5/30/18 23:05	PDK	A
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/30/18 23:05	PDK	A
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/30/18 23:05	PDK	A
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			5/30/18 23:05	PDK	A
2-Hexanone	ND		ug/L	5.0	SW846 8260B			5/30/18 23:05	PDK	A
Iodomethane	ND		ug/L	1.0	SW846 8260B			5/30/18 23:05	PDK	A
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B			5/30/18 23:05	PDK	A

ALS Environmental Laboratory Locations Across North America

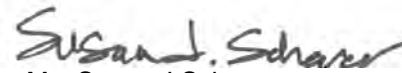
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ANALYTICAL RESULTS

Workorder: 2316215 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316215007** Date Collected: 5/22/2018 14:00 Matrix: Water
Sample ID: **FIELD BLANK** Date Received: 5/22/2018 15:25

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			5/30/18 23:05	PDK	A
Styrene	ND		ug/L	1.0	SW846 8260B			5/30/18 23:05	PDK	A
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/30/18 23:05	PDK	A
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/30/18 23:05	PDK	A
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			5/30/18 23:05	PDK	A
Toluene	ND		ug/L	1.0	SW846 8260B			5/30/18 23:05	PDK	A
Total Xylenes	ND		ug/L	3.0	SW846 8260B			5/30/18 23:05	PDK	A
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/30/18 23:05	PDK	A
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/30/18 23:05	PDK	A
Trichloroethene	ND		ug/L	1.0	SW846 8260B			5/30/18 23:05	PDK	A
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			5/30/18 23:05	PDK	A
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			5/30/18 23:05	PDK	A
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			5/30/18 23:05	PDK	A
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			5/30/18 23:05	PDK	A
Surrogate Recoveries	Results	Flag	Units	Limits	Method	Prepared	By	Analyzed	By	Cntr
1,2-Dichloroethane-d4 (S)	101		%	62 - 133	SW846 8260B			5/30/18 23:05	PDK	A
4-Bromofluorobenzene (S)	103		%	79 - 114	SW846 8260B			5/30/18 23:05	PDK	A
Dibromofluoromethane (S)	92.2		%	78 - 116	SW846 8260B			5/30/18 23:05	PDK	A
Toluene-d8 (S)	101		%	76 - 127	SW846 8260B			5/30/18 23:05	PDK	A
LIBRARY SEARCH - VOLATILES										
No TIC's Detected	.				Lib Search VOC			5/30/18 23:05	CPK	A



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ANALYTICAL RESULTS

Workorder: 2316215 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316215008** Date Collected: 5/22/2018 15:25 Matrix: Water
Sample ID: **TRIP BLANK** Date Received: 5/22/2018 15:25

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Acetone	ND		ug/L	10.0	SW846 8260B			5/30/18 23:28	PDK	A
Acrylonitrile	ND		ug/L	5.0	SW846 8260B			5/30/18 23:28	PDK	A
Benzene	ND		ug/L	1.0	SW846 8260B			5/30/18 23:28	PDK	A
Bromochloromethane	ND		ug/L	1.0	SW846 8260B			5/30/18 23:28	PDK	A
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B			5/30/18 23:28	PDK	A
Bromoform	ND		ug/L	1.0	SW846 8260B			5/30/18 23:28	PDK	A
Bromomethane	ND		ug/L	1.0	SW846 8260B			5/30/18 23:28	PDK	A
2-Butanone	ND		ug/L	10.0	SW846 8260B			5/30/18 23:28	PDK	A
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B			5/30/18 23:28	PDK	A
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B			5/30/18 23:28	PDK	A
Chlorobenzene	ND		ug/L	1.0	SW846 8260B			5/30/18 23:28	PDK	A
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B			5/30/18 23:28	PDK	A
Chloroethane	ND		ug/L	1.0	SW846 8260B			5/30/18 23:28	PDK	A
Chloroform	ND		ug/L	1.0	SW846 8260B			5/30/18 23:28	PDK	A
Chloromethane	ND		ug/L	1.0	SW846 8260B			5/30/18 23:28	PDK	A
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B			5/30/18 23:28	PDK	A
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B			5/30/18 23:28	PDK	A
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			5/30/18 23:28	PDK	A
Dibromomethane	ND		ug/L	1.0	SW846 8260B			5/30/18 23:28	PDK	A
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B			5/30/18 23:28	PDK	A
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/30/18 23:28	PDK	A
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/30/18 23:28	PDK	A
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/30/18 23:28	PDK	A
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B			5/30/18 23:28	PDK	A
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/30/18 23:28	PDK	A
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/30/18 23:28	PDK	A
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/30/18 23:28	PDK	A
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/30/18 23:28	PDK	A
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/30/18 23:28	PDK	A
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B			5/30/18 23:28	PDK	A
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/30/18 23:28	PDK	A
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/30/18 23:28	PDK	A
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			5/30/18 23:28	PDK	A
2-Hexanone	ND		ug/L	5.0	SW846 8260B			5/30/18 23:28	PDK	A
Iodomethane	ND		ug/L	1.0	SW846 8260B			5/30/18 23:28	PDK	A
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B			5/30/18 23:28	PDK	A

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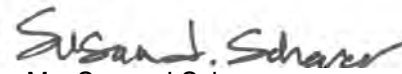
ANALYTICAL RESULTS

Workorder: 2316215 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316215008**
Sample ID: **TRIP BLANK**

Date Collected: 5/22/2018 15:25 Matrix: Water
Date Received: 5/22/2018 15:25

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			5/30/18 23:28	PDK	A
Styrene	ND		ug/L	1.0	SW846 8260B			5/30/18 23:28	PDK	A
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/30/18 23:28	PDK	A
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/30/18 23:28	PDK	A
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			5/30/18 23:28	PDK	A
Toluene	ND		ug/L	1.0	SW846 8260B			5/30/18 23:28	PDK	A
Total Xylenes	ND		ug/L	3.0	SW846 8260B			5/30/18 23:28	PDK	A
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/30/18 23:28	PDK	A
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/30/18 23:28	PDK	A
Trichloroethene	ND		ug/L	1.0	SW846 8260B			5/30/18 23:28	PDK	A
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			5/30/18 23:28	PDK	A
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			5/30/18 23:28	PDK	A
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			5/30/18 23:28	PDK	A
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			5/30/18 23:28	PDK	A
<i>Surrogate Recoveries</i>	<i>Results</i>	<i>Flag</i>	<i>Units</i>	<i>Limits</i>	<i>Method</i>	<i>Prepared</i>	<i>By</i>	<i>Analyzed</i>	<i>By</i>	<i>Cntr</i>
1,2-Dichloroethane-d4 (S)	101		%	62 - 133	SW846 8260B			5/30/18 23:28	PDK	A
4-Bromofluorobenzene (S)	101		%	79 - 114	SW846 8260B			5/30/18 23:28	PDK	A
Dibromofluoromethane (S)	92.1		%	78 - 116	SW846 8260B			5/30/18 23:28	PDK	A
Toluene-d8 (S)	100		%	76 - 127	SW846 8260B			5/30/18 23:28	PDK	A
Library Search - Volatiles										
Silanol, trimethyl-	1.8	J N	ug/L		SW846 8260B			5/30/18 23:28	PDK	A



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ANALYTICAL RESULTS

Workorder: 2316215 2ND QTR 2018 FFMP-FORM 19A

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
2316215001	1	FFMP017W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2316215001	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.				
2316215002	1	FFMP018W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2316215002	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.				
2316215003	1	FFMP019W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2316215003	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.				
2316215004	1	FFMP029W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2316215004	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.				
2316215005	1	FFMP025W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2316215005	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.				
2316215006	1	FFMP002W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2316215006	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.				

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ANALYSIS - PREP METHOD CROSS REFERENCE TABLE

Workorder: 2316215 2ND QTR 2018 FFMP-FORM 19A

Lab ID	Sample ID	Analysis Method	Prep Method
2316215001	FFMP017W	D6919-09	
2316215001	FFMP017W	EPA 300.0	
2316215001	FFMP017W	EPA 410.4	
2316215001	FFMP017W	Field	
2316215001	FFMP017W	Lib Search VOC	
2316215001	FFMP017W	S2130B-01	
2316215001	FFMP017W	S2320B-97	
2316215001	FFMP017W	S2510B-97	
2316215001	FFMP017W	S2540C-11	
2316215001	FFMP017W	S4500HB-11	
2316215001	FFMP017W	S5310B-00	
2316215001	FFMP017W	SW846 6020A	SW846 3015
2316215001	FFMP017W	SW846 7470A	SW846 7470A
2316215001	FFMP017W	SW846 8260B	
2316215001	FFMP017W	SW846 9066	420.4/9066
2316215002	FFMP018W	D6919-09	
2316215002	FFMP018W	EPA 300.0	
2316215002	FFMP018W	EPA 410.4	
2316215002	FFMP018W	Field	
2316215002	FFMP018W	Lib Search VOC	
2316215002	FFMP018W	S2130B-01	
2316215002	FFMP018W	S2320B-97	
2316215002	FFMP018W	S2510B-97	
2316215002	FFMP018W	S2540C-11	
2316215002	FFMP018W	S4500HB-11	
2316215002	FFMP018W	S5310B-00	
2316215002	FFMP018W	SW846 6020A	SW846 3015
2316215002	FFMP018W	SW846 7470A	SW846 7470A
2316215002	FFMP018W	SW846 8260B	
2316215002	FFMP018W	SW846 9066	420.4/9066
2316215003	FFMP019W	D6919-09	
2316215003	FFMP019W	EPA 300.0	
2316215003	FFMP019W	EPA 410.4	
2316215003	FFMP019W	Field	
2316215003	FFMP019W	Lib Search VOC	
2316215003	FFMP019W	S2130B-01	
2316215003	FFMP019W	S2320B-97	
2316215003	FFMP019W	S2510B-97	
2316215003	FFMP019W	S2540C-11	
2316215003	FFMP019W	S4500HB-11	
2316215003	FFMP019W	S5310B-00	
2316215003	FFMP019W	SW846 6020A	SW846 3015
2316215003	FFMP019W	SW846 7470A	SW846 7470A
2316215003	FFMP019W	SW846 8260B	
2316215003	FFMP019W	SW846 9066	420.4/9066
2316215004	FFMP029W	D6919-09	

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ANALYSIS - PREP METHOD CROSS REFERENCE TABLE

Workorder: 2316215 2ND QTR 2018 FFMP-FORM 19A

Lab ID	Sample ID	Analysis Method	Prep Method
2316215004	FFMP029W	EPA 300.0	
2316215004	FFMP029W	EPA 410.4	
2316215004	FFMP029W	Field	
2316215004	FFMP029W	Lib Search VOC	
2316215004	FFMP029W	S2130B-01	
2316215004	FFMP029W	S2320B-97	
2316215004	FFMP029W	S2510B-97	
2316215004	FFMP029W	S2540C-11	
2316215004	FFMP029W	S4500HB-11	
2316215004	FFMP029W	S5310B-00	
2316215004	FFMP029W	SW846 6020A	SW846 3015
2316215004	FFMP029W	SW846 7470A	SW846 7470A
2316215004	FFMP029W	SW846 8260B	
2316215004	FFMP029W	SW846 9066	420.4/9066
2316215005	FFMP025W	D6919-09	
2316215005	FFMP025W	EPA 300.0	
2316215005	FFMP025W	EPA 410.4	
2316215005	FFMP025W	Field	
2316215005	FFMP025W	Lib Search VOC	
2316215005	FFMP025W	S2130B-01	
2316215005	FFMP025W	S2320B-97	
2316215005	FFMP025W	S2510B-97	
2316215005	FFMP025W	S2540C-11	
2316215005	FFMP025W	S4500HB-11	
2316215005	FFMP025W	S5310B-00	
2316215005	FFMP025W	SW846 6020A	SW846 3015
2316215005	FFMP025W	SW846 7470A	SW846 7470A
2316215005	FFMP025W	SW846 8260B	
2316215005	FFMP025W	SW846 9066	420.4/9066
2316215006	FFMP002W	D6919-09	
2316215006	FFMP002W	EPA 300.0	
2316215006	FFMP002W	EPA 410.4	
2316215006	FFMP002W	Field	
2316215006	FFMP002W	Lib Search VOC	
2316215006	FFMP002W	S2130B-01	
2316215006	FFMP002W	S2320B-97	
2316215006	FFMP002W	S2510B-97	
2316215006	FFMP002W	S2540C-11	
2316215006	FFMP002W	S4500HB-11	
2316215006	FFMP002W	S5310B-00	
2316215006	FFMP002W	SW846 6020A	SW846 3015
2316215006	FFMP002W	SW846 7470A	SW846 7470A
2316215006	FFMP002W	SW846 8260B	
2316215006	FFMP002W	SW846 9066	420.4/9066
2316215007	FIELD BLANK	Lib Search VOC	
2316215007	FIELD BLANK	SW846 8260B	

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ANALYSIS - PREP METHOD CROSS REFERENCE TABLE

Workorder: 2316215 2ND QTR 2018 FFMP-FORM 19A

Lab ID	Sample ID	Analysis Method	Prep Method
2316215008	TRIP BLANK	Lib Search VOC	
2316215008	TRIP BLANK	SW846 8260B	

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June 6, 2018

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

Certificate of Analysis

Project Name:	FREY FARM	Workorder:	2316494
Purchase Order:	PO1000126	Workorder ID:	2ND QTR 2018 FFMP-FORM 19A

Dear Mr. Brown:

Enclosed are the analytical results for samples received by the laboratory on Wednesday, May 23, 2018.

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

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

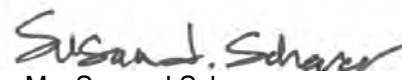
Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications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

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

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

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

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



Ms. Susan J Scherer
Project Coordinator

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SAMPLE SUMMARY

Workorder: 2316494 2ND QTR 2018 FFMP-FORM 19A

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2316494001	FFMP30RW	Ground Water	5/23/2018 09:46	5/23/2018 15:38	Mr. Brian G Shade
2316494002	FFMP04AW	Ground Water	5/23/2018 10:56	5/23/2018 15:38	Mr. Brian G Shade
2316494003	FFMP03AW	Ground Water	5/23/2018 12:19	5/23/2018 15:38	Mr. Brian G Shade
2316494004	FFMP031W	Ground Water	5/23/2018 13:57	5/23/2018 15:38	Mr. Brian G Shade
2316494005	FFMP032W	Ground Water	5/23/2018 14:29	5/23/2018 15:38	Mr. Brian G Shade
2316494006	FIELD BLANK	Water	5/23/2018 14:09	5/23/2018 15:38	Mr. Brian G Shade
2316494007	TRIP BLANK	Water	5/23/2018 15:38	5/23/2018 15:38	Mr. Brian G Shade

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SAMPLE SUMMARY

Workorder: 2316494 2ND QTR 2018 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: 2316494 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316494001**

Date Collected: 5/23/2018 09:46

Matrix: Ground Water

Sample ID: **FFMP30RW**

Date Received: 5/23/2018 15:38

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Acetone	11.8		ug/L	10.0	SW846 8260B			6/1/18 02:27	PDK	J
Acrylonitrile	ND		ug/L	5.0	SW846 8260B			6/1/18 02:27	PDK	J
Benzene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
Bromochloromethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
Bromoform	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
Bromomethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
2-Butanone	ND		ug/L	10.0	SW846 8260B			6/1/18 02:27	PDK	J
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
Chlorobenzene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
Chloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
Chloroform	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
Chloromethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B			6/1/18 02:27	PDK	J
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
Dibromomethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B			6/1/18 02:27	PDK	J
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
2-Hexanone	ND		ug/L	5.0	SW846 8260B			6/1/18 02:27	PDK	J
Iodomethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B			6/1/18 02:27	PDK	J

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ANALYTICAL RESULTS

Workorder: 2316494 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316494001** Date Collected: 5/23/2018 09:46 Matrix: Ground Water
Sample ID: **FFMP30RW** Date Received: 5/23/2018 15:38

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
Styrene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
Toluene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
Total Xylenes	ND		ug/L	3.0	SW846 8260B			6/1/18 02:27	PDK	J
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
Trichloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			6/1/18 02:27	PDK	J
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			6/1/18 02:27	PDK	J
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
Surrogate Recoveries	Results	Flag	Units	Limits	Method	Prepared	By	Analyzed	By	Cntr
1,2-Dichloroethane-d4 (S)	103		%	62 - 133	SW846 8260B			6/1/18 02:27	PDK	J
4-Bromofluorobenzene (S)	100		%	79 - 114	SW846 8260B			6/1/18 02:27	PDK	J
Dibromofluoromethane (S)	95.6		%	78 - 116	SW846 8260B			6/1/18 02:27	PDK	J
Toluene-d8 (S)	99.2		%	76 - 127	SW846 8260B			6/1/18 02:27	PDK	J

LIBRARY SEARCH - VOLATILES

No TIC's Detected . Lib Search VOC 6/1/18 02:27 JAH J

WET CHEMISTRY

Alkalinity, Bicarbonate	24		mg/L	5	S2320B-97			5/25/18 04:02	MSA	B
Alkalinity, Total	24	1	mg/L	5	S2320B-97			5/25/18 04:02	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			6/3/18 01:59	TES	C
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4			5/30/18 17:27	AK	C
Chloride	70.5		mg/L	2.0	EPA 300.0			5/24/18 11:30	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			5/24/18 11:30	CHW	B
Nitrate-N	4.1		mg/L	0.20	EPA 300.0			5/24/18 11:30	CHW	B
pH	5.63	2	pH_Units		S4500HB-11			5/25/18 04:02	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	5/30/18 12:00	NJA	5/30/18 13:40	NJA	I
Specific Conductance	290		umhos/cm	1	S2510B-97			5/25/18 04:02	MSA	B
Sulfate	9.3		mg/L	2.0	EPA 300.0			5/24/18 11:30	CHW	B
Total Dissolved Solids	197		mg/L	5	S2540C-11			5/29/18 11:45	BMK	B
Total Organic Carbon (TOC)	0.96		mg/L	0.50	S5310B-00			5/24/18 00:18	PAG	G
Turbidity	0.30		NTU	0.10	S2130B-01			5/25/18 03:31	MSA	B

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ANALYTICAL RESULTS

Workorder: 2316494 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316494002**

Date Collected: 5/23/2018 10:56

Matrix: Ground Water

Sample ID: **FFMP04AW**

Date Received: 5/23/2018 15:38

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Acetone	10.4		ug/L	10.0	SW846 8260B			6/1/18 02:50	PDK	J
Acrylonitrile	ND		ug/L	5.0	SW846 8260B			6/1/18 02:50	PDK	J
Benzene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
Bromochloromethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
Bromoform	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
Bromomethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
2-Butanone	ND		ug/L	10.0	SW846 8260B			6/1/18 02:50	PDK	J
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
Chlorobenzene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
Chloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
Chloroform	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
Chloromethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B			6/1/18 02:50	PDK	J
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
Dibromomethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B			6/1/18 02:50	PDK	J
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
2-Hexanone	ND		ug/L	5.0	SW846 8260B			6/1/18 02:50	PDK	J
Iodomethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B			6/1/18 02:50	PDK	J

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ANALYTICAL RESULTS

Workorder: 2316494 2ND QTR 2018 FFMP-FORM 19A

Lab ID: 2316494002 **Date Collected:** 5/23/2018 10:56 **Matrix:** Ground Water
Sample ID: FFMP04AW **Date Received:** 5/23/2018 15:38

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
Styrene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
Toluene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
Total Xylenes	ND		ug/L	3.0	SW846 8260B			6/1/18 02:50	PDK	J
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
Trichloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			6/1/18 02:50	PDK	J
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			6/1/18 02:50	PDK	J
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J

Surrogate Recoveries	Results	Flag	Units	Limits	Method	Prepared	By	Analyzed	By	Cntr
1,2-Dichloroethane-d4 (S)	100		%	62 - 133	SW846 8260B			6/1/18 02:50	PDK	J
4-Bromofluorobenzene (S)	99		%	79 - 114	SW846 8260B			6/1/18 02:50	PDK	J
Dibromofluoromethane (S)	96.4		%	78 - 116	SW846 8260B			6/1/18 02:50	PDK	J
Toluene-d8 (S)	98.9		%	76 - 127	SW846 8260B			6/1/18 02:50	PDK	J

LIBRARY SEARCH - VOLATILES

No TIC's Detected Lib Search VOC 6/1/18 02:50 JAH J

WET CHEMISTRY

Alkalinity, Bicarbonate	205		mg/L	5	S2320B-97			5/25/18 06:07	MSA	A
Alkalinity, Total	205	1	mg/L	5	S2320B-97			5/25/18 06:07	MSA	A
Ammonia-N	ND		mg/L	0.100	D6919-09			6/3/18 02:14	TES	C
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4			5/30/18 17:27	AK	C
Chloride	330		mg/L	10.0	EPA 300.0			5/24/18 12:08	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			5/24/18 11:49	CHW	B
Nitrate-N	0.20		mg/L	0.20	EPA 300.0			5/24/18 11:49	CHW	B
pH	7.28	2	pH_Units		S4500HB-11			5/25/18 06:07	MSA	A
Phenolics	ND		mg/L	0.005	SW846 9066	5/30/18 12:00	NJA	5/30/18 13:40	NJA	I
Specific Conductance	1440		umhos/cm	1	S2510B-97			5/25/18 06:07	MSA	A
Sulfate	50.0		mg/L	2.0	EPA 300.0			5/24/18 11:49	CHW	B
Total Dissolved Solids	958		mg/L	5	S2540C-11			5/29/18 11:45	BMK	B
Total Organic Carbon (TOC)	0.99		mg/L	0.50	S5310B-00			5/24/18 00:18	PAG	G
Turbidity	0.43		NTU	0.10	S2130B-01			5/25/18 03:31	MSA	B

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ANALYTICAL RESULTS

Workorder: 2316494 2ND QTR 2018 FFMP-FORM 19A

Lab ID: 2316494002 **Date Collected:** 5/23/2018 10:56 **Matrix:** Ground Water
Sample ID: FFMP04AW **Date Received:** 5/23/2018 15:38

