



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT

Date Prepared/Revised
02/21/2023

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: Creswell Landfill

Facility ID (as issued by DEP): 100008

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: CWMP007W Well Spring Stream Other
 Upgradient/Upstream Downgradient/Downstream

Location (County): Lancaster County

Municipality: Manor Township

Sampling Point: Latitude: 39 ° 57 ' 24.53 " Longitude: 76 ° 26 ' 33.28 "

Depth to Water Level: 5.35 ft Measured from: Land Surface TOC

Casing Stickup: 1.50 ft Elevation of Water Level: 448.05 ft./MSL

Sampling Depth: 33 ft Volume of Water Column: 45.75 gal

Total Well Depth: 36.5 ft Sampling Method: Pumped Bailed Grab

Well Purged: Yes No Well Volumes Purged: 2.3

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

Spring Flow Rate: gpm

Sample Date (mm/dd/yy): 1/16/2023 Sample Collection Time: 11:12

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): 3283194001 Final Lab Analysis CompletionDate: 1/25/2023

Name/Affiliation of Person who Filled Out Form: Daniel A. Brown

Comments: _____

I.D. No 100008

Monitoring Point No. CWMP007W

Sample Date 1/16/2023

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	EPA 350.3
BICARBONATE	10	SM18-2321
CALCIUM, TOTAL	19.6	SW846 6010B
CALCIUM, DISSOLVED		SW 8466010B
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	75	EPA 300.0
FLUORIDE	0.2 ND	EPA 300.0
IRON, TOTAL (ug/l)	67 ND	SW846 6010B
IRON, DISSOLVED (ug/l)		SW846 6010B
MAGNESIUM, TOTAL	10.5	SW846 6010B
MAGNESIUM, DISSOLVED		SW846 6010B
MANGANESE, TOTAL (ug/l)	7.2	SW846 6010B
MANGANESE, DISSOLVED (ug/l)		SW846 6010B
NITRATE-NITROGEN	9.9	EPA 300.0
pH-FIELD (SU)	5.29	FIELD
pH-LAB (SU)	6.59	EPA 150.1
POTASSIUM, TOTAL	2.2	SW846 6010B
POTASSIUM, DISSOLVED		SW846 6010B
SODIUM, TOTAL	34	SW846 6010B
SODIUM, DISSOLVED		SW846 6010B
SPEC. COND., FIELD (umhos/cm)	546	FIELD
SPEC. COND., LAB (umhos/cm)	406	EPA 120.1
SULFATE	16.4	EPA 300.0
ALKALINITY	10	SM18-2320B
TDS (TOTAL DISSOLVED SOLIDS)	254	SM18-2540C
TOC (TOTAL ORGANIC CARBON)	0.5 ND	SM18-5310B
TOTAL PHENOLICS (ug/l)	4 ND	SW846 9066
TURBIDITY (N.T.U.)	0.3 ND	SM 2130B

* Indicator Analyte - For comparison with detection zone analytes.

T Please indicate detection limit if analyte is not detected.

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

I.D. No 100008

Monitoring Point No. CWMP007W

Sample Date 1/16/2023

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 (EDB) (ETHYLENE D	1 ND	SW846 8260B
1,1-DICHLOROETHANE	1 ND	SW846 8260B
1,1-DICHLOROETHENE	1 ND	SW846 8260B
1,2-DICHLOROETHANE	1 ND	SW846 8260B
cis 1,2-DICHLOROETHENE	1 ND	SW846 8260B
trans 1,2-DICHLOROETHENE	1 ND	SW846 8260B
ETHYLBENZENE	1 ND	SW846 8260B
METHYLENE CHLORIDE	1 ND	SW846 8260B
TETRACHLOROETHENE	1 ND	SW846 8260B
TOLUENE	1 ND	SW846 8260B
1,1,1-TRICHLOROETHANE	1 ND	SW846 8260B
TRICHLOROETHENE	1 ND	SW846 8260B
VINYL CHLORIDE	1 ND	SW846 8260B
XYLENES (TOTAL)	3 ND	SW846 8260B

T Please indicate detection limit if analyte is not detected.



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT

Date Prepared/Revised
02/21/2023

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: Creswell Landfill

Facility ID (as issued by DEP): 100008

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: CWMP001W Well Spring Stream Other
 Upgradient/Upstream Downgradient/Downstream

Location (County): Lancaster County Municipality: Manor Township

Sampling Point: Latitude: 39 ° 57 ' 27.43 " Longitude: 76 ° 26 ' 14.4 "

Depth to Water Level: 29.54 ft Measured from: Land Surface TOC

Casing Stickup: 1.23 ft Elevation of Water Level: 485.59 ft./MSL

Sampling Depth: 57 ft Volume of Water Column: 53.99 gal

Total Well Depth: 66.3 ft Sampling Method: Pumped Bailed Grab

Well Purged: Yes No Well Volumes Purged: 2.1

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

Spring Flow Rate: gpm

Sample Date (mm/dd/yy): 1/16/2023 Sample Collection Time: 12:31

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): 3283194002 Final Lab Analysis CompletionDate: 1/25/2023