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Antimony, Total	ND		mg/L	0.0022	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:19	MO	E1
Arsenic, Total	ND		mg/L	0.0033	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:19	MO	E1
Arsenic, Dissolved	ND		mg/L	0.0030	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:09	MO	D1
Barium, Total	0.20		mg/L	0.0056	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:19	MO	E1
Barium, Dissolved	0.20		mg/L	0.0056	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:09	MO	D1
Beryllium, Total	ND		mg/L	0.0011	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:19	MO	E1
Cadmium, Total	ND		mg/L	0.0011	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:19	MO	E1
Cadmium, Dissolved	ND		mg/L	0.0011	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:09	MO	D1
Calcium, Total	149		mg/L	0.11	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:19	MO	E1
Calcium, Dissolved	143		mg/L	0.11	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:09	MO	D1
Chromium, Total	ND		mg/L	0.0022	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:19	MO	E1
Chromium, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:09	MO	D1
Cobalt, Total	ND		mg/L	0.0056	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:19	MO	E1
Copper, Total	ND		mg/L	0.0056	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:19	MO	E1
Copper, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:09	MO	D1
Iron, Total	0.070		mg/L	0.056	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:19	MO	E1
Iron, Dissolved	ND		mg/L	0.056	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:09	MO	D1
Lead, Total	ND		mg/L	0.0022	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:19	MO	E1
Lead, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:09	MO	D1
Magnesium, Total	26.1		mg/L	0.11	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:19	MO	E1
Magnesium, Dissolved	26.7		mg/L	0.11	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:09	MO	D1
Manganese, Total	0.28		mg/L	0.0056	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:19	MO	E1
Manganese, Dissolved	0.26		mg/L	0.0056	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:09	MO	D1
Mercury, Total	ND		mg/L	0.00050	SW846 7470A	5/29/18 06:10	AXC	5/29/18 11:04	AXC	E2
Mercury, Dissolved	ND		mg/L	0.00050	SW846 7470A	6/6/18 11:30	AXC	6/6/18 14:45	AXC	D2
Nickel, Total	0.011		mg/L	0.0056	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:19	MO	E1
Potassium, Total	2.1		mg/L	0.11	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:19	MO	E1
Potassium, Dissolved	2.2		mg/L	0.11	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:09	MO	D1
Selenium, Total	ND		mg/L	0.0056	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:19	MO	E1
Selenium, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:09	MO	D1
Silver, Total	ND		mg/L	0.0022	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:19	MO	E1
Silver, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:09	MO	D1
Sodium, Total	87.2		mg/L	0.11	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:19	MO	E1
Sodium, Dissolved	89.1		mg/L	0.11	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:09	MO	D1
Thallium, Total	ND		mg/L	0.0011	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:19	MO	E1
Vanadium, Total	ND		mg/L	0.0022	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:19	MO	E1
Zinc, Total	0.0063		mg/L	0.0056	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:19	MO	E1

ALS Environmental Laboratory Locations Across North America

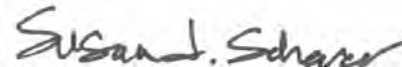
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ANALYTICAL RESULTS

Workorder: 2316494 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316494002** Date Collected: 5/23/2018 10:56 Matrix: Ground Water
Sample ID: **FFMP04AW** Date Received: 5/23/2018 15:38

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Zinc, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:09	MO	D1
FIELD PARAMETERS										
Depth to Water Level	33.020		Feet		Field			5/23/18 10:56	BGS	F
Elev Top MW Casing above MSL	560.72		Feet		Field			5/23/18 10:56	BGS	F
Flow Rate	1.90		gal/min		Field			5/23/18 10:56	BGS	F
Ground Water Elevation	527.700		ft/MSL		Field			5/23/18 10:56	BGS	F
pH, Field (SM4500B)	6.640		pH_Units		Field			5/23/18 10:56	BGS	F
Sample Depth	146.000		Feet		Field			5/23/18 10:56	BGS	F
Specific Conductance, Field	1502		umhos/cm	1	Field			5/23/18 10:56	BGS	F
Temperature	11.88		Deg. C		Field			5/23/18 10:56	BGS	F
Total Well Depth	148.500		Feet		Field			5/23/18 10:56	BGS	F
Volume in Water Column	169.756		Gallons		Field			5/23/18 10:56	BGS	F
Water Level After Purge	79.440		Feet		Field			5/23/18 10:56	BGS	F
Well Volumes Purged	1.01		Vol		Field			5/23/18 10:56	BGS	F



Ms. Susan J Scherer
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2316494 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316494003** Date Collected: 5/23/2018 12:19 Matrix: Ground Water
Sample ID: **FFMP03AW** Date Received: 5/23/2018 15:38

Parameters	Results	Flag	Units	RDL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS									
Acetone	12.1		ug/L	10.0	SW846 8260B		6/1/18 03:13	PDK	J
Acrylonitrile	ND		ug/L	5.0	SW846 8260B		6/1/18 03:13	PDK	J
Benzene	ND		ug/L	1.0	SW846 8260B		6/1/18 03:13	PDK	J
Bromochloromethane	ND		ug/L	1.0	SW846 8260B		6/1/18 03:13	PDK	J
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B		6/1/18 03:13	PDK	J
Bromoform	ND		ug/L	1.0	SW846 8260B		6/1/18 03:13	PDK	J
Bromomethane	ND		ug/L	1.0	SW846 8260B		6/1/18 03:13	PDK	J
2-Butanone	ND		ug/L	10.0	SW846 8260B		6/1/18 03:13	PDK	J
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B		6/1/18 03:13	PDK	J
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B		6/1/18 03:13	PDK	J
Chlorobenzene	ND		ug/L	1.0	SW846 8260B		6/1/18 03:13	PDK	J
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B		6/1/18 03:13	PDK	J
Chloroethane	ND		ug/L	1.0	SW846 8260B		6/1/18 03:13	PDK	J
Chloroform	ND		ug/L	1.0	SW846 8260B		6/1/18 03:13	PDK	J
Chloromethane	ND		ug/L	1.0	SW846 8260B		6/1/18 03:13	PDK	J
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B		6/1/18 03:13	PDK	J
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B		6/1/18 03:13	PDK	J
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B		6/1/18 03:13	PDK	J
Dibromomethane	ND		ug/L	1.0	SW846 8260B		6/1/18 03:13	PDK	J
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B		6/1/18 03:13	PDK	J
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		6/1/18 03:13	PDK	J
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		6/1/18 03:13	PDK	J
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		6/1/18 03:13	PDK	J
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B		6/1/18 03:13	PDK	J
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B		6/1/18 03:13	PDK	J
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B		6/1/18 03:13	PDK	J
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B		6/1/18 03:13	PDK	J
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B		6/1/18 03:13	PDK	J
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B		6/1/18 03:13	PDK	J
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B		6/1/18 03:13	PDK	J
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B		6/1/18 03:13	PDK	J
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B		6/1/18 03:13	PDK	J
Ethylbenzene	ND		ug/L	1.0	SW846 8260B		6/1/18 03:13	PDK	J
2-Hexanone	ND		ug/L	5.0	SW846 8260B		6/1/18 03:13	PDK	J
Iodomethane	ND		ug/L	1.0	SW846 8260B		6/1/18 03:13	PDK	J
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B		6/1/18 03:13	PDK	J

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ANALYTICAL RESULTS

Workorder: 2316494 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316494003** Date Collected: 5/23/2018 12:19 Matrix: Ground Water
Sample ID: **FFMP03AW** Date Received: 5/23/2018 15:38

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			6/1/18 03:13	PDK	J
Styrene	ND		ug/L	1.0	SW846 8260B			6/1/18 03:13	PDK	J
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 03:13	PDK	J
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 03:13	PDK	J
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 03:13	PDK	J
Toluene	ND		ug/L	1.0	SW846 8260B			6/1/18 03:13	PDK	J
Total Xylenes	ND		ug/L	3.0	SW846 8260B			6/1/18 03:13	PDK	J
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 03:13	PDK	J
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 03:13	PDK	J
Trichloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 03:13	PDK	J
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			6/1/18 03:13	PDK	J
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			6/1/18 03:13	PDK	J
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			6/1/18 03:13	PDK	J
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			6/1/18 03:13	PDK	J

Surrogate Recoveries	Results	Flag	Units	Limits	Method	Prepared	By	Analyzed	By	Cntr
1,2-Dichloroethane-d4 (S)	103		%	62 - 133	SW846 8260B			6/1/18 03:13	PDK	J
4-Bromofluorobenzene (S)	98.2		%	79 - 114	SW846 8260B			6/1/18 03:13	PDK	J
Dibromofluoromethane (S)	95.6		%	78 - 116	SW846 8260B			6/1/18 03:13	PDK	J
Toluene-d8 (S)	99.9		%	76 - 127	SW846 8260B			6/1/18 03:13	PDK	J

LIBRARY SEARCH - VOLATILES

No TIC's Detected . Lib Search VOC 6/1/18 03:13 JAH J

WET CHEMISTRY

Alkalinity, Bicarbonate	27		mg/L	5	S2320B-97			5/25/18 06:15	MSA	B
Alkalinity, Total	27	1	mg/L	5	S2320B-97			5/25/18 06:15	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			6/3/18 02:29	TES	C
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4			5/30/18 17:27	AK	C
Chloride	27.8		mg/L	2.0	EPA 300.0			5/24/18 14:21	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			5/24/18 14:21	CHW	B
Nitrate-N	19.3		mg/L	0.50	EPA 300.0			5/25/18 05:16	CHW	B
pH	5.87	2	pH_Units		S4500HB-11			5/25/18 06:15	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	5/30/18 12:00	NJA	5/30/18 13:40	NJA	I
Specific Conductance	272		umhos/cm	1	S2510B-97			5/25/18 06:15	MSA	B
Sulfate	3.6		mg/L	2.0	EPA 300.0			5/24/18 14:21	CHW	B
Total Dissolved Solids	202		mg/L	5	S2540C-11			5/29/18 11:45	BMK	B
Total Organic Carbon (TOC)	0.59		mg/L	0.50	S5310B-00			5/24/18 00:18	PAG	G
Turbidity	ND		NTU	0.10	S2130B-01			5/25/18 03:31	MSA	B

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ANALYTICAL RESULTS

Workorder: 2316494 2ND QTR 2018 FFMP-FORM 19A

Lab ID: 2316494003 **Date Collected:** 5/23/2018 12:19 **Matrix:** Ground Water
Sample ID: FFMP03AW **Date Received:** 5/23/2018 15:38

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Antimony, Total	ND		mg/L	0.0022	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:23	MO	E1
Arsenic, Total	ND		mg/L	0.0033	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:23	MO	E1
Arsenic, Dissolved	ND		mg/L	0.0030	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:12	MO	D1
Barium, Total	0.042		mg/L	0.0056	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:23	MO	E1
Barium, Dissolved	0.042		mg/L	0.0056	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:12	MO	D1
Beryllium, Total	ND		mg/L	0.0011	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:23	MO	E1
Cadmium, Total	ND		mg/L	0.0011	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:23	MO	E1
Cadmium, Dissolved	ND		mg/L	0.0011	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:12	MO	D1
Calcium, Total	16.6		mg/L	0.11	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:23	MO	E1
Calcium, Dissolved	16.8		mg/L	0.11	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:12	MO	D1
Chromium, Total	ND		mg/L	0.0022	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:23	MO	E1
Chromium, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:12	MO	D1
Cobalt, Total	ND		mg/L	0.0056	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:23	MO	E1
Copper, Total	0.0072		mg/L	0.0056	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:23	MO	E1
Copper, Dissolved	0.0077		mg/L	0.0056	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:12	MO	D1
Iron, Total	ND		mg/L	0.056	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:23	MO	E1
Iron, Dissolved	ND		mg/L	0.056	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:12	MO	D1
Lead, Total	ND		mg/L	0.0022	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:23	MO	E1
Lead, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:12	MO	D1
Magnesium, Total	12.2		mg/L	0.11	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:23	MO	E1
Magnesium, Dissolved	12.8		mg/L	0.11	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:12	MO	D1
Manganese, Total	0.27		mg/L	0.0056	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:23	MO	E1
Manganese, Dissolved	0.26		mg/L	0.0056	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:12	MO	D1
Mercury, Total	ND		mg/L	0.00050	SW846 7470A	5/29/18 06:10	AXC	5/29/18 11:05	AXC	E2
Mercury, Dissolved	ND		mg/L	0.00050	SW846 7470A	6/6/18 11:30	AXC	6/6/18 14:46	AXC	D2
Nickel, Total	0.010		mg/L	0.0056	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:23	MO	E1
Potassium, Total	1.3		mg/L	0.11	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:23	MO	E1
Potassium, Dissolved	1.3		mg/L	0.11	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:12	MO	D1
Selenium, Total	ND		mg/L	0.0056	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:23	MO	E1
Selenium, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:12	MO	D1
Silver, Total	ND		mg/L	0.0022	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:23	MO	E1
Silver, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:12	MO	D1
Sodium, Total	12.2		mg/L	0.11	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:23	MO	E1
Sodium, Dissolved	12.6		mg/L	0.11	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:12	MO	D1
Thallium, Total	ND		mg/L	0.0011	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:23	MO	E1
Vanadium, Total	ND		mg/L	0.0022	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:23	MO	E1
Zinc, Total	0.017		mg/L	0.0056	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:23	MO	E1

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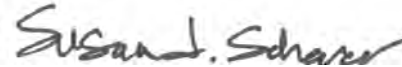
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ANALYTICAL RESULTS

Workorder: 2316494 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316494003** Date Collected: 5/23/2018 12:19 Matrix: Ground Water
Sample ID: **FFMP03AW** Date Received: 5/23/2018 15:38

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Zinc, Dissolved	0.016		mg/L	0.0056	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:12	MO	D1
FIELD PARAMETERS										
Depth to Water Level	51.300		Feet		Field			5/23/18 12:19	BGS	F
Elev Top MW Casing above MSL	590.90		Feet		Field			5/23/18 12:19	BGS	F
Flow Rate	1.92		gal/min		Field			5/23/18 12:19	BGS	F
Ground Water Elevation	539.600		ft/MSL		Field			5/23/18 12:19	BGS	F
pH, Field (SM4500B)	4.910		pH_Units		Field			5/23/18 12:19	BGS	F
Sample Depth	130.000		Feet		Field			5/23/18 12:19	BGS	F
Specific Conductance, Field	313		umhos/cm	1	Field			5/23/18 12:19	BGS	F
Temperature	11.54		Deg. C		Field			5/23/18 12:19	BGS	F
Total Well Depth	148.400		Feet		Field			5/23/18 12:19	BGS	F
Volume in Water Column	142.737		Gallons		Field			5/23/18 12:19	BGS	F
Water Level After Purge	83.240		Feet		Field			5/23/18 12:19	BGS	F
Well Volumes Purged	0.99		Vol		Field			5/23/18 12:19	BGS	F



Ms. Susan J Scherer
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2316494 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316494004**

Date Collected: 5/23/2018 13:57

Matrix: Ground Water

Sample ID: **FFMP031W**

Date Received: 5/23/2018 15:38

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Acetone	ND		ug/L	10.0	SW846 8260B			6/1/18 03:36	PDK	J
Acrylonitrile	ND		ug/L	5.0	SW846 8260B			6/1/18 03:36	PDK	J
Benzene	ND		ug/L	1.0	SW846 8260B			6/1/18 03:36	PDK	J
Bromochloromethane	ND		ug/L	1.0	SW846 8260B			6/1/18 03:36	PDK	J
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B			6/1/18 03:36	PDK	J
Bromoform	ND		ug/L	1.0	SW846 8260B			6/1/18 03:36	PDK	J
Bromomethane	ND		ug/L	1.0	SW846 8260B			6/1/18 03:36	PDK	J
2-Butanone	ND		ug/L	10.0	SW846 8260B			6/1/18 03:36	PDK	J
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B			6/1/18 03:36	PDK	J
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B			6/1/18 03:36	PDK	J
Chlorobenzene	ND		ug/L	1.0	SW846 8260B			6/1/18 03:36	PDK	J
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B			6/1/18 03:36	PDK	J
Chloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 03:36	PDK	J
Chloroform	ND		ug/L	1.0	SW846 8260B			6/1/18 03:36	PDK	J
Chloromethane	ND		ug/L	1.0	SW846 8260B			6/1/18 03:36	PDK	J
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B			6/1/18 03:36	PDK	J
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B			6/1/18 03:36	PDK	J
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			6/1/18 03:36	PDK	J
Dibromomethane	ND		ug/L	1.0	SW846 8260B			6/1/18 03:36	PDK	J
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B			6/1/18 03:36	PDK	J
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			6/1/18 03:36	PDK	J
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			6/1/18 03:36	PDK	J
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			6/1/18 03:36	PDK	J
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B			6/1/18 03:36	PDK	J
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 03:36	PDK	J
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 03:36	PDK	J
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 03:36	PDK	J
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 03:36	PDK	J
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 03:36	PDK	J
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B			6/1/18 03:36	PDK	J
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			6/1/18 03:36	PDK	J
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			6/1/18 03:36	PDK	J
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			6/1/18 03:36	PDK	J
2-Hexanone	ND		ug/L	5.0	SW846 8260B			6/1/18 03:36	PDK	J
Iodomethane	ND		ug/L	1.0	SW846 8260B			6/1/18 03:36	PDK	J
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B			6/1/18 03:36	PDK	J

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ANALYTICAL RESULTS

Workorder: 2316494 2ND QTR 2018 FFMP-FORM 19A

Lab ID: 2316494004 **Date Collected:** 5/23/2018 13:57 **Matrix:** Ground Water
Sample ID: FFMP031W **Date Received:** 5/23/2018 15:38

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			6/1/18 03:36	PDK	J
Styrene	ND		ug/L	1.0	SW846 8260B			6/1/18 03:36	PDK	J
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 03:36	PDK	J
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 03:36	PDK	J
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 03:36	PDK	J
Toluene	ND		ug/L	1.0	SW846 8260B			6/1/18 03:36	PDK	J
Total Xylenes	ND		ug/L	3.0	SW846 8260B			6/1/18 03:36	PDK	J
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 03:36	PDK	J
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 03:36	PDK	J
Trichloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 03:36	PDK	J
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			6/1/18 03:36	PDK	J
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			6/1/18 03:36	PDK	J
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			6/1/18 03:36	PDK	J
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			6/1/18 03:36	PDK	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)	101		%	62 - 133	SW846 8260B			6/1/18 03:36	PDK	J
4-Bromofluorobenzene (S)	99.9		%	79 - 114	SW846 8260B			6/1/18 03:36	PDK	J
Dibromofluoromethane (S)	95.9		%	78 - 116	SW846 8260B			6/1/18 03:36	PDK	J
Toluene-d8 (S)	99.8		%	76 - 127	SW846 8260B			6/1/18 03:36	PDK	J

LIBRARY SEARCH - VOLATILES

No TIC's Detected Lib Search VOC 6/1/18 03:36 JAH J

WET CHEMISTRY

Alkalinity, Bicarbonate	95		mg/L	5	S2320B-97			5/25/18 06:25	MSA	B
Alkalinity, Total	95	1	mg/L	5	S2320B-97			5/25/18 06:25	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			6/3/18 02:44	TES	C
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4			5/30/18 17:27	AK	C
Chloride	23.0		mg/L	2.0	EPA 300.0			5/24/18 16:53	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			5/24/18 16:53	CHW	B
Nitrate-N	0.68		mg/L	0.20	EPA 300.0			5/24/18 16:53	CHW	B
pH	7.50	2	pH_Units		S4500HB-11			5/25/18 06:25	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	5/30/18 12:00	NJA	5/30/18 13:40	NJA	I
Specific Conductance	303		umhos/cm	1	S2510B-97			5/25/18 06:25	MSA	B
Sulfate	43.3		mg/L	2.0	EPA 300.0			5/24/18 16:53	CHW	B
Total Dissolved Solids	191		mg/L	5	S2540C-11			5/29/18 11:45	BMK	B
Total Organic Carbon (TOC)	0.50		mg/L	0.50	S5310B-00			5/24/18 00:18	PAG	G
Turbidity	4.36		NTU	0.10	S2130B-01			5/25/18 03:31	MSA	B

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ANALYTICAL RESULTS

Workorder: 2316494 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316494004**

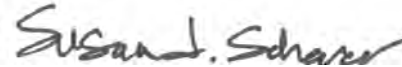
Date Collected: 5/23/2018 13:57

Matrix: Ground Water

Sample ID: **FFMP031W**

Date Received: 5/23/2018 15:38

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Zinc, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:16	MO	D1
FIELD PARAMETERS										
Depth to Water Level	66.000		Feet		Field			5/23/18 13:57	BGS	F
Elev Top MW Casing above MSL	612.66		Feet		Field			5/23/18 13:57	BGS	F
Flow Rate	1.24		gal/min		Field			5/23/18 13:57	BGS	F
Ground Water Elevation	546.660		ft/MSL		Field			5/23/18 13:57	BGS	F
pH, Field (SM4500B)	7.600		pH_Units		Field			5/23/18 13:57	BGS	F
Sample Depth	130.000		Feet		Field			5/23/18 13:57	BGS	F
Specific Conductance, Field	357		umhos/cm	1	Field			5/23/18 13:57	BGS	F
Temperature	14.04		Deg. C		Field			5/23/18 13:57	BGS	F
Total Well Depth	142.700		Feet		Field			5/23/18 13:57	BGS	F
Volume in Water Column	112.749		Gallons		Field			5/23/18 13:57	BGS	F
Water Level After Purge	89.990		Feet		Field			5/23/18 13:57	BGS	F
Well Volumes Purged	1.00		Vol		Field			5/23/18 13:57	BGS	F



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ANALYTICAL RESULTS

Workorder: 2316494 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316494005** Date Collected: 5/23/2018 14:29 Matrix: Ground Water
Sample ID: **FFMP032W** Date Received: 5/23/2018 15:38

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Acetone	11.4		ug/L	10.0	SW846 8260B			6/1/18 03:59	PDK	J
Acrylonitrile	ND		ug/L	5.0	SW846 8260B			6/1/18 03:59	PDK	J
Benzene	ND		ug/L	1.0	SW846 8260B			6/1/18 03:59	PDK	J
Bromochloromethane	ND		ug/L	1.0	SW846 8260B			6/1/18 03:59	PDK	J
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B			6/1/18 03:59	PDK	J
Bromoform	ND		ug/L	1.0	SW846 8260B			6/1/18 03:59	PDK	J
Bromomethane	ND		ug/L	1.0	SW846 8260B			6/1/18 03:59	PDK	J
2-Butanone	ND		ug/L	10.0	SW846 8260B			6/1/18 03:59	PDK	J
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B			6/1/18 03:59	PDK	J
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B			6/1/18 03:59	PDK	J
Chlorobenzene	ND		ug/L	1.0	SW846 8260B			6/1/18 03:59	PDK	J
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B			6/1/18 03:59	PDK	J
Chloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 03:59	PDK	J
Chloroform	ND		ug/L	1.0	SW846 8260B			6/1/18 03:59	PDK	J
Chloromethane	ND		ug/L	1.0	SW846 8260B			6/1/18 03:59	PDK	J
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B			6/1/18 03:59	PDK	J
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B			6/1/18 03:59	PDK	J
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			6/1/18 03:59	PDK	J
Dibromomethane	ND		ug/L	1.0	SW846 8260B			6/1/18 03:59	PDK	J
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B			6/1/18 03:59	PDK	J
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			6/1/18 03:59	PDK	J
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			6/1/18 03:59	PDK	J
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			6/1/18 03:59	PDK	J
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B			6/1/18 03:59	PDK	J
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 03:59	PDK	J
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 03:59	PDK	J
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 03:59	PDK	J
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 03:59	PDK	J
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 03:59	PDK	J
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B			6/1/18 03:59	PDK	J
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			6/1/18 03:59	PDK	J
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			6/1/18 03:59	PDK	J
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			6/1/18 03:59	PDK	J
2-Hexanone	ND		ug/L	5.0	SW846 8260B			6/1/18 03:59	PDK	J
Iodomethane	ND		ug/L	1.0	SW846 8260B			6/1/18 03:59	PDK	J
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B			6/1/18 03:59	PDK	J

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ANALYTICAL RESULTS

Workorder: 2316494 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316494005** Date Collected: 5/23/2018 14:29 Matrix: Ground Water
Sample ID: **FFMP032W** Date Received: 5/23/2018 15:38

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			6/1/18 03:59	PDK	J
Styrene	ND		ug/L	1.0	SW846 8260B			6/1/18 03:59	PDK	J
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 03:59	PDK	J
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 03:59	PDK	J
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 03:59	PDK	J
Toluene	ND		ug/L	1.0	SW846 8260B			6/1/18 03:59	PDK	J
Total Xylenes	ND		ug/L	3.0	SW846 8260B			6/1/18 03:59	PDK	J
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 03:59	PDK	J
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 03:59	PDK	J
Trichloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 03:59	PDK	J
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			6/1/18 03:59	PDK	J
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			6/1/18 03:59	PDK	J
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			6/1/18 03:59	PDK	J
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			6/1/18 03:59	PDK	J

Surrogate Recoveries	Results	Flag	Units	Limits	Method	Prepared	By	Analyzed	By	Cntr
1,2-Dichloroethane-d4 (S)	103		%	62 - 133	SW846 8260B			6/1/18 03:59	PDK	J
4-Bromofluorobenzene (S)	98.8		%	79 - 114	SW846 8260B			6/1/18 03:59	PDK	J
Dibromofluoromethane (S)	96.8		%	78 - 116	SW846 8260B			6/1/18 03:59	PDK	J
Toluene-d8 (S)	97.3		%	76 - 127	SW846 8260B			6/1/18 03:59	PDK	J

LIBRARY SEARCH - VOLATILES

No TIC's Detected . Lib Search VOC 6/1/18 03:59 JAH J

WET CHEMISTRY

Alkalinity, Bicarbonate	73		mg/L	5	S2320B-97			5/25/18 06:35	MSA	A
Alkalinity, Total	73	1	mg/L	5	S2320B-97			5/25/18 06:35	MSA	A
Ammonia-N	1.40		mg/L	0.100	D6919-09			6/3/18 02:59	TES	C
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4			5/30/18 17:27	AK	C
Chloride	22.1		mg/L	2.0	EPA 300.0			5/24/18 17:07	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			5/24/18 17:07	CHW	B
Nitrate-N	ND		mg/L	0.20	EPA 300.0			5/24/18 17:07	CHW	B
pH	7.05	2	pH_Units		S4500HB-11			5/25/18 06:35	MSA	A
Phenolics	ND		mg/L	0.005	SW846 9066	5/30/18 12:00	NJA	5/30/18 13:40	NJA	I
Specific Conductance	183		umhos/cm	1	S2510B-97			5/25/18 06:35	MSA	A
Sulfate	2.8		mg/L	2.0	EPA 300.0			5/24/18 17:07	CHW	B
Total Dissolved Solids	82	3	mg/L	5	S2540C-11			5/29/18 11:45	BMK	B
Total Organic Carbon (TOC)	1.2		mg/L	0.50	S5310B-00			5/24/18 00:18	PAG	G
Turbidity	261		NTU	0.10	S2130B-01			5/25/18 03:31	MSA	B

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ANALYTICAL RESULTS

Workorder: 2316494 2ND QTR 2018 FFMP-FORM 19A

Lab ID: 2316494005 **Date Collected:** 5/23/2018 14:29 **Matrix:** Ground Water
Sample ID: FFMP032W **Date Received:** 5/23/2018 15:38

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Antimony, Total	ND		mg/L	0.0022	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:20	MO	E1
Arsenic, Total	ND		mg/L	0.0033	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:20	MO	E1
Arsenic, Dissolved	ND		mg/L	0.0030	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:20	MO	D1
Barium, Total	ND		mg/L	0.0056	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:20	MO	E1
Barium, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:20	MO	D1
Beryllium, Total	ND		mg/L	0.0011	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:20	MO	E1
Cadmium, Total	ND		mg/L	0.0011	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:20	MO	E1
Cadmium, Dissolved	ND		mg/L	0.0011	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:20	MO	D1
Calcium, Total	14.8		mg/L	0.11	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:20	MO	E1
Calcium, Dissolved	15.2		mg/L	0.11	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:20	MO	D1
Chromium, Total	ND		mg/L	0.0022	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:20	MO	E1
Chromium, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:20	MO	D1
Cobalt, Total	ND		mg/L	0.0056	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:20	MO	E1
Copper, Total	ND		mg/L	0.0056	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:20	MO	E1
Copper, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:20	MO	D1
Iron, Total	11.8		mg/L	0.056	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:20	MO	E1
Iron, Dissolved	6.5		mg/L	0.056	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:20	MO	D1
Lead, Total	ND		mg/L	0.0022	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:20	MO	E1
Lead, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:20	MO	D1
Magnesium, Total	5.1		mg/L	0.11	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:20	MO	E1
Magnesium, Dissolved	5.3		mg/L	0.11	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:20	MO	D1
Manganese, Total	0.62		mg/L	0.0056	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:20	MO	E1
Manganese, Dissolved	0.63		mg/L	0.0056	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:20	MO	D1
Mercury, Total	ND		mg/L	0.00050	SW846 7470A	5/30/18 12:00	AXC	5/30/18 15:42	AXC	E2
Mercury, Dissolved	ND		mg/L	0.00050	SW846 7470A	6/6/18 11:30	AXC	6/6/18 14:50	AXC	D2
Nickel, Total	ND		mg/L	0.0056	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:20	MO	E1
Potassium, Total	1.3		mg/L	0.11	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:20	MO	E1
Potassium, Dissolved	1.3		mg/L	0.11	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:20	MO	D1
Selenium, Total	ND		mg/L	0.0056	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:20	MO	E1
Selenium, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:20	MO	D1
Silver, Total	ND		mg/L	0.0022	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:20	MO	E1
Silver, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:20	MO	D1
Sodium, Total	14.5		mg/L	0.11	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:20	MO	E1
Sodium, Dissolved	14.8		mg/L	0.11	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:20	MO	D1
Thallium, Total	ND		mg/L	0.0011	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:20	MO	E1
Vanadium, Total	ND		mg/L	0.0022	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:20	MO	E1
Zinc, Total	ND		mg/L	0.0056	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:20	MO	E1

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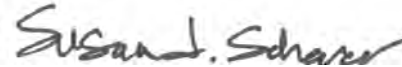
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ANALYTICAL RESULTS

Workorder: 2316494 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316494005** Date Collected: 5/23/2018 14:29 Matrix: Ground Water
Sample ID: **FFMP032W** Date Received: 5/23/2018 15:38

Parameters	Results	Flag	Units	RDL	Method	Prepared By	Analyzed By	Cntr
Zinc, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/30/18 10:05 DXC	6/4/18 13:20 MO	D1
FIELD PARAMETERS								
Depth to Water Level	49.560		Feet		Field		5/23/18 14:29 BGS	F
Elev Top MW Casing above MSL	594.09		Feet		Field		5/23/18 14:29 BGS	F
Flow Rate	0.62		gal/min		Field		5/23/18 14:29 BGS	F
Ground Water Elevation	544.530		ft/MSL		Field		5/23/18 14:29 BGS	F
pH, Field (SM4500B)	6.800		pH_Units		Field		5/23/18 14:29 BGS	F
Sample Depth	62.000		Feet		Field		5/23/18 14:29 BGS	F
Specific Conductance, Field	26		umhos/cm	1	Field		5/23/18 14:29 BGS	F
Temperature	15.55		Deg. C		Field		5/23/18 14:29 BGS	F
Total Well Depth	77.600		Feet		Field		5/23/18 14:29 BGS	F
Volume in Water Column	41.219		Gallons		Field		5/23/18 14:29 BGS	F
Water Level After Purge	57.080		Feet		Field		5/23/18 14:29 BGS	F
Well Volumes Purged	1.01		Vol		Field		5/23/18 14:29 BGS	F



Ms. Susan J Scherer
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2316494 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316494006** Date Collected: 5/23/2018 14:09 Matrix: Water
Sample ID: **FIELD BLANK** Date Received: 5/23/2018 15:38

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Acetone	ND		ug/L	10.0	SW846 8260B			5/31/18 23:47	PDK	A
Acrylonitrile	ND		ug/L	5.0	SW846 8260B			5/31/18 23:47	PDK	A
Benzene	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
Bromochloromethane	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
Bromoform	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
Bromomethane	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
2-Butanone	ND		ug/L	10.0	SW846 8260B			5/31/18 23:47	PDK	A
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
Chlorobenzene	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
Chloroethane	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
Chloroform	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
Chloromethane	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B			5/31/18 23:47	PDK	A
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
Dibromomethane	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B			5/31/18 23:47	PDK	A
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
2-Hexanone	ND		ug/L	5.0	SW846 8260B			5/31/18 23:47	PDK	A
Iodomethane	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B			5/31/18 23:47	PDK	A

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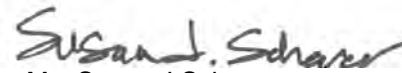
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ANALYTICAL RESULTS

Workorder: 2316494 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316494006** Date Collected: 5/23/2018 14:09 Matrix: Water
Sample ID: **FIELD BLANK** Date Received: 5/23/2018 15:38

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
Styrene	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
Toluene	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
Total Xylenes	ND		ug/L	3.0	SW846 8260B			5/31/18 23:47	PDK	A
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
Trichloroethene	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			5/31/18 23:47	PDK	A
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			5/31/18 23:47	PDK	A
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
<i>Surrogate Recoveries</i>	<i>Results</i>	<i>Flag</i>	<i>Units</i>	<i>Limits</i>	<i>Method</i>	<i>Prepared</i>	<i>By</i>	<i>Analyzed</i>	<i>By</i>	<i>Cntr</i>
1,2-Dichloroethane-d4 (S)	102		%	62 - 133	SW846 8260B			5/31/18 23:47	PDK	A
4-Bromofluorobenzene (S)	99.4		%	79 - 114	SW846 8260B			5/31/18 23:47	PDK	A
Dibromofluoromethane (S)	95.8		%	78 - 116	SW846 8260B			5/31/18 23:47	PDK	A
Toluene-d8 (S)	96.9		%	76 - 127	SW846 8260B			5/31/18 23:47	PDK	A
LIBRARY SEARCH - VOLATILES										
No TIC's Detected	.				Lib Search VOC			5/31/18 23:47	JAH	A



Ms. Susan J Scherer
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2316494 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316494007** Date Collected: 5/23/2018 15:38 Matrix: Water
Sample ID: **TRIP BLANK** Date Received: 5/23/2018 15:38

Parameters	Results	Flag	Units	RDL	Method	Prepared By	Analyzed By	Cntr
VOLATILE ORGANICS								
Acetone	ND		ug/L	10.0	SW846 8260B		5/31/18 22:48	PDK A
Acrylonitrile	ND		ug/L	5.0	SW846 8260B		5/31/18 22:48	PDK A
Benzene	ND		ug/L	1.0	SW846 8260B		5/31/18 22:48	PDK A
Bromochloromethane	ND		ug/L	1.0	SW846 8260B		5/31/18 22:48	PDK A
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B		5/31/18 22:48	PDK A
Bromoform	ND		ug/L	1.0	SW846 8260B		5/31/18 22:48	PDK A
Bromomethane	ND		ug/L	1.0	SW846 8260B		5/31/18 22:48	PDK A
2-Butanone	ND		ug/L	10.0	SW846 8260B		5/31/18 22:48	PDK A
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B		5/31/18 22:48	PDK A
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B		5/31/18 22:48	PDK A
Chlorobenzene	ND		ug/L	1.0	SW846 8260B		5/31/18 22:48	PDK A
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B		5/31/18 22:48	PDK A
Chloroethane	ND		ug/L	1.0	SW846 8260B		5/31/18 22:48	PDK A
Chloroform	ND		ug/L	1.0	SW846 8260B		5/31/18 22:48	PDK A
Chloromethane	ND		ug/L	1.0	SW846 8260B		5/31/18 22:48	PDK A
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B		5/31/18 22:48	PDK A
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B		5/31/18 22:48	PDK A
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B		5/31/18 22:48	PDK A
Dibromomethane	ND		ug/L	1.0	SW846 8260B		5/31/18 22:48	PDK A
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B		5/31/18 22:48	PDK A
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		5/31/18 22:48	PDK A
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		5/31/18 22:48	PDK A
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		5/31/18 22:48	PDK A
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B		5/31/18 22:48	PDK A
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B		5/31/18 22:48	PDK A
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B		5/31/18 22:48	PDK A
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B		5/31/18 22:48	PDK A
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B		5/31/18 22:48	PDK A
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B		5/31/18 22:48	PDK A
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B		5/31/18 22:48	PDK A
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B		5/31/18 22:48	PDK A
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B		5/31/18 22:48	PDK A
Ethylbenzene	ND		ug/L	1.0	SW846 8260B		5/31/18 22:48	PDK A
2-Hexanone	ND		ug/L	5.0	SW846 8260B		5/31/18 22:48	PDK A
Iodomethane	ND		ug/L	1.0	SW846 8260B		5/31/18 22:48	PDK A
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B		5/31/18 22:48	PDK A

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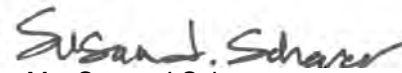
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ANALYTICAL RESULTS

Workorder: 2316494 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316494007** Date Collected: 5/23/2018 15:38 Matrix: Water
Sample ID: **TRIP BLANK** Date Received: 5/23/2018 15:38

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			5/31/18 22:48	PDK	A
Styrene	ND		ug/L	1.0	SW846 8260B			5/31/18 22:48	PDK	A
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/31/18 22:48	PDK	A
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/31/18 22:48	PDK	A
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			5/31/18 22:48	PDK	A
Toluene	ND		ug/L	1.0	SW846 8260B			5/31/18 22:48	PDK	A
Total Xylenes	ND		ug/L	3.0	SW846 8260B			5/31/18 22:48	PDK	A
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/31/18 22:48	PDK	A
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/31/18 22:48	PDK	A
Trichloroethene	ND		ug/L	1.0	SW846 8260B			5/31/18 22:48	PDK	A
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			5/31/18 22:48	PDK	A
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			5/31/18 22:48	PDK	A
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			5/31/18 22:48	PDK	A
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			5/31/18 22:48	PDK	A
<i>Surrogate Recoveries</i>	<i>Results</i>	<i>Flag</i>	<i>Units</i>	<i>Limits</i>	<i>Method</i>	<i>Prepared</i>	<i>By</i>	<i>Analyzed</i>	<i>By</i>	<i>Cntr</i>
1,2-Dichloroethane-d4 (S)	101		%	62 - 133	SW846 8260B			5/31/18 22:48	PDK	A
4-Bromofluorobenzene (S)	111		%	79 - 114	SW846 8260B			5/31/18 22:48	PDK	A
Dibromofluoromethane (S)	94.1		%	78 - 116	SW846 8260B			5/31/18 22:48	PDK	A
Toluene-d8 (S)	100		%	76 - 127	SW846 8260B			5/31/18 22:48	PDK	A
LIBRARY SEARCH - VOLATILES										
No TIC's Detected	.				Lib Search VOC			5/31/18 22:48	JAH	A



Ms. Susan J Scherer
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2316494 2ND QTR 2018 FFMP-FORM 19A

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
2316494001	1	FFMP30RW	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2316494001	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.				
2316494002	1	FFMP04AW	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2316494002	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.				
2316494003	1	FFMP03AW	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2316494003	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.				
2316494004	1	FFMP031W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2316494004	2	FFMP031W	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.				
2316494005	1	FFMP032W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2316494005	2	FFMP032W	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.				
2316494005	3	FFMP032W	S2540C-11	Total Dissolved Solids
The RPD associated with this sample was recovered at 10%. The RPD is outside method acceptance limits of 0-5%. The results used to calculate the RPD were 82 and 91.				

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ANALYSIS - PREP METHOD CROSS REFERENCE TABLE

Workorder: 2316494 2ND QTR 2018 FFMP-FORM 19A

Lab ID	Sample ID	Analysis Method	Prep Method
2316494001	FFMP30RW	D6919-09	
2316494001	FFMP30RW	EPA 300.0	
2316494001	FFMP30RW	EPA 410.4	
2316494001	FFMP30RW	Field	
2316494001	FFMP30RW	Lib Search VOC	
2316494001	FFMP30RW	S2130B-01	
2316494001	FFMP30RW	S2320B-97	
2316494001	FFMP30RW	S2510B-97	
2316494001	FFMP30RW	S2540C-11	
2316494001	FFMP30RW	S4500HB-11	
2316494001	FFMP30RW	S5310B-00	
2316494001	FFMP30RW	SW846 6020A	SW846 3015
2316494001	FFMP30RW	SW846 7470A	SW846 7470A
2316494001	FFMP30RW	SW846 8260B	
2316494001	FFMP30RW	SW846 9066	420.4/9066
2316494002	FFMP04AW	D6919-09	
2316494002	FFMP04AW	EPA 300.0	
2316494002	FFMP04AW	EPA 410.4	
2316494002	FFMP04AW	Field	
2316494002	FFMP04AW	Lib Search VOC	
2316494002	FFMP04AW	S2130B-01	
2316494002	FFMP04AW	S2320B-97	
2316494002	FFMP04AW	S2510B-97	
2316494002	FFMP04AW	S2540C-11	
2316494002	FFMP04AW	S4500HB-11	
2316494002	FFMP04AW	S5310B-00	
2316494002	FFMP04AW	SW846 6020A	SW846 3015
2316494002	FFMP04AW	SW846 7470A	SW846 7470A
2316494002	FFMP04AW	SW846 8260B	
2316494002	FFMP04AW	SW846 9066	420.4/9066
2316494003	FFMP03AW	D6919-09	
2316494003	FFMP03AW	EPA 300.0	
2316494003	FFMP03AW	EPA 410.4	
2316494003	FFMP03AW	Field	
2316494003	FFMP03AW	Lib Search VOC	
2316494003	FFMP03AW	S2130B-01	
2316494003	FFMP03AW	S2320B-97	
2316494003	FFMP03AW	S2510B-97	
2316494003	FFMP03AW	S2540C-11	
2316494003	FFMP03AW	S4500HB-11	
2316494003	FFMP03AW	S5310B-00	
2316494003	FFMP03AW	SW846 6020A	SW846 3015
2316494003	FFMP03AW	SW846 7470A	SW846 7470A
2316494003	FFMP03AW	SW846 8260B	
2316494003	FFMP03AW	SW846 9066	420.4/9066
2316494004	FFMP031W	D6919-09	

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ANALYSIS - PREP METHOD CROSS REFERENCE TABLE

Workorder: 2316494 2ND QTR 2018 FFMP-FORM 19A

Lab ID	Sample ID	Analysis Method	Prep Method
2316494004	FFMP031W	EPA 300.0	
2316494004	FFMP031W	EPA 410.4	
2316494004	FFMP031W	Field	
2316494004	FFMP031W	Lib Search VOC	
2316494004	FFMP031W	S2130B-01	
2316494004	FFMP031W	S2320B-97	
2316494004	FFMP031W	S2510B-97	
2316494004	FFMP031W	S2540C-11	
2316494004	FFMP031W	S4500HB-11	
2316494004	FFMP031W	S5310B-00	
2316494004	FFMP031W	SW846 6020A	SW846 3015
2316494004	FFMP031W	SW846 7470A	SW846 7470A
2316494004	FFMP031W	SW846 8260B	
2316494004	FFMP031W	SW846 9066	420.4/9066
2316494005	FFMP032W	D6919-09	
2316494005	FFMP032W	EPA 300.0	
2316494005	FFMP032W	EPA 410.4	
2316494005	FFMP032W	Field	
2316494005	FFMP032W	Lib Search VOC	
2316494005	FFMP032W	S2130B-01	
2316494005	FFMP032W	S2320B-97	
2316494005	FFMP032W	S2510B-97	
2316494005	FFMP032W	S2540C-11	
2316494005	FFMP032W	S4500HB-11	
2316494005	FFMP032W	S5310B-00	
2316494005	FFMP032W	SW846 6020A	SW846 3015
2316494005	FFMP032W	SW846 7470A	SW846 7470A
2316494005	FFMP032W	SW846 8260B	
2316494005	FFMP032W	SW846 9066	420.4/9066
2316494006	FIELD BLANK	Lib Search VOC	
2316494006	FIELD BLANK	SW846 8260B	
2316494007	TRIP BLANK	Lib Search VOC	
2316494007	TRIP BLANK	SW846 8260B	

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June 6, 2018

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

Certificate of Analysis

Project Name:	FREY FARM	Workorder:	2316494
Purchase Order:	PO1000126	Workorder ID:	2ND QTR 2018 FFMP-FORM 19A

Dear Mr. Brown:

Enclosed are the analytical results for samples received by the laboratory on Wednesday, May 23, 2018.

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

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

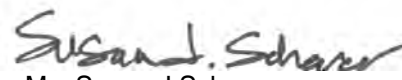
Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications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

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

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

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

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



Ms. Susan J Scherer
Project Coordinator

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SAMPLE SUMMARY

Workorder: 2316494 2ND QTR 2018 FFMP-FORM 19A

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2316494001	FFMP30RW	Ground Water	5/23/2018 09:46	5/23/2018 15:38	Mr. Brian G Shade
2316494002	FFMP04AW	Ground Water	5/23/2018 10:56	5/23/2018 15:38	Mr. Brian G Shade
2316494003	FFMP03AW	Ground Water	5/23/2018 12:19	5/23/2018 15:38	Mr. Brian G Shade
2316494004	FFMP031W	Ground Water	5/23/2018 13:57	5/23/2018 15:38	Mr. Brian G Shade
2316494005	FFMP032W	Ground Water	5/23/2018 14:29	5/23/2018 15:38	Mr. Brian G Shade
2316494006	FIELD BLANK	Water	5/23/2018 14:09	5/23/2018 15:38	Mr. Brian G Shade
2316494007	TRIP BLANK	Water	5/23/2018 15:38	5/23/2018 15:38	Mr. Brian G Shade

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SAMPLE SUMMARY

Workorder: 2316494 2ND QTR 2018 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: 2316494 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316494001**

Date Collected: 5/23/2018 09:46

Matrix: Ground Water

Sample ID: **FFMP30RW**

Date Received: 5/23/2018 15:38

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Acetone	11.8		ug/L	10.0	SW846 8260B			6/1/18 02:27	PDK	J
Acrylonitrile	ND		ug/L	5.0	SW846 8260B			6/1/18 02:27	PDK	J
Benzene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
Bromochloromethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
Bromoform	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
Bromomethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
2-Butanone	ND		ug/L	10.0	SW846 8260B			6/1/18 02:27	PDK	J
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
Chlorobenzene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
Chloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
Chloroform	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
Chloromethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B			6/1/18 02:27	PDK	J
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
Dibromomethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B			6/1/18 02:27	PDK	J
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
2-Hexanone	ND		ug/L	5.0	SW846 8260B			6/1/18 02:27	PDK	J
Iodomethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B			6/1/18 02:27	PDK	J

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ANALYTICAL RESULTS

Workorder: 2316494 2ND QTR 2018 FFMP-FORM 19A

 Lab ID: **2316494001**

Date Collected: 5/23/2018 09:46

Matrix: Ground Water

 Sample ID: **FFMP30RW**

Date Received: 5/23/2018 15:38

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
Styrene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
Toluene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
Total Xylenes	ND		ug/L	3.0	SW846 8260B			6/1/18 02:27	PDK	J
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
Trichloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			6/1/18 02:27	PDK	J
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			6/1/18 02:27	PDK	J
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			6/1/18 02:27	PDK	J
Surrogate Recoveries	Results	Flag	Units	Limits	Method	Prepared	By	Analyzed	By	Cntr
1,2-Dichloroethane-d4 (S)	103		%	62 - 133	SW846 8260B			6/1/18 02:27	PDK	J
4-Bromofluorobenzene (S)	100		%	79 - 114	SW846 8260B			6/1/18 02:27	PDK	J
Dibromofluoromethane (S)	95.6		%	78 - 116	SW846 8260B			6/1/18 02:27	PDK	J
Toluene-d8 (S)	99.2		%	76 - 127	SW846 8260B			6/1/18 02:27	PDK	J

LIBRARY SEARCH - VOLATILES

No TIC's Detected . Lib Search VOC 6/1/18 02:27 JAH J

WET CHEMISTRY

Alkalinity, Bicarbonate	24		mg/L	5	S2320B-97			5/25/18 04:02	MSA	B
Alkalinity, Total	24	1	mg/L	5	S2320B-97			5/25/18 04:02	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			6/3/18 01:59	TES	C
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4			5/30/18 17:27	AK	C
Chloride	70.5		mg/L	2.0	EPA 300.0			5/24/18 11:30	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			5/24/18 11:30	CHW	B
Nitrate-N	4.1		mg/L	0.20	EPA 300.0			5/24/18 11:30	CHW	B
pH	5.63	2	pH_Units		S4500HB-11			5/25/18 04:02	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	5/30/18 12:00	NJA	5/30/18 13:40	NJA	I
Specific Conductance	290		umhos/cm	1	S2510B-97			5/25/18 04:02	MSA	B
Sulfate	9.3		mg/L	2.0	EPA 300.0			5/24/18 11:30	CHW	B
Total Dissolved Solids	197		mg/L	5	S2540C-11			5/29/18 11:45	BMK	B
Total Organic Carbon (TOC)	0.96		mg/L	0.50	S5310B-00			5/24/18 00:18	PAG	G
Turbidity	0.30		NTU	0.10	S2130B-01			5/25/18 03:31	MSA	B

ALS Environmental Laboratory Locations Across North America

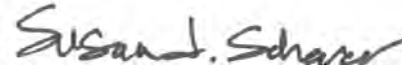
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ANALYTICAL RESULTS

Workorder: 2316494 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316494001** Date Collected: 5/23/2018 09:46 Matrix: Ground Water
Sample ID: **FFMP30RW** Date Received: 5/23/2018 15:38

Parameters	Results	Flag	Units	RDL	Method	Prepared By	Analyzed By	Cntr
Zinc, Dissolved	0.010		mg/L	0.0056	SW846 6020A	5/30/18 10:05 DXC	6/4/18 13:05 MO	D1
FIELD PARAMETERS								
Depth to Water Level	29.250		Feet		Field		5/23/18 09:46 BGS	F
Elev Top MW Casing above MSL	562.30		Feet		Field		5/23/18 09:46 BGS	F
Flow Rate	2.33		gal/min		Field		5/23/18 09:46 BGS	F
Ground Water Elevation	533.050		ft/MSL		Field		5/23/18 09:46 BGS	F
pH, Field (SM4500B)	4.720		pH_Units		Field		5/23/18 09:46 BGS	F
Sample Depth	85.000		Feet		Field		5/23/18 09:46 BGS	F
Specific Conductance, Field	341		umhos/cm	1	Field		5/23/18 09:46 BGS	F
Temperature	11.11		Deg. C		Field		5/23/18 09:46 BGS	F
Total Well Depth	94.200		Feet		Field		5/23/18 09:46 BGS	F
Volume in Water Column	95.477		Gallons		Field		5/23/18 09:46 BGS	F
Water Level After Purge	32.640		Feet		Field		5/23/18 09:46 BGS	F
Well Volumes Purged	1.46		Vol		Field		5/23/18 09:46 BGS	F



Ms. Susan J Scherer
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2316494 2ND QTR 2018 FFMP-FORM 19A

Lab ID: 2316494002 **Date Collected:** 5/23/2018 10:56 **Matrix:** Ground Water
Sample ID: FFMP04AW **Date Received:** 5/23/2018 15:38

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Acetone	10.4		ug/L	10.0	SW846 8260B			6/1/18 02:50	PDK	J
Acrylonitrile	ND		ug/L	5.0	SW846 8260B			6/1/18 02:50	PDK	J
Benzene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
Bromochloromethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
Bromoform	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
Bromomethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
2-Butanone	ND		ug/L	10.0	SW846 8260B			6/1/18 02:50	PDK	J
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
Chlorobenzene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
Chloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
Chloroform	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
Chloromethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B			6/1/18 02:50	PDK	J
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
Dibromomethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B			6/1/18 02:50	PDK	J
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
2-Hexanone	ND		ug/L	5.0	SW846 8260B			6/1/18 02:50	PDK	J
Iodomethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B			6/1/18 02:50	PDK	J

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ANALYTICAL RESULTS

Workorder: 2316494 2ND QTR 2018 FFMP-FORM 19A

Lab ID: 2316494002 **Date Collected:** 5/23/2018 10:56 **Matrix:** Ground Water
Sample ID: FFMP04AW **Date Received:** 5/23/2018 15:38

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
Styrene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
Toluene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
Total Xylenes	ND		ug/L	3.0	SW846 8260B			6/1/18 02:50	PDK	J
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
Trichloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			6/1/18 02:50	PDK	J
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			6/1/18 02:50	PDK	J
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			6/1/18 02:50	PDK	J

Surrogate Recoveries	Results	Flag	Units	Limits	Method	Prepared	By	Analyzed	By	Cntr
1,2-Dichloroethane-d4 (S)	100		%	62 - 133	SW846 8260B			6/1/18 02:50	PDK	J
4-Bromofluorobenzene (S)	99		%	79 - 114	SW846 8260B			6/1/18 02:50	PDK	J
Dibromofluoromethane (S)	96.4		%	78 - 116	SW846 8260B			6/1/18 02:50	PDK	J
Toluene-d8 (S)	98.9		%	76 - 127	SW846 8260B			6/1/18 02:50	PDK	J

LIBRARY SEARCH - VOLATILES

No TIC's Detected Lib Search VOC 6/1/18 02:50 JAH J

WET CHEMISTRY

Alkalinity, Bicarbonate	205		mg/L	5	S2320B-97			5/25/18 06:07	MSA	A
Alkalinity, Total	205	1	mg/L	5	S2320B-97			5/25/18 06:07	MSA	A
Ammonia-N	ND		mg/L	0.100	D6919-09			6/3/18 02:14	TES	C
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4			5/30/18 17:27	AK	C
Chloride	330		mg/L	10.0	EPA 300.0			5/24/18 12:08	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			5/24/18 11:49	CHW	B
Nitrate-N	0.20		mg/L	0.20	EPA 300.0			5/24/18 11:49	CHW	B
pH	7.28	2	pH_Units		S4500HB-11			5/25/18 06:07	MSA	A
Phenolics	ND		mg/L	0.005	SW846 9066	5/30/18 12:00	NJA	5/30/18 13:40	NJA	I
Specific Conductance	1440		umhos/cm	1	S2510B-97			5/25/18 06:07	MSA	A
Sulfate	50.0		mg/L	2.0	EPA 300.0			5/24/18 11:49	CHW	B
Total Dissolved Solids	958		mg/L	5	S2540C-11			5/29/18 11:45	BMK	B
Total Organic Carbon (TOC)	0.99		mg/L	0.50	S5310B-00			5/24/18 00:18	PAG	G
Turbidity	0.43		NTU	0.10	S2130B-01			5/25/18 03:31	MSA	B

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ANALYTICAL RESULTS

Workorder: 2316494 2ND QTR 2018 FFMP-FORM 19A

Lab ID: 2316494002 **Date Collected:** 5/23/2018 10:56 **Matrix:** Ground Water
Sample ID: FFMP04AW **Date Received:** 5/23/2018 15:38

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Antimony, Total	ND		mg/L	0.0022	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:19	MO	E1
Arsenic, Total	ND		mg/L	0.0033	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:19	MO	E1
Arsenic, Dissolved	ND		mg/L	0.0030	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:09	MO	D1
Barium, Total	0.20		mg/L	0.0056	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:19	MO	E1
Barium, Dissolved	0.20		mg/L	0.0056	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:09	MO	D1
Beryllium, Total	ND		mg/L	0.0011	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:19	MO	E1
Cadmium, Total	ND		mg/L	0.0011	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:19	MO	E1
Cadmium, Dissolved	ND		mg/L	0.0011	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:09	MO	D1
Calcium, Total	149		mg/L	0.11	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:19	MO	E1
Calcium, Dissolved	143		mg/L	0.11	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:09	MO	D1
Chromium, Total	ND		mg/L	0.0022	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:19	MO	E1
Chromium, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:09	MO	D1
Cobalt, Total	ND		mg/L	0.0056	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:19	MO	E1
Copper, Total	ND		mg/L	0.0056	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:19	MO	E1
Copper, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:09	MO	D1
Iron, Total	0.070		mg/L	0.056	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:19	MO	E1
Iron, Dissolved	ND		mg/L	0.056	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:09	MO	D1
Lead, Total	ND		mg/L	0.0022	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:19	MO	E1
Lead, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:09	MO	D1
Magnesium, Total	26.1		mg/L	0.11	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:19	MO	E1
Magnesium, Dissolved	26.7		mg/L	0.11	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:09	MO	D1
Manganese, Total	0.28		mg/L	0.0056	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:19	MO	E1
Manganese, Dissolved	0.26		mg/L	0.0056	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:09	MO	D1
Mercury, Total	ND		mg/L	0.00050	SW846 7470A	5/29/18 06:10	AXC	5/29/18 11:04	AXC	E2
Mercury, Dissolved	ND		mg/L	0.00050	SW846 7470A	6/6/18 11:30	AXC	6/6/18 14:45	AXC	D2
Nickel, Total	0.011		mg/L	0.0056	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:19	MO	E1
Potassium, Total	2.1		mg/L	0.11	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:19	MO	E1
Potassium, Dissolved	2.2		mg/L	0.11	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:09	MO	D1
Selenium, Total	ND		mg/L	0.0056	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:19	MO	E1
Selenium, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:09	MO	D1
Silver, Total	ND		mg/L	0.0022	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:19	MO	E1
Silver, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:09	MO	D1
Sodium, Total	87.2		mg/L	0.11	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:19	MO	E1
Sodium, Dissolved	89.1		mg/L	0.11	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:09	MO	D1
Thallium, Total	ND		mg/L	0.0011	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:19	MO	E1
Vanadium, Total	ND		mg/L	0.0022	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:19	MO	E1
Zinc, Total	0.0063		mg/L	0.0056	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:19	MO	E1

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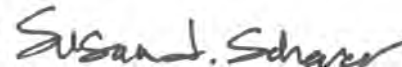
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ANALYTICAL RESULTS

Workorder: 2316494 2ND QTR 2018 FFMP-FORM 19A

 Lab ID: **2316494002** Date Collected: 5/23/2018 10:56 Matrix: Ground Water
 Sample ID: **FFMP04AW** Date Received: 5/23/2018 15:38

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Zinc, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:09	MO	D1
FIELD PARAMETERS										
Depth to Water Level	33.020		Feet		Field			5/23/18 10:56	BGS	F
Elev Top MW Casing above MSL	560.72		Feet		Field			5/23/18 10:56	BGS	F
Flow Rate	1.90		gal/min		Field			5/23/18 10:56	BGS	F
Ground Water Elevation	527.700		ft/MSL		Field			5/23/18 10:56	BGS	F
pH, Field (SM4500B)	6.640		pH_Units		Field			5/23/18 10:56	BGS	F
Sample Depth	146.000		Feet		Field			5/23/18 10:56	BGS	F
Specific Conductance, Field	1502		umhos/cm	1	Field			5/23/18 10:56	BGS	F
Temperature	11.88		Deg. C		Field			5/23/18 10:56	BGS	F
Total Well Depth	148.500		Feet		Field			5/23/18 10:56	BGS	F
Volume in Water Column	169.756		Gallons		Field			5/23/18 10:56	BGS	F
Water Level After Purge	79.440		Feet		Field			5/23/18 10:56	BGS	F
Well Volumes Purged	1.01		Vol		Field			5/23/18 10:56	BGS	F



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 Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2316494 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316494003** Date Collected: 5/23/2018 12:19 Matrix: Ground Water
Sample ID: **FFMP03AW** Date Received: 5/23/2018 15:38

Parameters	Results	Flag	Units	RDL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS									
Acetone	12.1		ug/L	10.0	SW846 8260B		6/1/18 03:13	PDK	J
Acrylonitrile	ND		ug/L	5.0	SW846 8260B		6/1/18 03:13	PDK	J
Benzene	ND		ug/L	1.0	SW846 8260B		6/1/18 03:13	PDK	J
Bromochloromethane	ND		ug/L	1.0	SW846 8260B		6/1/18 03:13	PDK	J
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B		6/1/18 03:13	PDK	J
Bromoform	ND		ug/L	1.0	SW846 8260B		6/1/18 03:13	PDK	J
Bromomethane	ND		ug/L	1.0	SW846 8260B		6/1/18 03:13	PDK	J
2-Butanone	ND		ug/L	10.0	SW846 8260B		6/1/18 03:13	PDK	J
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B		6/1/18 03:13	PDK	J
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B		6/1/18 03:13	PDK	J
Chlorobenzene	ND		ug/L	1.0	SW846 8260B		6/1/18 03:13	PDK	J
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B		6/1/18 03:13	PDK	J
Chloroethane	ND		ug/L	1.0	SW846 8260B		6/1/18 03:13	PDK	J
Chloroform	ND		ug/L	1.0	SW846 8260B		6/1/18 03:13	PDK	J
Chloromethane	ND		ug/L	1.0	SW846 8260B		6/1/18 03:13	PDK	J
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B		6/1/18 03:13	PDK	J
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B		6/1/18 03:13	PDK	J
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B		6/1/18 03:13	PDK	J
Dibromomethane	ND		ug/L	1.0	SW846 8260B		6/1/18 03:13	PDK	J
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B		6/1/18 03:13	PDK	J
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		6/1/18 03:13	PDK	J
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		6/1/18 03:13	PDK	J
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		6/1/18 03:13	PDK	J
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B		6/1/18 03:13	PDK	J
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B		6/1/18 03:13	PDK	J
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B		6/1/18 03:13	PDK	J
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B		6/1/18 03:13	PDK	J
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B		6/1/18 03:13	PDK	J
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B		6/1/18 03:13	PDK	J
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B		6/1/18 03:13	PDK	J
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B		6/1/18 03:13	PDK	J
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B		6/1/18 03:13	PDK	J
Ethylbenzene	ND		ug/L	1.0	SW846 8260B		6/1/18 03:13	PDK	J
2-Hexanone	ND		ug/L	5.0	SW846 8260B		6/1/18 03:13	PDK	J
Iodomethane	ND		ug/L	1.0	SW846 8260B		6/1/18 03:13	PDK	J
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B		6/1/18 03:13	PDK	J

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ANALYTICAL RESULTS

Workorder: 2316494 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316494003**

Date Collected: 5/23/2018 12:19

Matrix: Ground Water

Sample ID: **FFMP03AW**

Date Received: 5/23/2018 15:38

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			6/1/18 03:13	PDK	J
Styrene	ND		ug/L	1.0	SW846 8260B			6/1/18 03:13	PDK	J
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 03:13	PDK	J
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 03:13	PDK	J
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 03:13	PDK	J
Toluene	ND		ug/L	1.0	SW846 8260B			6/1/18 03:13	PDK	J
Total Xylenes	ND		ug/L	3.0	SW846 8260B			6/1/18 03:13	PDK	J
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 03:13	PDK	J
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 03:13	PDK	J
Trichloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 03:13	PDK	J
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			6/1/18 03:13	PDK	J
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			6/1/18 03:13	PDK	J
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			6/1/18 03:13	PDK	J
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			6/1/18 03:13	PDK	J
Surrogate Recoveries	Results	Flag	Units	Limits	Method	Prepared	By	Analyzed	By	Cntr
1,2-Dichloroethane-d4 (S)	103		%	62 - 133	SW846 8260B			6/1/18 03:13	PDK	J
4-Bromofluorobenzene (S)	98.2		%	79 - 114	SW846 8260B			6/1/18 03:13	PDK	J
Dibromofluoromethane (S)	95.6		%	78 - 116	SW846 8260B			6/1/18 03:13	PDK	J
Toluene-d8 (S)	99.9		%	76 - 127	SW846 8260B			6/1/18 03:13	PDK	J

LIBRARY SEARCH - VOLATILES

No TIC's Detected . Lib Search VOC 6/1/18 03:13 JAH J

WET CHEMISTRY

Alkalinity, Bicarbonate	27		mg/L	5	S2320B-97			5/25/18 06:15	MSA	B
Alkalinity, Total	27	1	mg/L	5	S2320B-97			5/25/18 06:15	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			6/3/18 02:29	TES	C
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4			5/30/18 17:27	AK	C
Chloride	27.8		mg/L	2.0	EPA 300.0			5/24/18 14:21	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			5/24/18 14:21	CHW	B
Nitrate-N	19.3		mg/L	0.50	EPA 300.0			5/25/18 05:16	CHW	B
pH	5.87	2	pH_Units		S4500HB-11			5/25/18 06:15	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	5/30/18 12:00	NJA	5/30/18 13:40	NJA	I
Specific Conductance	272		umhos/cm	1	S2510B-97			5/25/18 06:15	MSA	B
Sulfate	3.6		mg/L	2.0	EPA 300.0			5/24/18 14:21	CHW	B
Total Dissolved Solids	202		mg/L	5	S2540C-11			5/29/18 11:45	BMK	B
Total Organic Carbon (TOC)	0.59		mg/L	0.50	S5310B-00			5/24/18 00:18	PAG	G
Turbidity	ND		NTU	0.10	S2130B-01			5/25/18 03:31	MSA	B

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ANALYTICAL RESULTS

Workorder: 2316494 2ND QTR 2018 FFMP-FORM 19A

Lab ID: 2316494003 **Date Collected:** 5/23/2018 12:19 **Matrix:** Ground Water
Sample ID: FFMP03AW **Date Received:** 5/23/2018 15:38

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Antimony, Total	ND		mg/L	0.0022	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:23	MO	E1
Arsenic, Total	ND		mg/L	0.0033	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:23	MO	E1
Arsenic, Dissolved	ND		mg/L	0.0030	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:12	MO	D1
Barium, Total	0.042		mg/L	0.0056	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:23	MO	E1
Barium, Dissolved	0.042		mg/L	0.0056	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:12	MO	D1
Beryllium, Total	ND		mg/L	0.0011	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:23	MO	E1
Cadmium, Total	ND		mg/L	0.0011	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:23	MO	E1
Cadmium, Dissolved	ND		mg/L	0.0011	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:12	MO	D1
Calcium, Total	16.6		mg/L	0.11	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:23	MO	E1
Calcium, Dissolved	16.8		mg/L	0.11	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:12	MO	D1
Chromium, Total	ND		mg/L	0.0022	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:23	MO	E1
Chromium, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:12	MO	D1
Cobalt, Total	ND		mg/L	0.0056	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:23	MO	E1
Copper, Total	0.0072		mg/L	0.0056	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:23	MO	E1
Copper, Dissolved	0.0077		mg/L	0.0056	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:12	MO	D1
Iron, Total	ND		mg/L	0.056	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:23	MO	E1
Iron, Dissolved	ND		mg/L	0.056	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:12	MO	D1
Lead, Total	ND		mg/L	0.0022	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:23	MO	E1
Lead, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:12	MO	D1
Magnesium, Total	12.2		mg/L	0.11	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:23	MO	E1
Magnesium, Dissolved	12.8		mg/L	0.11	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:12	MO	D1
Manganese, Total	0.27		mg/L	0.0056	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:23	MO	E1
Manganese, Dissolved	0.26		mg/L	0.0056	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:12	MO	D1
Mercury, Total	ND		mg/L	0.00050	SW846 7470A	5/29/18 06:10	AXC	5/29/18 11:05	AXC	E2
Mercury, Dissolved	ND		mg/L	0.00050	SW846 7470A	6/6/18 11:30	AXC	6/6/18 14:46	AXC	D2
Nickel, Total	0.010		mg/L	0.0056	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:23	MO	E1
Potassium, Total	1.3		mg/L	0.11	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:23	MO	E1
Potassium, Dissolved	1.3		mg/L	0.11	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:12	MO	D1
Selenium, Total	ND		mg/L	0.0056	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:23	MO	E1
Selenium, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:12	MO	D1
Silver, Total	ND		mg/L	0.0022	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:23	MO	E1
Silver, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:12	MO	D1
Sodium, Total	12.2		mg/L	0.11	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:23	MO	E1
Sodium, Dissolved	12.6		mg/L	0.11	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:12	MO	D1
Thallium, Total	ND		mg/L	0.0011	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:23	MO	E1
Vanadium, Total	ND		mg/L	0.0022	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:23	MO	E1
Zinc, Total	0.017		mg/L	0.0056	SW846 6020A	5/26/18 17:10	AHI	6/4/18 11:23	MO	E1

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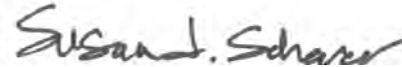
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ANALYTICAL RESULTS

Workorder: 2316494 2ND QTR 2018 FFMP-FORM 19A

 Lab ID: **2316494003** Date Collected: 5/23/2018 12:19 Matrix: Ground Water
 Sample ID: **FFMP03AW** Date Received: 5/23/2018 15:38

Parameters	Results	Flag	Units	RDL	Method	Prepared By	Analyzed By	Cntr
Zinc, Dissolved	0.016		mg/L	0.0056	SW846 6020A	5/30/18 10:05 DXC	6/4/18 13:12 MO	D1
FIELD PARAMETERS								
Depth to Water Level	51.300		Feet		Field		5/23/18 12:19 BGS	F
Elev Top MW Casing above MSL	590.90		Feet		Field		5/23/18 12:19 BGS	F
Flow Rate	1.92		gal/min		Field		5/23/18 12:19 BGS	F
Ground Water Elevation	539.600		ft/MSL		Field		5/23/18 12:19 BGS	F
pH, Field (SM4500B)	4.910		pH_Units		Field		5/23/18 12:19 BGS	F
Sample Depth	130.000		Feet		Field		5/23/18 12:19 BGS	F
Specific Conductance, Field	313		umhos/cm	1	Field		5/23/18 12:19 BGS	F
Temperature	11.54		Deg. C		Field		5/23/18 12:19 BGS	F
Total Well Depth	148.400		Feet		Field		5/23/18 12:19 BGS	F
Volume in Water Column	142.737		Gallons		Field		5/23/18 12:19 BGS	F
Water Level After Purge	83.240		Feet		Field		5/23/18 12:19 BGS	F
Well Volumes Purged	0.99		Vol		Field		5/23/18 12:19 BGS	F



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ANALYTICAL RESULTS

Workorder: 2316494 2ND QTR 2018 FFMP-FORM 19A

Lab ID: 2316494004 **Date Collected:** 5/23/2018 13:57 **Matrix:** Ground Water
Sample ID: FFMP031W **Date Received:** 5/23/2018 15:38

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			6/1/18 03:36	PDK	J
Styrene	ND		ug/L	1.0	SW846 8260B			6/1/18 03:36	PDK	J
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 03:36	PDK	J
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 03:36	PDK	J
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 03:36	PDK	J
Toluene	ND		ug/L	1.0	SW846 8260B			6/1/18 03:36	PDK	J
Total Xylenes	ND		ug/L	3.0	SW846 8260B			6/1/18 03:36	PDK	J
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 03:36	PDK	J
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 03:36	PDK	J
Trichloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 03:36	PDK	J
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			6/1/18 03:36	PDK	J
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			6/1/18 03:36	PDK	J
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			6/1/18 03:36	PDK	J
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			6/1/18 03:36	PDK	J
Surrogate Recoveries	Results	Flag	Units	Limits	Method	Prepared	By	Analyzed	By	Cntr
1,2-Dichloroethane-d4 (S)	101		%	62 - 133	SW846 8260B			6/1/18 03:36	PDK	J
4-Bromofluorobenzene (S)	99.9		%	79 - 114	SW846 8260B			6/1/18 03:36	PDK	J
Dibromofluoromethane (S)	95.9		%	78 - 116	SW846 8260B			6/1/18 03:36	PDK	J
Toluene-d8 (S)	99.8		%	76 - 127	SW846 8260B			6/1/18 03:36	PDK	J

LIBRARY SEARCH - VOLATILES

No TIC's Detected Lib Search VOC 6/1/18 03:36 JAH J

WET CHEMISTRY

Alkalinity, Bicarbonate	95		mg/L	5	S2320B-97			5/25/18 06:25	MSA	B
Alkalinity, Total	95	1	mg/L	5	S2320B-97			5/25/18 06:25	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			6/3/18 02:44	TES	C
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4			5/30/18 17:27	AK	C
Chloride	23.0		mg/L	2.0	EPA 300.0			5/24/18 16:53	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			5/24/18 16:53	CHW	B
Nitrate-N	0.68		mg/L	0.20	EPA 300.0			5/24/18 16:53	CHW	B
pH	7.50	2	pH_Units		S4500HB-11			5/25/18 06:25	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	5/30/18 12:00	NJA	5/30/18 13:40	NJA	I
Specific Conductance	303		umhos/cm	1	S2510B-97			5/25/18 06:25	MSA	B
Sulfate	43.3		mg/L	2.0	EPA 300.0			5/24/18 16:53	CHW	B
Total Dissolved Solids	191		mg/L	5	S2540C-11			5/29/18 11:45	BMK	B
Total Organic Carbon (TOC)	0.50		mg/L	0.50	S5310B-00			5/24/18 00:18	PAG	G
Turbidity	4.36		NTU	0.10	S2130B-01			5/25/18 03:31	MSA	B

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ANALYTICAL RESULTS

Workorder: 2316494 2ND QTR 2018 FFMP-FORM 19A

Lab ID: 2316494004 **Date Collected:** 5/23/2018 13:57 **Matrix:** Ground Water
Sample ID: FFMP031W **Date Received:** 5/23/2018 15:38

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Antimony, Total	ND		mg/L	0.0022	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:16	MO	E1
Arsenic, Total	ND		mg/L	0.0033	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:16	MO	E1
Arsenic, Dissolved	ND		mg/L	0.0030	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:16	MO	D1
Barium, Total	0.028		mg/L	0.0056	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:16	MO	E1
Barium, Dissolved	0.028		mg/L	0.0056	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:16	MO	D1
Beryllium, Total	ND		mg/L	0.0011	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:16	MO	E1
Cadmium, Total	ND		mg/L	0.0011	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:16	MO	E1
Cadmium, Dissolved	ND		mg/L	0.0011	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:16	MO	D1
Calcium, Total	47.2		mg/L	0.11	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:16	MO	E1
Calcium, Dissolved	47.6		mg/L	0.11	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:16	MO	D1
Chromium, Total	ND		mg/L	0.0022	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:16	MO	E1
Chromium, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:16	MO	D1
Cobalt, Total	ND		mg/L	0.0056	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:16	MO	E1
Copper, Total	ND		mg/L	0.0056	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:16	MO	E1
Copper, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:16	MO	D1
Iron, Total	0.52		mg/L	0.056	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:16	MO	E1
Iron, Dissolved	0.48		mg/L	0.056	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:16	MO	D1
Lead, Total	ND		mg/L	0.0022	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:16	MO	E1
Lead, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:16	MO	D1
Magnesium, Total	4.3		mg/L	0.11	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:16	MO	E1
Magnesium, Dissolved	3.6		mg/L	0.11	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:16	MO	D1
Manganese, Total	0.19		mg/L	0.0056	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:16	MO	E1
Manganese, Dissolved	0.20		mg/L	0.0056	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:16	MO	D1
Mercury, Total	ND		mg/L	0.00050	SW846 7470A	5/30/18 12:00	AXC	5/30/18 15:41	AXC	E2
Mercury, Dissolved	ND		mg/L	0.00050	SW846 7470A	6/6/18 11:30	AXC	6/6/18 14:49	AXC	D2
Nickel, Total	ND		mg/L	0.0056	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:16	MO	E1
Potassium, Total	1.5		mg/L	0.11	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:16	MO	E1
Potassium, Dissolved	1.3		mg/L	0.11	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:16	MO	D1
Selenium, Total	ND		mg/L	0.0056	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:16	MO	E1
Selenium, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:16	MO	D1
Silver, Total	ND		mg/L	0.0022	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:16	MO	E1
Silver, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:16	MO	D1
Sodium, Total	10.7		mg/L	0.11	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:16	MO	E1
Sodium, Dissolved	9.0		mg/L	0.11	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:16	MO	D1
Thallium, Total	ND		mg/L	0.0011	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:16	MO	E1
Vanadium, Total	ND		mg/L	0.0022	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:16	MO	E1
Zinc, Total	ND		mg/L	0.0056	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:16	MO	E1

ALS Environmental Laboratory Locations Across North America

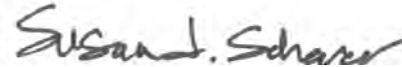
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ANALYTICAL RESULTS

Workorder: 2316494 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316494004** Date Collected: 5/23/2018 13:57 Matrix: Ground Water
Sample ID: **FFMP031W** Date Received: 5/23/2018 15:38

Parameters	Results	Flag	Units	RDL	Method	Prepared By	Analyzed By	Cntr	
Zinc, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/30/18 10:05 DXC	6/4/18 13:16 MO	D1	
FIELD PARAMETERS									
Depth to Water Level	66.000		Feet		Field		5/23/18 13:57 BGS	F	
Elev Top MW Casing above MSL	612.66		Feet		Field		5/23/18 13:57 BGS	F	
Flow Rate	1.24		gal/min		Field		5/23/18 13:57 BGS	F	
Ground Water Elevation	546.660		ft/MSL		Field		5/23/18 13:57 BGS	F	
pH, Field (SM4500B)	7.600		pH_Units		Field		5/23/18 13:57 BGS	F	
Sample Depth	130.000		Feet		Field		5/23/18 13:57 BGS	F	
Specific Conductance, Field	357		umhos/cm	1	Field		5/23/18 13:57 BGS	F	
Temperature	14.04		Deg. C		Field		5/23/18 13:57 BGS	F	
Total Well Depth	142.700		Feet		Field		5/23/18 13:57 BGS	F	
Volume in Water Column	112.749		Gallons		Field		5/23/18 13:57 BGS	F	
Water Level After Purge	89.990		Feet		Field		5/23/18 13:57 BGS	F	
Well Volumes Purged	1.00		Vol		Field		5/23/18 13:57 BGS	F	



Ms. Susan J Scherer
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2316494 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316494005** Date Collected: 5/23/2018 14:29 Matrix: Ground Water
Sample ID: **FFMP032W** Date Received: 5/23/2018 15:38

Parameters	Results	Flag	Units	RDL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS									
Acetone	11.4		ug/L	10.0	SW846 8260B		6/1/18 03:59	PDK	J
Acrylonitrile	ND		ug/L	5.0	SW846 8260B		6/1/18 03:59	PDK	J
Benzene	ND		ug/L	1.0	SW846 8260B		6/1/18 03:59	PDK	J
Bromochloromethane	ND		ug/L	1.0	SW846 8260B		6/1/18 03:59	PDK	J
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B		6/1/18 03:59	PDK	J
Bromoform	ND		ug/L	1.0	SW846 8260B		6/1/18 03:59	PDK	J
Bromomethane	ND		ug/L	1.0	SW846 8260B		6/1/18 03:59	PDK	J
2-Butanone	ND		ug/L	10.0	SW846 8260B		6/1/18 03:59	PDK	J
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B		6/1/18 03:59	PDK	J
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B		6/1/18 03:59	PDK	J
Chlorobenzene	ND		ug/L	1.0	SW846 8260B		6/1/18 03:59	PDK	J
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B		6/1/18 03:59	PDK	J
Chloroethane	ND		ug/L	1.0	SW846 8260B		6/1/18 03:59	PDK	J
Chloroform	ND		ug/L	1.0	SW846 8260B		6/1/18 03:59	PDK	J
Chloromethane	ND		ug/L	1.0	SW846 8260B		6/1/18 03:59	PDK	J
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B		6/1/18 03:59	PDK	J
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B		6/1/18 03:59	PDK	J
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B		6/1/18 03:59	PDK	J
Dibromomethane	ND		ug/L	1.0	SW846 8260B		6/1/18 03:59	PDK	J
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B		6/1/18 03:59	PDK	J
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		6/1/18 03:59	PDK	J
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		6/1/18 03:59	PDK	J
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		6/1/18 03:59	PDK	J
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B		6/1/18 03:59	PDK	J
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B		6/1/18 03:59	PDK	J
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B		6/1/18 03:59	PDK	J
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B		6/1/18 03:59	PDK	J
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B		6/1/18 03:59	PDK	J
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B		6/1/18 03:59	PDK	J
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B		6/1/18 03:59	PDK	J
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B		6/1/18 03:59	PDK	J
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B		6/1/18 03:59	PDK	J
Ethylbenzene	ND		ug/L	1.0	SW846 8260B		6/1/18 03:59	PDK	J
2-Hexanone	ND		ug/L	5.0	SW846 8260B		6/1/18 03:59	PDK	J
Iodomethane	ND		ug/L	1.0	SW846 8260B		6/1/18 03:59	PDK	J
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B		6/1/18 03:59	PDK	J

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ANALYTICAL RESULTS

Workorder: 2316494 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316494005** Date Collected: 5/23/2018 14:29 Matrix: Ground Water
Sample ID: **FFMP032W** Date Received: 5/23/2018 15:38

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			6/1/18 03:59	PDK	J
Styrene	ND		ug/L	1.0	SW846 8260B			6/1/18 03:59	PDK	J
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 03:59	PDK	J
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 03:59	PDK	J
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 03:59	PDK	J
Toluene	ND		ug/L	1.0	SW846 8260B			6/1/18 03:59	PDK	J
Total Xylenes	ND		ug/L	3.0	SW846 8260B			6/1/18 03:59	PDK	J
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 03:59	PDK	J
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			6/1/18 03:59	PDK	J
Trichloroethene	ND		ug/L	1.0	SW846 8260B			6/1/18 03:59	PDK	J
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			6/1/18 03:59	PDK	J
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			6/1/18 03:59	PDK	J
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			6/1/18 03:59	PDK	J
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			6/1/18 03:59	PDK	J
Surrogate Recoveries	Results	Flag	Units	Limits	Method	Prepared	By	Analyzed	By	Cntr
1,2-Dichloroethane-d4 (S)	103		%	62 - 133	SW846 8260B			6/1/18 03:59	PDK	J
4-Bromofluorobenzene (S)	98.8		%	79 - 114	SW846 8260B			6/1/18 03:59	PDK	J
Dibromofluoromethane (S)	96.8		%	78 - 116	SW846 8260B			6/1/18 03:59	PDK	J
Toluene-d8 (S)	97.3		%	76 - 127	SW846 8260B			6/1/18 03:59	PDK	J

LIBRARY SEARCH - VOLATILES

No TIC's Detected . Lib Search VOC 6/1/18 03:59 JAH J

WET CHEMISTRY

Alkalinity, Bicarbonate	73		mg/L	5	S2320B-97			5/25/18 06:35	MSA	A
Alkalinity, Total	73	1	mg/L	5	S2320B-97			5/25/18 06:35	MSA	A
Ammonia-N	1.40		mg/L	0.100	D6919-09			6/3/18 02:59	TES	C
Chemical Oxygen Demand (COD)	ND		mg/L	15	EPA 410.4			5/30/18 17:27	AK	C
Chloride	22.1		mg/L	2.0	EPA 300.0			5/24/18 17:07	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			5/24/18 17:07	CHW	B
Nitrate-N	ND		mg/L	0.20	EPA 300.0			5/24/18 17:07	CHW	B
pH	7.05	2	pH_Units		S4500HB-11			5/25/18 06:35	MSA	A
Phenolics	ND		mg/L	0.005	SW846 9066	5/30/18 12:00	NJA	5/30/18 13:40	NJA	I
Specific Conductance	183		umhos/cm	1	S2510B-97			5/25/18 06:35	MSA	A
Sulfate	2.8		mg/L	2.0	EPA 300.0			5/24/18 17:07	CHW	B
Total Dissolved Solids	82	3	mg/L	5	S2540C-11			5/29/18 11:45	BMK	B
Total Organic Carbon (TOC)	1.2		mg/L	0.50	S5310B-00			5/24/18 00:18	PAG	G
Turbidity	261		NTU	0.10	S2130B-01			5/25/18 03:31	MSA	B

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ANALYTICAL RESULTS

Workorder: 2316494 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316494005** Date Collected: 5/23/2018 14:29 Matrix: Ground Water
Sample ID: **FFMP032W** Date Received: 5/23/2018 15:38

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Antimony, Total	ND		mg/L	0.0022	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:20	MO	E1
Arsenic, Total	ND		mg/L	0.0033	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:20	MO	E1
Arsenic, Dissolved	ND		mg/L	0.0030	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:20	MO	D1
Barium, Total	ND		mg/L	0.0056	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:20	MO	E1
Barium, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:20	MO	D1
Beryllium, Total	ND		mg/L	0.0011	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:20	MO	E1
Cadmium, Total	ND		mg/L	0.0011	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:20	MO	E1
Cadmium, Dissolved	ND		mg/L	0.0011	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:20	MO	D1
Calcium, Total	14.8		mg/L	0.11	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:20	MO	E1
Calcium, Dissolved	15.2		mg/L	0.11	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:20	MO	D1
Chromium, Total	ND		mg/L	0.0022	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:20	MO	E1
Chromium, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:20	MO	D1
Cobalt, Total	ND		mg/L	0.0056	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:20	MO	E1
Copper, Total	ND		mg/L	0.0056	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:20	MO	E1
Copper, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:20	MO	D1
Iron, Total	11.8		mg/L	0.056	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:20	MO	E1
Iron, Dissolved	6.5		mg/L	0.056	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:20	MO	D1
Lead, Total	ND		mg/L	0.0022	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:20	MO	E1
Lead, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:20	MO	D1
Magnesium, Total	5.1		mg/L	0.11	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:20	MO	E1
Magnesium, Dissolved	5.3		mg/L	0.11	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:20	MO	D1
Manganese, Total	0.62		mg/L	0.0056	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:20	MO	E1
Manganese, Dissolved	0.63		mg/L	0.0056	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:20	MO	D1
Mercury, Total	ND		mg/L	0.00050	SW846 7470A	5/30/18 12:00	AXC	5/30/18 15:42	AXC	E2
Mercury, Dissolved	ND		mg/L	0.00050	SW846 7470A	6/6/18 11:30	AXC	6/6/18 14:50	AXC	D2
Nickel, Total	ND		mg/L	0.0056	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:20	MO	E1
Potassium, Total	1.3		mg/L	0.11	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:20	MO	E1
Potassium, Dissolved	1.3		mg/L	0.11	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:20	MO	D1
Selenium, Total	ND		mg/L	0.0056	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:20	MO	E1
Selenium, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:20	MO	D1
Silver, Total	ND		mg/L	0.0022	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:20	MO	E1
Silver, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:20	MO	D1
Sodium, Total	14.5		mg/L	0.11	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:20	MO	E1
Sodium, Dissolved	14.8		mg/L	0.11	SW846 6020A	5/30/18 10:05	DXC	6/4/18 13:20	MO	D1
Thallium, Total	ND		mg/L	0.0011	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:20	MO	E1
Vanadium, Total	ND		mg/L	0.0022	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:20	MO	E1
Zinc, Total	ND		mg/L	0.0056	SW846 6020A	5/26/18 16:55	AHI	6/4/18 15:20	MO	E1

ALS Environmental Laboratory Locations Across North America

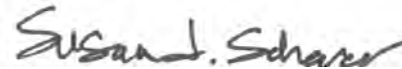
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ANALYTICAL RESULTS

Workorder: 2316494 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316494005** Date Collected: 5/23/2018 14:29 Matrix: Ground Water
Sample ID: **FFMP032W** Date Received: 5/23/2018 15:38

Parameters	Results	Flag	Units	RDL	Method	Prepared By	Analyzed By	Cntr	
Zinc, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/30/18 10:05 DXC	6/4/18 13:20 MO	D1	
FIELD PARAMETERS									
Depth to Water Level	49.560		Feet		Field		5/23/18 14:29 BGS	F	
Elev Top MW Casing above MSL	594.09		Feet		Field		5/23/18 14:29 BGS	F	
Flow Rate	0.62		gal/min		Field		5/23/18 14:29 BGS	F	
Ground Water Elevation	544.530		ft/MSL		Field		5/23/18 14:29 BGS	F	
pH, Field (SM4500B)	6.800		pH_Units		Field		5/23/18 14:29 BGS	F	
Sample Depth	62.000		Feet		Field		5/23/18 14:29 BGS	F	
Specific Conductance, Field	26		umhos/cm	1	Field		5/23/18 14:29 BGS	F	
Temperature	15.55		Deg. C		Field		5/23/18 14:29 BGS	F	
Total Well Depth	77.600		Feet		Field		5/23/18 14:29 BGS	F	
Volume in Water Column	41.219		Gallons		Field		5/23/18 14:29 BGS	F	
Water Level After Purge	57.080		Feet		Field		5/23/18 14:29 BGS	F	
Well Volumes Purged	1.01		Vol		Field		5/23/18 14:29 BGS	F	



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ANALYTICAL RESULTS

Workorder: 2316494 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316494006** Date Collected: 5/23/2018 14:09 Matrix: Water
Sample ID: **FIELD BLANK** Date Received: 5/23/2018 15:38

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Acetone	ND		ug/L	10.0	SW846 8260B			5/31/18 23:47	PDK	A
Acrylonitrile	ND		ug/L	5.0	SW846 8260B			5/31/18 23:47	PDK	A
Benzene	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
Bromochloromethane	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
Bromoform	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
Bromomethane	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
2-Butanone	ND		ug/L	10.0	SW846 8260B			5/31/18 23:47	PDK	A
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
Chlorobenzene	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
Chloroethane	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
Chloroform	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
Chloromethane	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B			5/31/18 23:47	PDK	A
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
Dibromomethane	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B			5/31/18 23:47	PDK	A
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
2-Hexanone	ND		ug/L	5.0	SW846 8260B			5/31/18 23:47	PDK	A
Iodomethane	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B			5/31/18 23:47	PDK	A

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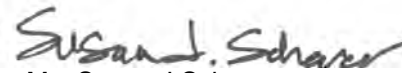
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ANALYTICAL RESULTS

Workorder: 2316494 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316494006** Date Collected: 5/23/2018 14:09 Matrix: Water
Sample ID: **FIELD BLANK** Date Received: 5/23/2018 15:38

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
Styrene	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
Toluene	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
Total Xylenes	ND		ug/L	3.0	SW846 8260B			5/31/18 23:47	PDK	A
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
Trichloroethene	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			5/31/18 23:47	PDK	A
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			5/31/18 23:47	PDK	A
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			5/31/18 23:47	PDK	A
<i>Surrogate Recoveries</i>	<i>Results</i>	<i>Flag</i>	<i>Units</i>	<i>Limits</i>	<i>Method</i>	<i>Prepared</i>	<i>By</i>	<i>Analyzed</i>	<i>By</i>	<i>Cntr</i>
1,2-Dichloroethane-d4 (S)	102		%	62 - 133	SW846 8260B			5/31/18 23:47	PDK	A
4-Bromofluorobenzene (S)	99.4		%	79 - 114	SW846 8260B			5/31/18 23:47	PDK	A
Dibromofluoromethane (S)	95.8		%	78 - 116	SW846 8260B			5/31/18 23:47	PDK	A
Toluene-d8 (S)	96.9		%	76 - 127	SW846 8260B			5/31/18 23:47	PDK	A
LIBRARY SEARCH - VOLATILES										
No TIC's Detected	.				Lib Search VOC			5/31/18 23:47	JAH	A



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ANALYTICAL RESULTS

Workorder: 2316494 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316494007** Date Collected: 5/23/2018 15:38 Matrix: Water
Sample ID: **TRIP BLANK** Date Received: 5/23/2018 15:38

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Acetone	ND		ug/L	10.0	SW846 8260B			5/31/18 22:48	PDK	A
Acrylonitrile	ND		ug/L	5.0	SW846 8260B			5/31/18 22:48	PDK	A
Benzene	ND		ug/L	1.0	SW846 8260B			5/31/18 22:48	PDK	A
Bromochloromethane	ND		ug/L	1.0	SW846 8260B			5/31/18 22:48	PDK	A
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B			5/31/18 22:48	PDK	A
Bromoform	ND		ug/L	1.0	SW846 8260B			5/31/18 22:48	PDK	A
Bromomethane	ND		ug/L	1.0	SW846 8260B			5/31/18 22:48	PDK	A
2-Butanone	ND		ug/L	10.0	SW846 8260B			5/31/18 22:48	PDK	A
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B			5/31/18 22:48	PDK	A
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B			5/31/18 22:48	PDK	A
Chlorobenzene	ND		ug/L	1.0	SW846 8260B			5/31/18 22:48	PDK	A
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B			5/31/18 22:48	PDK	A
Chloroethane	ND		ug/L	1.0	SW846 8260B			5/31/18 22:48	PDK	A
Chloroform	ND		ug/L	1.0	SW846 8260B			5/31/18 22:48	PDK	A
Chloromethane	ND		ug/L	1.0	SW846 8260B			5/31/18 22:48	PDK	A
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B			5/31/18 22:48	PDK	A
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B			5/31/18 22:48	PDK	A
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			5/31/18 22:48	PDK	A
Dibromomethane	ND		ug/L	1.0	SW846 8260B			5/31/18 22:48	PDK	A
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B			5/31/18 22:48	PDK	A
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/31/18 22:48	PDK	A
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/31/18 22:48	PDK	A
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/31/18 22:48	PDK	A
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B			5/31/18 22:48	PDK	A
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/31/18 22:48	PDK	A
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/31/18 22:48	PDK	A
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/31/18 22:48	PDK	A
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/31/18 22:48	PDK	A
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/31/18 22:48	PDK	A
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B			5/31/18 22:48	PDK	A
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/31/18 22:48	PDK	A
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/31/18 22:48	PDK	A
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			5/31/18 22:48	PDK	A
2-Hexanone	ND		ug/L	5.0	SW846 8260B			5/31/18 22:48	PDK	A
Iodomethane	ND		ug/L	1.0	SW846 8260B			5/31/18 22:48	PDK	A
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B			5/31/18 22:48	PDK	A

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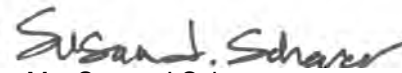
ANALYTICAL RESULTS

Workorder: 2316494 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316494007**
Sample ID: **TRIP BLANK**

Date Collected: 5/23/2018 15:38 Matrix: Water
Date Received: 5/23/2018 15:38

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			5/31/18 22:48	PDK	A
Styrene	ND		ug/L	1.0	SW846 8260B			5/31/18 22:48	PDK	A
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/31/18 22:48	PDK	A
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/31/18 22:48	PDK	A
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			5/31/18 22:48	PDK	A
Toluene	ND		ug/L	1.0	SW846 8260B			5/31/18 22:48	PDK	A
Total Xylenes	ND		ug/L	3.0	SW846 8260B			5/31/18 22:48	PDK	A
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/31/18 22:48	PDK	A
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/31/18 22:48	PDK	A
Trichloroethene	ND		ug/L	1.0	SW846 8260B			5/31/18 22:48	PDK	A
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			5/31/18 22:48	PDK	A
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			5/31/18 22:48	PDK	A
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			5/31/18 22:48	PDK	A
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			5/31/18 22:48	PDK	A
Surrogate Recoveries	Results	Flag	Units	Limits	Method	Prepared	By	Analyzed	By	Cntr
1,2-Dichloroethane-d4 (S)	101		%	62 - 133	SW846 8260B			5/31/18 22:48	PDK	A
4-Bromofluorobenzene (S)	111		%	79 - 114	SW846 8260B			5/31/18 22:48	PDK	A
Dibromofluoromethane (S)	94.1		%	78 - 116	SW846 8260B			5/31/18 22:48	PDK	A
Toluene-d8 (S)	100		%	76 - 127	SW846 8260B			5/31/18 22:48	PDK	A
LIBRARY SEARCH - VOLATILES										
No TIC's Detected	.				Lib Search VOC			5/31/18 22:48	JAH	A



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ANALYTICAL RESULTS

Workorder: 2316494 2ND QTR 2018 FFMP-FORM 19A

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
2316494001	1	FFMP30RW	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2316494001	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.				
2316494002	1	FFMP04AW	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2316494002	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.				
2316494003	1	FFMP03AW	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2316494003	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.				
2316494004	1	FFMP031W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2316494004	2	FFMP031W	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.				
2316494005	1	FFMP032W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L.				
2316494005	2	FFMP032W	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.				
2316494005	3	FFMP032W	S2540C-11	Total Dissolved Solids
The RPD associated with this sample was recovered at 10%. The RPD is outside method acceptance limits of 0-5%. The results used to calculate the RPD were 82 and 91.				

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ANALYSIS - PREP METHOD CROSS REFERENCE TABLE

Workorder: 2316494 2ND QTR 2018 FFMP-FORM 19A

Lab ID	Sample ID	Analysis Method	Prep Method
2316494001	FFMP30RW	D6919-09	
2316494001	FFMP30RW	EPA 300.0	
2316494001	FFMP30RW	EPA 410.4	
2316494001	FFMP30RW	Field	
2316494001	FFMP30RW	Lib Search VOC	
2316494001	FFMP30RW	S2130B-01	
2316494001	FFMP30RW	S2320B-97	
2316494001	FFMP30RW	S2510B-97	
2316494001	FFMP30RW	S2540C-11	
2316494001	FFMP30RW	S4500HB-11	
2316494001	FFMP30RW	S5310B-00	
2316494001	FFMP30RW	SW846 6020A	SW846 3015
2316494001	FFMP30RW	SW846 7470A	SW846 7470A
2316494001	FFMP30RW	SW846 8260B	
2316494001	FFMP30RW	SW846 9066	420.4/9066
2316494002	FFMP04AW	D6919-09	
2316494002	FFMP04AW	EPA 300.0	
2316494002	FFMP04AW	EPA 410.4	
2316494002	FFMP04AW	Field	
2316494002	FFMP04AW	Lib Search VOC	
2316494002	FFMP04AW	S2130B-01	
2316494002	FFMP04AW	S2320B-97	
2316494002	FFMP04AW	S2510B-97	
2316494002	FFMP04AW	S2540C-11	
2316494002	FFMP04AW	S4500HB-11	
2316494002	FFMP04AW	S5310B-00	
2316494002	FFMP04AW	SW846 6020A	SW846 3015
2316494002	FFMP04AW	SW846 7470A	SW846 7470A
2316494002	FFMP04AW	SW846 8260B	
2316494002	FFMP04AW	SW846 9066	420.4/9066
2316494003	FFMP03AW	D6919-09	
2316494003	FFMP03AW	EPA 300.0	
2316494003	FFMP03AW	EPA 410.4	
2316494003	FFMP03AW	Field	
2316494003	FFMP03AW	Lib Search VOC	
2316494003	FFMP03AW	S2130B-01	
2316494003	FFMP03AW	S2320B-97	
2316494003	FFMP03AW	S2510B-97	
2316494003	FFMP03AW	S2540C-11	
2316494003	FFMP03AW	S4500HB-11	
2316494003	FFMP03AW	S5310B-00	
2316494003	FFMP03AW	SW846 6020A	SW846 3015
2316494003	FFMP03AW	SW846 7470A	SW846 7470A
2316494003	FFMP03AW	SW846 8260B	
2316494003	FFMP03AW	SW846 9066	420.4/9066
2316494004	FFMP031W	D6919-09	

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ANALYSIS - PREP METHOD CROSS REFERENCE TABLE

Workorder: 2316494 2ND QTR 2018 FFMP-FORM 19A

Lab ID	Sample ID	Analysis Method	Prep Method
2316494004	FFMP031W	EPA 300.0	
2316494004	FFMP031W	EPA 410.4	
2316494004	FFMP031W	Field	
2316494004	FFMP031W	Lib Search VOC	
2316494004	FFMP031W	S2130B-01	
2316494004	FFMP031W	S2320B-97	
2316494004	FFMP031W	S2510B-97	
2316494004	FFMP031W	S2540C-11	
2316494004	FFMP031W	S4500HB-11	
2316494004	FFMP031W	S5310B-00	
2316494004	FFMP031W	SW846 6020A	SW846 3015
2316494004	FFMP031W	SW846 7470A	SW846 7470A
2316494004	FFMP031W	SW846 8260B	
2316494004	FFMP031W	SW846 9066	420.4/9066
2316494005	FFMP032W	D6919-09	
2316494005	FFMP032W	EPA 300.0	
2316494005	FFMP032W	EPA 410.4	
2316494005	FFMP032W	Field	
2316494005	FFMP032W	Lib Search VOC	
2316494005	FFMP032W	S2130B-01	
2316494005	FFMP032W	S2320B-97	
2316494005	FFMP032W	S2510B-97	
2316494005	FFMP032W	S2540C-11	
2316494005	FFMP032W	S4500HB-11	
2316494005	FFMP032W	S5310B-00	
2316494005	FFMP032W	SW846 6020A	SW846 3015
2316494005	FFMP032W	SW846 7470A	SW846 7470A
2316494005	FFMP032W	SW846 8260B	
2316494005	FFMP032W	SW846 9066	420.4/9066
2316494006	FIELD BLANK	Lib Search VOC	
2316494006	FIELD BLANK	SW846 8260B	
2316494007	TRIP BLANK	Lib Search VOC	
2316494007	TRIP BLANK	SW846 8260B	

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CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

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

COC #: **ALS Q001**

Barcode: * 2 3 1 6 4 9 4 *

34 Dogwood Lane • Middlestown, PA 17057 • 717.944.5541 • Fax: 717.944.1420

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

Contact: Mark Reider
Phone#: (717) 735-0193
Project Name#: Frey Farm Annual
Bill To: Lancaster County Solid Waste MA

TAT Normal-Standard TAT is 10-12 business days.
 Rush-Subject to ALS approval and surcharges.
Date Required: _____ Approved By: _____
Email? Y N
Fax? Y N No.: (717) 397-9973

Container Type	AG	AN	CG	PL	PL	PL
40 ml	125 ml	40 ml	250 ml	250 ml	500 ml	500 ml
HCl	H2SO4	HCl	HNO3	HNO3	None	None

Receipt information (Completed by Receiving Lab)
Cooler Temp: 9 Therm ID: JH40Z
No. of Coolers: 1 Y N Initial

COC Labels Complete/Accurate?
Cont. in Good Cont.?
Correct Containers?
Correct Sample Volumes?
Correct Preservation?
Headspace/Volatiles?

Matrix	TOC	O-H	VOC (Form 19A) + LS	Field Measurements	Sample Depth for AUX Data	Dissolved: Fe, Mn, Na, Ba, Cr, Cu, Pb, Mg, K, Zn, As, Cd, Se, Ag, Hg, Ca	Metals: Fe, Mn, Na, Ba, Cr, Cu, Pb, Cd, K, Zn, As, Cd, Se, Ag, Hg, Ca	PH, CI, SPC, F, SO4, TDS, NO3, Turb.	Alkalinity, HCO3
G	2	1	1	1	1	1	1	1	1
GW	2	1	1	1	1	1	1	1	1
1. FFMP30RW	1056	1219	1357	1424	1409	1578	5-23-18 0946	1	1
2. FFMP04AW									
3. FFMP03AW									
4. FFMP031W									
5. FFMP032W									
6. Field Blank									
7. Trip Blank									
8.									
9.									
10.									

Enter Number of Containers Per Sample or Field Results Below.
Sample/COC Comments: 1-106-60-52318

Project Comments: _____

LOGGED BY (signature): [Signature] Date: 5/23/18 Time: 15:35

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

Relinquished By / Company Name: [Signature]

Standard CLP-like USACE State Samples Collected In NY NJ PA NC

Deliverables USACE Navy Special Processing USACE Navy

Reportable to PADEP? Yes No Sample Disposal Lab X Special

PWSID # _____ EDDS: Format Type: _____

June 4, 2018

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

Certificate of Analysis

Project Name:	FREY FARM	Workorder:	2316066
Purchase Order:	PO1000126	Workorder ID:	2ND QTR 2018 FFMP-FORM 19A

Dear Mr. Brown:

Enclosed are the analytical results for samples received by the laboratory on Monday, May 21, 2018.

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

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

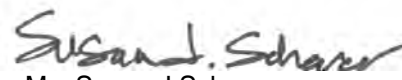
Analyses were performed according to our laboratory's NELAP-approved quality assurance program and any applicable state requirements. The test results meet requirements of the current NELAP standards or state requirements, where applicable. For a specific list of accredited analytes, refer to the certifications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

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

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

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

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


Ms. Susan J Scherer
Project Coordinator

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SAMPLE SUMMARY

Workorder: 2316066 2ND QTR 2018 FFMP-FORM 19A

Lab ID	Sample ID	Matrix	Date Collected	Date Received	Collected By
2316066001	FFMP028W	Ground Water	5/21/2018 10:40	5/21/2018 15:12	Mr. Brian G Shade
2316066002	FFMP005W	Ground Water	5/21/2018 12:04	5/21/2018 15:12	Mr. Brian G Shade
2316066003	FFMP26RW	Ground Water	5/21/2018 13:25	5/21/2018 15:12	Mr. Brian G Shade
2316066004	FIELD BLANK	Water	5/21/2018 14:12	5/21/2018 15:12	Mr. Brian G Shade
2316066005	TRIP BLANK	Water	5/21/2018 15:12	5/21/2018 15:12	Mr. Brian G Shade

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SAMPLE SUMMARY

Workorder: 2316066 2ND QTR 2018 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: 2316066 2ND QTR 2018 FFMP-FORM 19A

Lab ID: 2316066001 **Date Collected:** 5/21/2018 10:40 **Matrix:** Ground Water
Sample ID: FFMP028W **Date Received:** 5/21/2018 15:12

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			5/30/18 13:24	TMP	J
Styrene	ND		ug/L	1.0	SW846 8260B			5/30/18 13:24	TMP	J
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/30/18 13:24	TMP	J
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/30/18 13:24	TMP	J
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			5/30/18 13:24	TMP	J
Toluene	ND		ug/L	1.0	SW846 8260B			5/30/18 13:24	TMP	J
Total Xylenes	ND		ug/L	3.0	SW846 8260B			5/30/18 13:24	TMP	J
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/30/18 13:24	TMP	J
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/30/18 13:24	TMP	J
Trichloroethene	ND		ug/L	1.0	SW846 8260B			5/30/18 13:24	TMP	J
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			5/30/18 13:24	TMP	J
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			5/30/18 13:24	TMP	J
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			5/30/18 13:24	TMP	J
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			5/30/18 13:24	TMP	J
Surrogate Recoveries	Results	Flag	Units	Limits	Method	Prepared	By	Analyzed	By	Cntr
1,2-Dichloroethane-d4 (S)	101		%	62 - 133	SW846 8260B			5/30/18 13:24	TMP	J
4-Bromofluorobenzene (S)	101		%	79 - 114	SW846 8260B			5/30/18 13:24	TMP	J
Dibromofluoromethane (S)	94.3		%	78 - 116	SW846 8260B			5/30/18 13:24	TMP	J
Toluene-d8 (S)	99.6		%	76 - 127	SW846 8260B			5/30/18 13:24	TMP	J

LIBRARY SEARCH - VOLATILES

No TIC's Detected Lib Search VOC 5/30/18 13:24 CPK J

WET CHEMISTRY

Alkalinity, Bicarbonate	41		mg/L	5	S2320B-97			5/24/18 04:28	MSA	B
Alkalinity, Total	41	1	mg/L	5	S2320B-97			5/24/18 04:28	MSA	B
Ammonia-N	0.244		mg/L	0.100	D6919-09			6/3/18 15:14	TES	C
Chemical Oxygen Demand (COD)	0		mg/L		EPA 410.4			5/30/13 08:00	AK	C
Chloride	86.2		mg/L	2.0	EPA 300.0			5/22/18 09:25	CHW	B
Fluoride	ND		mg/L	0.20	EPA 300.0			5/22/18 09:25	CHW	B
Nitrate-N	20.2	3	mg/L	0.50	EPA 300.0			5/24/18 11:56	CHW	B
pH	6.32	2	pH_Units		S4500HB-11			5/24/18 04:28	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	5/30/18 12:00	NJA	5/30/18 13:40	NJA	I
Specific Conductance	589		umhos/cm	1	S2510B-97			5/23/18 11:08	MSA	B
Sulfate	25.9		mg/L	2.0	EPA 300.0			5/22/18 09:25	CHW	B
Total Dissolved Solids	440		mg/L	5	S2540C-11			5/24/18 13:30	BMK	B
Total Organic Carbon (TOC)	1.6		mg/L	0.50	S5310B-00			5/23/18 16:03	PAG	G
Turbidity	0.21		NTU	0.10	S2130B-01			5/23/18 01:40	MSA	B

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ANALYTICAL RESULTS

Workorder: 2316066 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316066001** Date Collected: 5/21/2018 10:40 Matrix: Ground Water
Sample ID: **FFMP028W** Date Received: 5/21/2018 15:12

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Antimony, Total	ND		mg/L	0.0022	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:08	MO	E1
Arsenic, Total	ND		mg/L	0.0033	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:08	MO	E1
Arsenic, Dissolved	ND		mg/L	0.0030	SW846 6020A	5/24/18 17:10	AHI	5/31/18 12:49	MO	D1
Barium, Total	0.069		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:08	MO	E1
Barium, Dissolved	0.069		mg/L	0.0056	SW846 6020A	5/24/18 17:10	AHI	5/31/18 12:49	MO	D1
Beryllium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:08	MO	E1
Cadmium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:08	MO	E1
Cadmium, Dissolved	ND		mg/L	0.0011	SW846 6020A	5/24/18 17:10	AHI	5/31/18 12:49	MO	D1
Calcium, Total	38.4		mg/L	0.11	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:08	MO	E1
Calcium, Dissolved	36.4		mg/L	0.11	SW846 6020A	5/24/18 17:10	AHI	5/31/18 12:49	MO	D1
Chromium, Total	ND		mg/L	0.0022	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:08	MO	E1
Chromium, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/24/18 17:10	AHI	5/31/18 12:49	MO	D1
Cobalt, Total	ND		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:08	MO	E1
Copper, Total	ND		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:08	MO	E1
Copper, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/24/18 17:10	AHI	5/31/18 12:49	MO	D1
Iron, Total	ND		mg/L	0.056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 15:05	MO	E1
Iron, Dissolved	ND		mg/L	0.056	SW846 6020A	5/24/18 17:10	AHI	5/31/18 12:49	MO	D1
Lead, Total	ND		mg/L	0.0022	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:08	MO	E1
Lead, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/24/18 17:10	AHI	5/31/18 12:49	MO	D1
Magnesium, Total	17.1		mg/L	0.11	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:08	MO	E1
Magnesium, Dissolved	16.9		mg/L	0.11	SW846 6020A	5/24/18 17:10	AHI	5/31/18 15:24	MO	D1
Manganese, Total	0.011		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:08	MO	E1
Manganese, Dissolved	0.011		mg/L	0.0056	SW846 6020A	5/24/18 17:10	AHI	5/31/18 12:49	MO	D1
Mercury, Total	ND		mg/L	0.00050	SW846 7470A	5/29/18 06:10	AXC	5/29/18 10:22	AXC	E3
Mercury, Dissolved	ND		mg/L	0.00050	SW846 7470A	5/25/18 18:00	AXC	5/26/18 11:08	AXC	D2
Nickel, Total	ND		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:08	MO	E1
Potassium, Total	2.1		mg/L	0.11	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:08	MO	E1
Potassium, Dissolved	2.1		mg/L	0.11	SW846 6020A	5/24/18 17:10	AHI	5/31/18 15:24	MO	D1
Selenium, Total	ND		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:08	MO	E1
Selenium, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/24/18 17:10	AHI	5/31/18 12:49	MO	D1
Silver, Total	ND		mg/L	0.0022	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:08	MO	E1
Silver, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/24/18 17:10	AHI	5/31/18 12:49	MO	D1
Sodium, Total	27.9		mg/L	0.11	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:08	MO	E1
Sodium, Dissolved	26.8		mg/L	0.11	SW846 6020A	5/24/18 17:10	AHI	5/31/18 12:49	MO	D1
Thallium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:08	MO	E1
Vanadium, Total	ND		mg/L	0.0022	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:08	MO	E1
Zinc, Total	0.013		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:08	MO	E1

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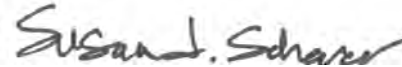
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ANALYTICAL RESULTS

Workorder: 2316066 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316066001** Date Collected: 5/21/2018 10:40 Matrix: Ground Water
Sample ID: **FFMP028W** Date Received: 5/21/2018 15:12

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Zinc, Dissolved	0.017		mg/L	0.0056	SW846 6020A	5/24/18 17:10	AHI	5/31/18 12:49	MO	D1
FIELD PARAMETERS										
Depth to Water Level	4.870		Feet		Field			5/21/18 10:40	BGS	F
Elev Top MW Casing above MSL	465.00		Feet		Field			5/21/18 10:40	BGS	F
Flow Rate	2.91		gal/min		Field			5/21/18 10:40	BGS	F
Ground Water Elevation	460.130		ft/MSL		Field			5/21/18 10:40	BGS	F
pH, Field (SM4500B)	5.080		pH_Units		Field			5/21/18 10:40	BGS	F
Sample Depth	50.000		Feet		Field			5/21/18 10:40	BGS	F
Specific Conductance, Field	613		umhos/cm	1	Field			5/21/18 10:40	BGS	F
Temperature	10.84		Deg. C		Field			5/21/18 10:40	BGS	F
Total Well Depth	60.000		Feet		Field			5/21/18 10:40	BGS	F
Volume in Water Column	81.041		Gallons		Field			5/21/18 10:40	BGS	F
Water Level After Purge	32.350		Feet		Field			5/21/18 10:40	BGS	F
Well Volumes Purged	2.15		Vol		Field			5/21/18 10:40	BGS	F



Ms. Susan J Scherer
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2316066 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316066002** Date Collected: 5/21/2018 12:04 Matrix: Ground Water
Sample ID: **FFMP005W** Date Received: 5/21/2018 15:12

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
VOLATILE ORGANICS										
Acetone	ND		ug/L	10.0	SW846 8260B			5/30/18 13:47	TMP	J
Acrylonitrile	ND		ug/L	5.0	SW846 8260B			5/30/18 13:47	TMP	J
Benzene	ND		ug/L	1.0	SW846 8260B			5/30/18 13:47	TMP	J
Bromochloromethane	ND		ug/L	1.0	SW846 8260B			5/30/18 13:47	TMP	J
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B			5/30/18 13:47	TMP	J
Bromoform	ND		ug/L	1.0	SW846 8260B			5/30/18 13:47	TMP	J
Bromomethane	ND		ug/L	1.0	SW846 8260B			5/30/18 13:47	TMP	J
2-Butanone	ND		ug/L	10.0	SW846 8260B			5/30/18 13:47	TMP	J
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B			5/30/18 13:47	TMP	J
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B			5/30/18 13:47	TMP	J
Chlorobenzene	ND		ug/L	1.0	SW846 8260B			5/30/18 13:47	TMP	J
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B			5/30/18 13:47	TMP	J
Chloroethane	ND		ug/L	1.0	SW846 8260B			5/30/18 13:47	TMP	J
Chloroform	ND		ug/L	1.0	SW846 8260B			5/30/18 13:47	TMP	J
Chloromethane	ND		ug/L	1.0	SW846 8260B			5/30/18 13:47	TMP	J
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B			5/30/18 13:47	TMP	J
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B			5/30/18 13:47	TMP	J
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B			5/30/18 13:47	TMP	J
Dibromomethane	ND		ug/L	1.0	SW846 8260B			5/30/18 13:47	TMP	J
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B			5/30/18 13:47	TMP	J
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/30/18 13:47	TMP	J
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/30/18 13:47	TMP	J
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B			5/30/18 13:47	TMP	J
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B			5/30/18 13:47	TMP	J
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/30/18 13:47	TMP	J
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B			5/30/18 13:47	TMP	J
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/30/18 13:47	TMP	J
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/30/18 13:47	TMP	J
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B			5/30/18 13:47	TMP	J
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B			5/30/18 13:47	TMP	J
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/30/18 13:47	TMP	J
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B			5/30/18 13:47	TMP	J
Ethylbenzene	ND		ug/L	1.0	SW846 8260B			5/30/18 13:47	TMP	J
2-Hexanone	ND		ug/L	5.0	SW846 8260B			5/30/18 13:47	TMP	J
Iodomethane	ND		ug/L	1.0	SW846 8260B			5/30/18 13:47	TMP	J
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B			5/30/18 13:47	TMP	J

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ANALYTICAL RESULTS

Workorder: 2316066 2ND QTR 2018 FFMP-FORM 19A

Lab ID: 2316066002 **Date Collected:** 5/21/2018 12:04 **Matrix:** Ground Water
Sample ID: FFMP005W **Date Received:** 5/21/2018 15:12

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			5/30/18 13:47	TMP	J
Styrene	ND		ug/L	1.0	SW846 8260B			5/30/18 13:47	TMP	J
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/30/18 13:47	TMP	J
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/30/18 13:47	TMP	J
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			5/30/18 13:47	TMP	J
Toluene	ND		ug/L	1.0	SW846 8260B			5/30/18 13:47	TMP	J
Total Xylenes	ND		ug/L	3.0	SW846 8260B			5/30/18 13:47	TMP	J
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/30/18 13:47	TMP	J
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/30/18 13:47	TMP	J
Trichloroethene	ND		ug/L	1.0	SW846 8260B			5/30/18 13:47	TMP	J
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			5/30/18 13:47	TMP	J
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			5/30/18 13:47	TMP	J
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			5/30/18 13:47	TMP	J
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			5/30/18 13:47	TMP	J
Surrogate Recoveries	Results	Flag	Units	Limits	Method	Prepared	By	Analyzed	By	Cntr
1,2-Dichloroethane-d4 (S)	103		%	62 - 133	SW846 8260B			5/30/18 13:47	TMP	J
4-Bromofluorobenzene (S)	100		%	79 - 114	SW846 8260B			5/30/18 13:47	TMP	J
Dibromofluoromethane (S)	94.5		%	78 - 116	SW846 8260B			5/30/18 13:47	TMP	J
Toluene-d8 (S)	99.3		%	76 - 127	SW846 8260B			5/30/18 13:47	TMP	J

LIBRARY SEARCH - VOLATILES

No TIC's Detected Lib Search VOC 5/30/18 13:47 CPK J

WET CHEMISTRY

Alkalinity, Bicarbonate	42		mg/L	5	S2320B-97			5/24/18 04:36	MSA	B
Alkalinity, Total	42	2	mg/L	5	S2320B-97			5/24/18 04:36	MSA	B
Ammonia-N	ND		mg/L	0.100	D6919-09			6/3/18 15:29	TES	C
Chemical Oxygen Demand (COD)	3		mg/L		EPA 410.4			5/30/13 08:00	AK	C
Chloride	294		mg/L	5.0	EPA 300.0			5/22/18 09:44	CHW	B
Fluoride	ND		mg/L	0.50	EPA 300.0			5/22/18 09:44	CHW	B
Nitrate-N	4.5		mg/L	0.50	EPA 300.0			5/22/18 09:44	CHW	B
pH	6.14	1	pH_Units		S4500HB-11			5/23/18 12:04	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	5/30/18 12:00	NJA	5/30/18 13:40	NJA	I
Specific Conductance	1220		umhos/cm	1	S2510B-97			5/23/18 12:04	MSA	B
Sulfate	69.1		mg/L	5.0	EPA 300.0			5/22/18 09:44	CHW	B
Total Dissolved Solids	967		mg/L	5	S2540C-11			5/24/18 13:30	BMK	B
Total Organic Carbon (TOC)	1.3		mg/L	0.50	S5310B-00			5/23/18 16:03	PAG	G
Turbidity	ND		NTU	0.10	S2130B-01			5/23/18 01:40	MSA	B

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ANALYTICAL RESULTS

Workorder: 2316066 2ND QTR 2018 FFMP-FORM 19A

Lab ID: 2316066002 **Date Collected:** 5/21/2018 12:04 **Matrix:** Ground Water
Sample ID: FFMP005W **Date Received:** 5/21/2018 15:12

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Antimony, Total	ND		mg/L	0.0022	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:12	MO	E1
Arsenic, Total	ND		mg/L	0.0033	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:12	MO	E1
Arsenic, Dissolved	ND		mg/L	0.0030	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:00	MO	D1
Barium, Total	0.069		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:12	MO	E1
Barium, Dissolved	0.068		mg/L	0.0056	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:00	MO	D1
Beryllium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:12	MO	E1
Cadmium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:12	MO	E1
Cadmium, Dissolved	ND		mg/L	0.0011	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:00	MO	D1
Calcium, Total	95.4		mg/L	0.11	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:12	MO	E1
Calcium, Dissolved	96.6		mg/L	0.11	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:00	MO	D1
Chromium, Total	ND		mg/L	0.0022	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:12	MO	E1
Chromium, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:00	MO	D1
Cobalt, Total	ND		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:12	MO	E1
Copper, Total	ND		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:12	MO	E1
Copper, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:00	MO	D1
Iron, Total	ND		mg/L	0.056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 15:09	MO	E1
Iron, Dissolved	ND		mg/L	0.056	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:00	MO	D1
Lead, Total	ND		mg/L	0.0022	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:12	MO	E1
Lead, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:00	MO	D1
Magnesium, Total	26.1		mg/L	0.11	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:12	MO	E1
Magnesium, Dissolved	25.7		mg/L	0.11	SW846 6020A	5/24/18 17:10	AHI	5/31/18 15:35	MO	D1
Manganese, Total	0.076		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:12	MO	E1
Manganese, Dissolved	0.079		mg/L	0.0056	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:00	MO	D1
Mercury, Total	ND		mg/L	0.00050	SW846 7470A	5/29/18 06:10	AXC	5/29/18 10:23	AXC	E3
Mercury, Dissolved	ND		mg/L	0.00050	SW846 7470A	5/25/18 18:00	AXC	5/26/18 11:09	AXC	D2
Nickel, Total	ND		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:12	MO	E1
Potassium, Total	2.8		mg/L	0.11	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:12	MO	E1
Potassium, Dissolved	2.8		mg/L	0.11	SW846 6020A	5/24/18 17:10	AHI	5/31/18 15:35	MO	D1
Selenium, Total	ND		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:12	MO	E1
Selenium, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:00	MO	D1
Silver, Total	ND		mg/L	0.0022	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:12	MO	E1
Silver, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:00	MO	D1
Sodium, Total	63.0		mg/L	0.11	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:12	MO	E1
Sodium, Dissolved	62.3		mg/L	0.11	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:00	MO	D1
Thallium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:12	MO	E1
Vanadium, Total	ND		mg/L	0.0022	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:12	MO	E1
Zinc, Total	0.0080		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:12	MO	E1

ALS Environmental Laboratory Locations Across North America

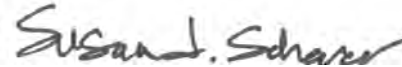
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ANALYTICAL RESULTS

Workorder: 2316066 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316066002** Date Collected: 5/21/2018 12:04 Matrix: Ground Water
Sample ID: **FFMP005W** Date Received: 5/21/2018 15:12

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Zinc, Dissolved	0.0085		mg/L	0.0056	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:00	MO	D1
FIELD PARAMETERS										
Depth to Water Level	50.570		Feet		Field			5/21/18 12:04	BGS	F
Elev Top MW Casing above MSL	537.40		Feet		Field			5/21/18 12:04	BGS	F
Flow Rate	2.99		gal/min		Field			5/21/18 12:04	BGS	F
Ground Water Elevation	486.830		ft/MSL		Field			5/21/18 12:04	BGS	F
pH, Field (SM4500B)	5.160		pH_Units		Field			5/21/18 12:04	BGS	F
Sample Depth	135.000		Feet		Field			5/21/18 12:04	BGS	F
Specific Conductance, Field	1260		umhos/cm	1	Field			5/21/18 12:04	BGS	F
Temperature	11.14		Deg. C		Field			5/21/18 12:04	BGS	F
Total Well Depth	149.700		Feet		Field			5/21/18 12:04	BGS	F
Volume in Water Column	145.721		Gallons		Field			5/21/18 12:04	BGS	F
Water Level After Purge	83.330		Feet		Field			5/21/18 12:04	BGS	F
Well Volumes Purged	1.23		Vol		Field			5/21/18 12:04	BGS	F



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ANALYTICAL RESULTS

Workorder: 2316066 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316066003** Date Collected: 5/21/2018 13:25 Matrix: Ground Water
Sample ID: **FFMP26RW** Date Received: 5/21/2018 15:12

Parameters	Results	Flag	Units	RDL	Method	Prepared By	Analyzed By	Cntr
VOLATILE ORGANICS								
Acetone	ND		ug/L	10.0	SW846 8260B		5/30/18 14:10	TMP J
Acrylonitrile	ND		ug/L	5.0	SW846 8260B		5/30/18 14:10	TMP J
Benzene	ND		ug/L	1.0	SW846 8260B		5/30/18 14:10	TMP J
Bromochloromethane	ND		ug/L	1.0	SW846 8260B		5/30/18 14:10	TMP J
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B		5/30/18 14:10	TMP J
Bromoform	ND		ug/L	1.0	SW846 8260B		5/30/18 14:10	TMP J
Bromomethane	ND		ug/L	1.0	SW846 8260B		5/30/18 14:10	TMP J
2-Butanone	ND		ug/L	10.0	SW846 8260B		5/30/18 14:10	TMP J
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B		5/30/18 14:10	TMP J
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B		5/30/18 14:10	TMP J
Chlorobenzene	ND		ug/L	1.0	SW846 8260B		5/30/18 14:10	TMP J
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B		5/30/18 14:10	TMP J
Chloroethane	ND		ug/L	1.0	SW846 8260B		5/30/18 14:10	TMP J
Chloroform	ND		ug/L	1.0	SW846 8260B		5/30/18 14:10	TMP J
Chloromethane	ND		ug/L	1.0	SW846 8260B		5/30/18 14:10	TMP J
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B		5/30/18 14:10	TMP J
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B		5/30/18 14:10	TMP J
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B		5/30/18 14:10	TMP J
Dibromomethane	ND		ug/L	1.0	SW846 8260B		5/30/18 14:10	TMP J
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B		5/30/18 14:10	TMP J
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		5/30/18 14:10	TMP J
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		5/30/18 14:10	TMP J
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		5/30/18 14:10	TMP J
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B		5/30/18 14:10	TMP J
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B		5/30/18 14:10	TMP J
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B		5/30/18 14:10	TMP J
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B		5/30/18 14:10	TMP J
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B		5/30/18 14:10	TMP J
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B		5/30/18 14:10	TMP J
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B		5/30/18 14:10	TMP J
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B		5/30/18 14:10	TMP J
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B		5/30/18 14:10	TMP J
Ethylbenzene	ND		ug/L	1.0	SW846 8260B		5/30/18 14:10	TMP J
2-Hexanone	ND		ug/L	5.0	SW846 8260B		5/30/18 14:10	TMP J
Iodomethane	ND		ug/L	1.0	SW846 8260B		5/30/18 14:10	TMP J
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B		5/30/18 14:10	TMP J

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ANALYTICAL RESULTS

Workorder: 2316066 2ND QTR 2018 FFMP-FORM 19A

 Lab ID: **2316066003** Date Collected: 5/21/2018 13:25 Matrix: Ground Water
 Sample ID: **FFMP26RW** Date Received: 5/21/2018 15:12

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			5/30/18 14:10	TMP	J
Styrene	ND		ug/L	1.0	SW846 8260B			5/30/18 14:10	TMP	J
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/30/18 14:10	TMP	J
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/30/18 14:10	TMP	J
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			5/30/18 14:10	TMP	J
Toluene	ND		ug/L	1.0	SW846 8260B			5/30/18 14:10	TMP	J
Total Xylenes	ND		ug/L	3.0	SW846 8260B			5/30/18 14:10	TMP	J
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/30/18 14:10	TMP	J
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/30/18 14:10	TMP	J
Trichloroethene	ND		ug/L	1.0	SW846 8260B			5/30/18 14:10	TMP	J
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			5/30/18 14:10	TMP	J
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			5/30/18 14:10	TMP	J
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			5/30/18 14:10	TMP	J
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			5/30/18 14:10	TMP	J

Surrogate Recoveries	Results	Flag	Units	Limits	Method	Prepared	By	Analyzed	By	Cntr
1,2-Dichloroethane-d4 (S)	103		%	62 - 133	SW846 8260B			5/30/18 14:10	TMP	J
4-Bromofluorobenzene (S)	102		%	79 - 114	SW846 8260B			5/30/18 14:10	TMP	J
Dibromofluoromethane (S)	92		%	78 - 116	SW846 8260B			5/30/18 14:10	TMP	J
Toluene-d8 (S)	101		%	76 - 127	SW846 8260B			5/30/18 14:10	TMP	J

LIBRARY SEARCH - VOLATILES

No TIC's Detected . Lib Search VOC 5/30/18 14:10 CPK J

WET CHEMISTRY

Alkalinity, Bicarbonate	45		mg/L	5	S2320B-97			5/24/18 04:44	MSA	B
Alkalinity, Total	45	2	mg/L	5	S2320B-97			5/24/18 04:44	MSA	B
Ammonia-N	0.240		mg/L	0.100	D6919-09			6/3/18 15:44	TES	C
Chemical Oxygen Demand (COD)	0		mg/L		EPA 410.4			5/30/13 08:00	AK	C
Chloride	263		mg/L	5.0	EPA 300.0			5/22/18 10:03	CHW	B
Fluoride	ND		mg/L	0.50	EPA 300.0			5/22/18 10:03	CHW	B
Nitrate-N	3.1		mg/L	0.50	EPA 300.0			5/22/18 10:03	CHW	B
pH	5.93	1	pH_Units		S4500HB-11			5/23/18 12:50	MSA	B
Phenolics	ND		mg/L	0.005	SW846 9066	5/30/18 12:00	NJA	5/30/18 13:40	NJA	I
Specific Conductance	1150		umhos/cm	1	S2510B-97			5/23/18 12:50	MSA	B
Sulfate	78.0		mg/L	5.0	EPA 300.0			5/22/18 10:03	CHW	B
Total Dissolved Solids	830		mg/L	5	S2540C-11			5/24/18 13:30	BMK	B
Total Organic Carbon (TOC)	1.7		mg/L	0.50	S5310B-00			5/23/18 16:03	PAG	G
Turbidity	0.23		NTU	0.10	S2130B-01			5/23/18 01:40	MSA	B

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ANALYTICAL RESULTS

Workorder: 2316066 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316066003** Date Collected: 5/21/2018 13:25 Matrix: Ground Water
Sample ID: **FFMP26RW** Date Received: 5/21/2018 15:12

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
METALS										
Antimony, Total	ND		mg/L	0.0022	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:16	MO	E1
Arsenic, Total	ND		mg/L	0.0033	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:16	MO	E1
Arsenic, Dissolved	ND		mg/L	0.0030	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:04	MO	D1
Barium, Total	0.14		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:16	MO	E1
Barium, Dissolved	0.14		mg/L	0.0056	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:04	MO	D1
Beryllium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:16	MO	E1
Cadmium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:16	MO	E1
Cadmium, Dissolved	ND		mg/L	0.0011	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:04	MO	D1
Calcium, Total	83.2		mg/L	0.11	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:16	MO	E1
Calcium, Dissolved	84.2		mg/L	0.11	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:04	MO	D1
Chromium, Total	ND		mg/L	0.0022	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:16	MO	E1
Chromium, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:04	MO	D1
Cobalt, Total	0.036		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:16	MO	E1
Copper, Total	ND		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:16	MO	E1
Copper, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:04	MO	D1
Iron, Total	ND		mg/L	0.056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 15:13	MO	E1
Iron, Dissolved	ND		mg/L	0.056	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:04	MO	D1
Lead, Total	ND		mg/L	0.0022	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:16	MO	E1
Lead, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:04	MO	D1
Magnesium, Total	22.5		mg/L	0.11	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:16	MO	E1
Magnesium, Dissolved	22.4		mg/L	0.11	SW846 6020A	5/24/18 17:10	AHI	5/31/18 15:39	MO	D1
Manganese, Total	0.76		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:16	MO	E1
Manganese, Dissolved	0.77		mg/L	0.0056	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:04	MO	D1
Mercury, Total	ND		mg/L	0.00050	SW846 7470A	5/29/18 06:10	AXC	5/29/18 10:24	AXC	E3
Mercury, Dissolved	ND		mg/L	0.00050	SW846 7470A	5/25/18 18:00	AXC	5/26/18 11:10	AXC	D2
Nickel, Total	0.0067		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:16	MO	E1
Potassium, Total	10		mg/L	0.11	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:16	MO	E1
Potassium, Dissolved	9.8		mg/L	0.11	SW846 6020A	5/24/18 17:10	AHI	5/31/18 15:39	MO	D1
Selenium, Total	ND		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:16	MO	E1
Selenium, Dissolved	ND		mg/L	0.0056	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:04	MO	D1
Silver, Total	ND		mg/L	0.0022	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:16	MO	E1
Silver, Dissolved	ND		mg/L	0.0022	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:04	MO	D1
Sodium, Total	65.8		mg/L	0.11	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:16	MO	E1
Sodium, Dissolved	65.5		mg/L	0.11	SW846 6020A	5/24/18 17:10	AHI	5/31/18 13:04	MO	D1
Thallium, Total	ND		mg/L	0.0011	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:16	MO	E1
Vanadium, Total	ND		mg/L	0.0022	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:16	MO	E1
Zinc, Total	0.017		mg/L	0.0056	SW846 6020A	5/23/18 14:00	DXC	5/31/18 13:16	MO	E1

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ANALYTICAL RESULTS

Workorder: 2316066 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316066004** Date Collected: 5/21/2018 14:12 Matrix: Water
Sample ID: **FIELD BLANK** Date Received: 5/21/2018 15:12

Parameters	Results	Flag	Units	RDL	Method	Prepared By	Analyzed	By	Cntr
VOLATILE ORGANICS									
Acetone	ND		ug/L	10.0	SW846 8260B		5/30/18 13:01	TMP	A
Acrylonitrile	ND		ug/L	5.0	SW846 8260B		5/30/18 13:01	TMP	A
Benzene	ND		ug/L	1.0	SW846 8260B		5/30/18 13:01	TMP	A
Bromochloromethane	ND		ug/L	1.0	SW846 8260B		5/30/18 13:01	TMP	A
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B		5/30/18 13:01	TMP	A
Bromoform	ND		ug/L	1.0	SW846 8260B		5/30/18 13:01	TMP	A
Bromomethane	ND		ug/L	1.0	SW846 8260B		5/30/18 13:01	TMP	A
2-Butanone	ND		ug/L	10.0	SW846 8260B		5/30/18 13:01	TMP	A
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B		5/30/18 13:01	TMP	A
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B		5/30/18 13:01	TMP	A
Chlorobenzene	ND		ug/L	1.0	SW846 8260B		5/30/18 13:01	TMP	A
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B		5/30/18 13:01	TMP	A
Chloroethane	ND		ug/L	1.0	SW846 8260B		5/30/18 13:01	TMP	A
Chloroform	ND		ug/L	1.0	SW846 8260B		5/30/18 13:01	TMP	A
Chloromethane	ND		ug/L	1.0	SW846 8260B		5/30/18 13:01	TMP	A
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B		5/30/18 13:01	TMP	A
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B		5/30/18 13:01	TMP	A
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B		5/30/18 13:01	TMP	A
Dibromomethane	ND		ug/L	1.0	SW846 8260B		5/30/18 13:01	TMP	A
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B		5/30/18 13:01	TMP	A
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		5/30/18 13:01	TMP	A
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		5/30/18 13:01	TMP	A
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		5/30/18 13:01	TMP	A
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B		5/30/18 13:01	TMP	A
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B		5/30/18 13:01	TMP	A
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B		5/30/18 13:01	TMP	A
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B		5/30/18 13:01	TMP	A
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B		5/30/18 13:01	TMP	A
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B		5/30/18 13:01	TMP	A
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B		5/30/18 13:01	TMP	A
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B		5/30/18 13:01	TMP	A
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B		5/30/18 13:01	TMP	A
Ethylbenzene	ND		ug/L	1.0	SW846 8260B		5/30/18 13:01	TMP	A
2-Hexanone	ND		ug/L	5.0	SW846 8260B		5/30/18 13:01	TMP	A
Iodomethane	ND		ug/L	1.0	SW846 8260B		5/30/18 13:01	TMP	A
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B		5/30/18 13:01	TMP	A

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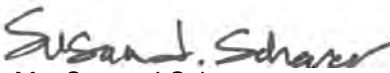
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ANALYTICAL RESULTS

Workorder: 2316066 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316066004** Date Collected: 5/21/2018 14:12 Matrix: Water
Sample ID: **FIELD BLANK** Date Received: 5/21/2018 15:12

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			5/30/18 13:01	TMP	A
Styrene	ND		ug/L	1.0	SW846 8260B			5/30/18 13:01	TMP	A
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/30/18 13:01	TMP	A
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/30/18 13:01	TMP	A
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			5/30/18 13:01	TMP	A
Toluene	ND		ug/L	1.0	SW846 8260B			5/30/18 13:01	TMP	A
Total Xylenes	ND		ug/L	3.0	SW846 8260B			5/30/18 13:01	TMP	A
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/30/18 13:01	TMP	A
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/30/18 13:01	TMP	A
Trichloroethene	ND		ug/L	1.0	SW846 8260B			5/30/18 13:01	TMP	A
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			5/30/18 13:01	TMP	A
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			5/30/18 13:01	TMP	A
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			5/30/18 13:01	TMP	A
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			5/30/18 13:01	TMP	A
Surrogate Recoveries	Results	Flag	Units	Limits	Method	Prepared	By	Analyzed	By	Cntr
1,2-Dichloroethane-d4 (S)	101		%	62 - 133	SW846 8260B			5/30/18 13:01	TMP	A
4-Bromofluorobenzene (S)	101		%	79 - 114	SW846 8260B			5/30/18 13:01	TMP	A
Dibromofluoromethane (S)	94.5		%	78 - 116	SW846 8260B			5/30/18 13:01	TMP	A
Toluene-d8 (S)	99.4		%	76 - 127	SW846 8260B			5/30/18 13:01	TMP	A
LIBRARY SEARCH - VOLATILES										
No TIC's Detected	.				Lib Search VOC			5/30/18 13:01	CPK	A



Ms. Susan J Scherer
Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2316066 2ND QTR 2018 FFMP-FORM 19A

Lab ID: **2316066005** Date Collected: 5/21/2018 15:12 Matrix: Water
Sample ID: **TRIP BLANK** Date Received: 5/21/2018 15:12

Parameters	Results	Flag	Units	RDL	Method	Prepared By	Analyzed By	Cntr
VOLATILE ORGANICS								
Acetone	ND		ug/L	10.0	SW846 8260B		5/30/18 12:38	TMP A
Acrylonitrile	ND		ug/L	5.0	SW846 8260B		5/30/18 12:38	TMP A
Benzene	ND		ug/L	1.0	SW846 8260B		5/30/18 12:38	TMP A
Bromochloromethane	ND		ug/L	1.0	SW846 8260B		5/30/18 12:38	TMP A
Bromodichloromethane	ND		ug/L	1.0	SW846 8260B		5/30/18 12:38	TMP A
Bromoform	ND		ug/L	1.0	SW846 8260B		5/30/18 12:38	TMP A
Bromomethane	ND		ug/L	1.0	SW846 8260B		5/30/18 12:38	TMP A
2-Butanone	ND		ug/L	10.0	SW846 8260B		5/30/18 12:38	TMP A
Carbon Disulfide	ND		ug/L	1.0	SW846 8260B		5/30/18 12:38	TMP A
Carbon Tetrachloride	ND		ug/L	1.0	SW846 8260B		5/30/18 12:38	TMP A
Chlorobenzene	ND		ug/L	1.0	SW846 8260B		5/30/18 12:38	TMP A
Chlorodibromomethane	ND		ug/L	1.0	SW846 8260B		5/30/18 12:38	TMP A
Chloroethane	ND		ug/L	1.0	SW846 8260B		5/30/18 12:38	TMP A
Chloroform	ND		ug/L	1.0	SW846 8260B		5/30/18 12:38	TMP A
Chloromethane	ND		ug/L	1.0	SW846 8260B		5/30/18 12:38	TMP A
3-Chloro-1-propene	ND		ug/L	1.0	SW846 8260B		5/30/18 12:38	TMP A
1,2-Dibromo-3-chloropropane	ND		ug/L	7.0	SW846 8260B		5/30/18 12:38	TMP A
1,2-Dibromoethane	ND		ug/L	1.0	SW846 8260B		5/30/18 12:38	TMP A
Dibromomethane	ND		ug/L	1.0	SW846 8260B		5/30/18 12:38	TMP A
trans-1,4-Dichloro-2-butene	ND		ug/L	3.0	SW846 8260B		5/30/18 12:38	TMP A
1,2-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		5/30/18 12:38	TMP A
1,3-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		5/30/18 12:38	TMP A
1,4-Dichlorobenzene	ND		ug/L	1.0	SW846 8260B		5/30/18 12:38	TMP A
Dichlorodifluoromethane	ND		ug/L	1.0	SW846 8260B		5/30/18 12:38	TMP A
1,1-Dichloroethane	ND		ug/L	1.0	SW846 8260B		5/30/18 12:38	TMP A
1,2-Dichloroethane	ND		ug/L	1.0	SW846 8260B		5/30/18 12:38	TMP A
1,1-Dichloroethene	ND		ug/L	1.0	SW846 8260B		5/30/18 12:38	TMP A
cis-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B		5/30/18 12:38	TMP A
trans-1,2-Dichloroethene	ND		ug/L	1.0	SW846 8260B		5/30/18 12:38	TMP A
1,2-Dichloropropane	ND		ug/L	1.0	SW846 8260B		5/30/18 12:38	TMP A
cis-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B		5/30/18 12:38	TMP A
trans-1,3-Dichloropropene	ND		ug/L	1.0	SW846 8260B		5/30/18 12:38	TMP A
Ethylbenzene	ND		ug/L	1.0	SW846 8260B		5/30/18 12:38	TMP A
2-Hexanone	ND		ug/L	5.0	SW846 8260B		5/30/18 12:38	TMP A
Iodomethane	ND		ug/L	1.0	SW846 8260B		5/30/18 12:38	TMP A
4-Methyl-2-Pentanone(MIBK)	ND		ug/L	5.0	SW846 8260B		5/30/18 12:38	TMP A

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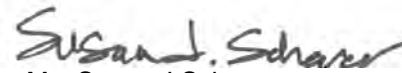
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ANALYTICAL RESULTS

Workorder: 2316066 2ND QTR 2018 FFMP-FORM 19A

 Lab ID: **2316066005** Date Collected: 5/21/2018 15:12 Matrix: Water
 Sample ID: **TRIP BLANK** Date Received: 5/21/2018 15:12

Parameters	Results	Flag	Units	RDL	Method	Prepared	By	Analyzed	By	Cntr
Methylene Chloride	ND		ug/L	1.0	SW846 8260B			5/30/18 12:38	TMP	A
Styrene	ND		ug/L	1.0	SW846 8260B			5/30/18 12:38	TMP	A
1,1,1,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/30/18 12:38	TMP	A
1,1,2,2-Tetrachloroethane	ND		ug/L	1.0	SW846 8260B			5/30/18 12:38	TMP	A
Tetrachloroethene	ND		ug/L	1.0	SW846 8260B			5/30/18 12:38	TMP	A
Toluene	ND		ug/L	1.0	SW846 8260B			5/30/18 12:38	TMP	A
Total Xylenes	ND		ug/L	3.0	SW846 8260B			5/30/18 12:38	TMP	A
1,1,1-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/30/18 12:38	TMP	A
1,1,2-Trichloroethane	ND		ug/L	1.0	SW846 8260B			5/30/18 12:38	TMP	A
Trichloroethene	ND		ug/L	1.0	SW846 8260B			5/30/18 12:38	TMP	A
Trichlorofluoromethane	ND		ug/L	1.0	SW846 8260B			5/30/18 12:38	TMP	A
1,2,3-Trichloropropane	ND		ug/L	2.0	SW846 8260B			5/30/18 12:38	TMP	A
Vinyl Acetate	ND		ug/L	5.0	SW846 8260B			5/30/18 12:38	TMP	A
Vinyl Chloride	ND		ug/L	1.0	SW846 8260B			5/30/18 12:38	TMP	A
Surrogate Recoveries	Results	Flag	Units	Limits	Method	Prepared	By	Analyzed	By	Cntr
1,2-Dichloroethane-d4 (S)	99.6		%	62 - 133	SW846 8260B			5/30/18 12:38	TMP	A
4-Bromofluorobenzene (S)	101		%	79 - 114	SW846 8260B			5/30/18 12:38	TMP	A
Dibromofluoromethane (S)	93.9		%	78 - 116	SW846 8260B			5/30/18 12:38	TMP	A
Toluene-d8 (S)	98.1		%	76 - 127	SW846 8260B			5/30/18 12:38	TMP	A
LIBRARY SEARCH - VOLATILES										
No TIC's Detected	.				Lib Search VOC			5/30/18 12:38	CPK	A


 Ms. Susan J Scherer
 Project Coordinator

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ANALYTICAL RESULTS

Workorder: 2316066 2ND QTR 2018 FFMP-FORM 19A

PARAMETER QUALIFIERS

Lab ID	#	Sample ID	Analytical Method	Analyte
2316066001	1	FFMP028W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2316066001	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.				
2316066001	3	FFMP028W	EPA 300.0	Nitrate-N
The sample was originally run within hold time, but required further analysis that exceeded hold time.				
2316066002	1	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.				
2316066002	2	FFMP005W	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				
2316066003	1	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.				
2316066003	2	FFMP26RW	S2320B-97	Alkalinity, Total
The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.				

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ANALYSIS - PREP METHOD CROSS REFERENCE TABLE

Workorder: 2316066 2ND QTR 2018 FFMP-FORM 19A

Lab ID	Sample ID	Analysis Method	Prep Method
2316066001	FFMP028W	D6919-09	
2316066001	FFMP028W	EPA 300.0	
2316066001	FFMP028W	EPA 410.4	
2316066001	FFMP028W	Field	
2316066001	FFMP028W	Lib Search VOC	
2316066001	FFMP028W	S2130B-01	
2316066001	FFMP028W	S2320B-97	
2316066001	FFMP028W	S2510B-97	
2316066001	FFMP028W	S2540C-11	
2316066001	FFMP028W	S4500HB-11	
2316066001	FFMP028W	S5310B-00	
2316066001	FFMP028W	SW846 6020A	SW846 3015
2316066001	FFMP028W	SW846 7470A	SW846 7470A
2316066001	FFMP028W	SW846 8260B	
2316066001	FFMP028W	SW846 9066	420.4/9066
2316066002	FFMP005W	D6919-09	
2316066002	FFMP005W	EPA 300.0	
2316066002	FFMP005W	EPA 410.4	
2316066002	FFMP005W	Field	
2316066002	FFMP005W	Lib Search VOC	
2316066002	FFMP005W	S2130B-01	
2316066002	FFMP005W	S2320B-97	
2316066002	FFMP005W	S2510B-97	
2316066002	FFMP005W	S2540C-11	
2316066002	FFMP005W	S4500HB-11	
2316066002	FFMP005W	S5310B-00	
2316066002	FFMP005W	SW846 6020A	SW846 3015
2316066002	FFMP005W	SW846 7470A	SW846 7470A
2316066002	FFMP005W	SW846 8260B	
2316066002	FFMP005W	SW846 9066	420.4/9066
2316066003	FFMP26RW	D6919-09	
2316066003	FFMP26RW	EPA 300.0	
2316066003	FFMP26RW	EPA 410.4	
2316066003	FFMP26RW	Field	
2316066003	FFMP26RW	Lib Search VOC	
2316066003	FFMP26RW	S2130B-01	
2316066003	FFMP26RW	S2320B-97	
2316066003	FFMP26RW	S2510B-97	
2316066003	FFMP26RW	S2540C-11	
2316066003	FFMP26RW	S4500HB-11	
2316066003	FFMP26RW	S5310B-00	
2316066003	FFMP26RW	SW846 6020A	SW846 3015
2316066003	FFMP26RW	SW846 7470A	SW846 7470A
2316066003	FFMP26RW	SW846 8260B	
2316066003	FFMP26RW	SW846 9066	420.4/9066
2316066004	FIELD BLANK	Lib Search VOC	

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ANALYSIS - PREP METHOD CROSS REFERENCE TABLE

Workorder: 2316066 2ND QTR 2018 FFMP-FORM 19A

Lab ID	Sample ID	Analysis Method	Prep Method
2316066004	FIELD BLANK	SW846 8260B	
2316066005	TRIP BLANK	Lib Search VOC	
2316066005	TRIP BLANK	SW846 8260B	

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Lancaster County Solid Waste Management Authority
Frey Farm Landfill

Exceedence Report

<i>Parameter Name</i>	<i>Units</i>	<i>Concentration</i>	<i>Criteria Conc</i>	<i>Qualifiers</i>	<i>Criteria</i>
<i>Location ID</i>	<i>Sample Number</i>	<i>Sample Date</i>	<i>Sample Type</i>	<i>Sample Depth</i>	
FFMP002W	2316215006	05/22/2018	GW		
NITRATE-NITROGEN	mg/l	26.60	10.00		EPA-MCL
<i>Location ID</i>	<i>Sample Number</i>	<i>Sample Date</i>	<i>Sample Type</i>	<i>Sample Depth</i>	
FFMP028W	2316066001	05/21/2018	GW		
NITRATE-NITROGEN	mg/l	20.20	10.00		EPA-MCL
<i>Location ID</i>	<i>Sample Number</i>	<i>Sample Date</i>	<i>Sample Type</i>	<i>Sample Depth</i>	
FFMP03AW	2316494003	05/23/2018	GW		
NITRATE-NITROGEN	mg/l	19.30	10.00		EPA-MCL

Lancaster County Solid Waste Management Authority

Frey Farm Landfill

Exceedence Report

<i>Parameter Name</i>	<i>Units</i>	<i>Concentration</i>	<i>Criteria Conc</i>	<i>Qualifiers</i>	<i>Criteria</i>
<i>Location ID</i>	<i>Sample Number</i>	<i>Sample Date</i>	<i>Sample Type</i>	<i>Sample Depth</i>	
FFMP001P	2317107005	05/24/2018	GW		
IRON, DISSOLVED	mg/l	0.71	0.30		EPA-SMCL
IRON, TOTAL	mg/l	3.10	0.30		EPA-SMCL
MANGANESE, DISSOLVED	mg/l	0.35	0.05		EPA-SMCL
MANGANESE, TOTAL	mg/l	0.38	0.05		EPA-SMCL
<i>Location ID</i>	<i>Sample Number</i>	<i>Sample Date</i>	<i>Sample Type</i>	<i>Sample Depth</i>	
FFMP002W	2316215006	05/22/2018	GW		
MANGANESE, DISSOLVED	mg/l	0.26	0.05		EPA-SMCL
MANGANESE, TOTAL	mg/l	0.25	0.05		EPA-SMCL
<i>Location ID</i>	<i>Sample Number</i>	<i>Sample Date</i>	<i>Sample Type</i>	<i>Sample Depth</i>	
FFMP005W	2316066002	05/21/2018	GW		
CHLORIDE	mg/l	294.00	250.00		EPA-SMCL
MANGANESE, DISSOLVED	mg/l	0.08	0.05		EPA-SMCL
MANGANESE, TOTAL	mg/l	0.08	0.05		EPA-SMCL
TDS (TOT. DISSOLVED SOLIDS)	mg/l	967.00	500.00		EPA-SMCL
<i>Location ID</i>	<i>Sample Number</i>	<i>Sample Date</i>	<i>Sample Type</i>	<i>Sample Depth</i>	
FFMP017W	2316215001	05/22/2018	GW		
CHLORIDE	mg/l	308.00	250.00		EPA-SMCL
MANGANESE, DISSOLVED	mg/l	0.34	0.05		EPA-SMCL
MANGANESE, TOTAL	mg/l	0.35	0.05		EPA-SMCL
TDS (TOT. DISSOLVED SOLIDS)	mg/l	879.00	500.00		EPA-SMCL
<i>Location ID</i>	<i>Sample Number</i>	<i>Sample Date</i>	<i>Sample Type</i>	<i>Sample Depth</i>	
FFMP018W	2316215002	05/22/2018	GW		
MANGANESE, DISSOLVED	mg/l	0.74	0.05		EPA-SMCL
MANGANESE, TOTAL	mg/l	0.74	0.05		EPA-SMCL
TDS (TOT. DISSOLVED SOLIDS)	mg/l	607.00	500.00		EPA-SMCL

<i>Parameter Name</i>	<i>Units</i>	<i>Concentration</i>	<i>Criteria Conc</i>	<i>Qualifiers</i>	<i>Criteria</i>
<i>Location ID</i>	<i>Sample Number</i>	<i>Sample Date</i>	<i>Sample Type</i>	<i>Sample Depth</i>	
<i>FFMP02DW</i>	<i>2317107003</i>	<i>05/24/2018</i>	<i>GW</i>		
CHLORIDE	mg/l	283.00	250.00	EPA-SMCL	
IRON, TOTAL	mg/l	1.00	0.30	EPA-SMCL	
MANGANESE, DISSOLVED	mg/l	0.48	0.05	EPA-SMCL	
MANGANESE, TOTAL	mg/l	0.50	0.05	EPA-SMCL	
TDS (TOT. DISSOLVED SOLIDS)	mg/l	714.00	500.00	EPA-SMCL	
<i>Location ID</i>	<i>Sample Number</i>	<i>Sample Date</i>	<i>Sample Type</i>	<i>Sample Depth</i>	
<i>FFMP02SW</i>	<i>2317107004</i>	<i>05/24/2018</i>	<i>GW</i>		
IRON, TOTAL	mg/l	1.90	0.30	EPA-SMCL	
<i>Location ID</i>	<i>Sample Number</i>	<i>Sample Date</i>	<i>Sample Type</i>	<i>Sample Depth</i>	
<i>FFMP031W</i>	<i>2316494004</i>	<i>05/23/2018</i>	<i>GW</i>		
IRON, DISSOLVED	mg/l	0.48	0.30	EPA-SMCL	
IRON, TOTAL	mg/l	0.52	0.30	EPA-SMCL	
MANGANESE, DISSOLVED	mg/l	0.20	0.05	EPA-SMCL	
MANGANESE, TOTAL	mg/l	0.19	0.05	EPA-SMCL	
<i>Location ID</i>	<i>Sample Number</i>	<i>Sample Date</i>	<i>Sample Type</i>	<i>Sample Depth</i>	
<i>FFMP032W</i>	<i>2316494005</i>	<i>05/23/2018</i>	<i>GW</i>		
IRON, DISSOLVED	mg/l	6.50	0.30	EPA-SMCL	
IRON, TOTAL	mg/l	11.80	0.30	EPA-SMCL	
MANGANESE, DISSOLVED	mg/l	0.63	0.05	EPA-SMCL	
MANGANESE, TOTAL	mg/l	0.62	0.05	EPA-SMCL	
<i>Location ID</i>	<i>Sample Number</i>	<i>Sample Date</i>	<i>Sample Type</i>	<i>Sample Depth</i>	
<i>FFMP033W</i>	<i>2317107002</i>	<i>05/24/2018</i>	<i>GW</i>		
IRON, DISSOLVED	mg/l	7.70	0.30	EPA-SMCL	
IRON, TOTAL	mg/l	13.00	0.30	EPA-SMCL	
MANGANESE, DISSOLVED	mg/l	0.72	0.05	EPA-SMCL	
MANGANESE, TOTAL	mg/l	0.79	0.05	EPA-SMCL	
<i>Location ID</i>	<i>Sample Number</i>	<i>Sample Date</i>	<i>Sample Type</i>	<i>Sample Depth</i>	
<i>FFMP03AW</i>	<i>2316494003</i>	<i>05/23/2018</i>	<i>GW</i>		
MANGANESE, DISSOLVED	mg/l	0.26	0.05	EPA-SMCL	
MANGANESE, TOTAL	mg/l	0.27	0.05	EPA-SMCL	

<i>Parameter Name</i>	<i>Units</i>	<i>Concentration</i>	<i>Criteria Conc</i>	<i>Qualifiers</i>	<i>Criteria</i>
<i>Location ID</i>	<i>Sample Number</i>	<i>Sample Date</i>	<i>Sample Type</i>	<i>Sample Depth</i>	
<i>FFMP04AW</i>	<i>2316494002</i>	<i>05/23/2018</i>	<i>GW</i>		
CHLORIDE	mg/l	330.00	250.00	EPA-SMCL	
MANGANESE, DISSOLVED	mg/l	0.26	0.05	EPA-SMCL	
MANGANESE, TOTAL	mg/l	0.28	0.05	EPA-SMCL	
TDS (TOT. DISSOLVED SOLIDS)	mg/l	958.00	500.00	EPA-SMCL	
<i>Location ID</i>	<i>Sample Number</i>	<i>Sample Date</i>	<i>Sample Type</i>	<i>Sample Depth</i>	
<i>FFMP26RW</i>	<i>2316066003</i>	<i>05/21/2018</i>	<i>GW</i>		
CHLORIDE	mg/l	263.00	250.00	EPA-SMCL	
MANGANESE, DISSOLVED	mg/l	0.77	0.05	EPA-SMCL	
MANGANESE, TOTAL	mg/l	0.76	0.05	EPA-SMCL	
TDS (TOT. DISSOLVED SOLIDS)	mg/l	830.00	500.00	EPA-SMCL	
<i>Location ID</i>	<i>Sample Number</i>	<i>Sample Date</i>	<i>Sample Type</i>	<i>Sample Depth</i>	
<i>FFMP30RW</i>	<i>2316494001</i>	<i>05/23/2018</i>	<i>GW</i>		
MANGANESE, DISSOLVED	mg/l	0.38	0.05	EPA-SMCL	
MANGANESE, TOTAL	mg/l	0.41	0.05	EPA-SMCL	