Name/Affiliation of Person who Filled Out Form: Daniel A. Brown

Comments: _____

I.D. No 100008

Monitoring Point No. CWMP001W

Sample Date 1/16/2023

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	EPA 350.3
BICARBONATE	5 ND	SM18-2321
CALCIUM, TOTAL	14.8	SW846 6010B
CALCIUM, DISSOLVED		SW 8466010B
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	26.4	EPA 300.0
FLUORIDE	0.2 ND	EPA 300.0
IRON, TOTAL (ug/l)	170	SW846 6010B
IRON, DISSOLVED (ug/l)		SW846 6010B
MAGNESIUM, TOTAL	10.6	SW846 6010B
MAGNESIUM, DISSOLVED		SW846 6010B
MANGANESE, TOTAL (ug/l)	53	SW846 6010B
MANGANESE, DISSOLVED (ug/l)		SW846 6010B
NITRATE-NITROGEN	17.8	EPA 300.0
pH-FIELD (SU)	5.21	FIELD
pH-LAB (SU)	6.31	EPA 150.1
POTASSIUM, TOTAL	2.3	SW846 6010B
POTASSIUM, DISSOLVED		SW846 6010B
SODIUM, TOTAL	13	SW846 6010B
SODIUM, DISSOLVED		SW846 6010B
SPEC. COND., FIELD (umhos/cm)	355	FIELD
SPEC. COND., LAB (umhos/cm)	266	EPA 120.1
SULFATE	2.7	EPA 300.0
ALKALINITY	5 ND	SM18-2320B
TDS (TOTAL DISSOLVED SOLIDS)	188	SM18-2540C
TOC (TOTAL ORGANIC CARBON)	0.5 ND	SM18-5310B
TOTAL PHENOLICS (ug/l)	4 ND	SW846 9066
TURBIDITY (N.T.U.)	28	SM 2130B

* Indicator Analyte - For comparison with detection zone analytes.

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

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

I.D. No 100008

Monitoring Point No. CWMP001W

Sample Date 1/16/2023

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 (EDB) (ETHYLENE D	1 ND	SW846 8260B
1,1-DICHLOROETHANE	1 ND	SW846 8260B
1,1-DICHLOROETHENE	1 ND	SW846 8260B
1,2-DICHLOROETHANE	1 ND	SW846 8260B
cis 1,2-DICHLOROETHENE	1 ND	SW846 8260B
trans 1,2-DICHLOROETHENE	1 ND	SW846 8260B
ETHYLBENZENE	1 ND	SW846 8260B
METHYLENE CHLORIDE	1 ND	SW846 8260B
TETRACHLOROETHENE	1 ND	SW846 8260B
TOLUENE	1 ND	SW846 8260B
1,1,1-TRICHLOROETHANE	1 ND	SW846 8260B
TRICHLOROETHENE	1 ND	SW846 8260B
VINYL CHLORIDE	1 ND	SW846 8260B
XYLENES (TOTAL)	3 ND	SW846 8260B

T Please indicate detection limit if analyte is not detected.



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT

Date Prepared/Revised
02/21/2023

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: Creswell Landfill

Facility ID (as issued by DEP): 100008

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: CWMP005W Well Spring Stream Other
 Upgradient/Upstream Downgradient/Downstream

Location (County): Lancaster County Municipality: Manor Township

Sampling Point: Latitude: 39 ° 57 ' 11.17 " Longitude: 76 ° 26 ' 7.08 "

Depth to Water Level: 44.02 ft Measured from: Land Surface TOC

Casing Stickup: -0.37 ft Elevation of Water Level: 469.41 ft./MSL

Sampling Depth: 130 ft Volume of Water Column: 140.96 gal

Total Well Depth: 140 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): 1/16/2023 Sample Collection Time: 14:21

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): 3283194003 Final Lab Analysis Completion Date: 1/25/2023

Name/Affiliation of Person who Filled Out Form: Daniel A. Brown

Comments: _____

I.D. No 100008

Monitoring Point No. CWMP005W

Sample Date 1/16/2023

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	EPA 350.3
BICARBONATE	15	SM18-2321
CALCIUM, TOTAL	14.8	SW846 6010B
CALCIUM, DISSOLVED		SW 8466010B
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	64.9	EPA 300.0
FLUORIDE	0.2 ND	EPA 300.0
IRON, TOTAL (ug/l)	67 ND	SW846 6010B
IRON, DISSOLVED (ug/l)		SW846 6010B
MAGNESIUM, TOTAL	8	SW846 6010B
MAGNESIUM, DISSOLVED		SW846 6010B
MANGANESE, TOTAL (ug/l)	46	SW846 6010B
MANGANESE, DISSOLVED (ug/l)		SW846 6010B
NITRATE-NITROGEN	7.3	EPA 300.0
pH-FIELD (SU)	5.36	FIELD
pH-LAB (SU)	6.65	EPA 150.1
POTASSIUM, TOTAL	2.1	SW846 6010B
POTASSIUM, DISSOLVED		SW846 6010B
SODIUM, TOTAL	31.5	SW846 6010B
SODIUM, DISSOLVED		SW846 6010B
SPEC. COND., FIELD (umhos/cm)	466	FIELD
SPEC. COND., LAB (umhos/cm)	340	EPA 120.1
SULFATE	4.7	EPA 300.0
ALKALINITY	15	SM18-2320B
TDS (TOTAL DISSOLVED SOLIDS)	220	SM18-2540C
TOC (TOTAL ORGANIC CARBON)	0.5 ND	SM18-5310B
TOTAL PHENOLICS (ug/l)	4 ND	SW846 9066
TURBIDITY (N.T.U.)	0.6	SM 2130B

* Indicator Analyte - For comparison with detection zone analytes.

T Please indicate detection limit if analyte is not detected.

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

I.D. No 100008

Monitoring Point No. CWMP005W

Sample Date 1/16/2023

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 (EDB) (ETHYLENE D	1 ND	SW846 8260B
1,1-DICHLOROETHANE	1 ND	SW846 8260B
1,1-DICHLOROETHENE	1 ND	SW846 8260B
1,2-DICHLOROETHANE	1 ND	SW846 8260B
cis 1,2-DICHLOROETHENE	1 ND	SW846 8260B
trans 1,2-DICHLOROETHENE	1 ND	SW846 8260B
ETHYLBENZENE	1 ND	SW846 8260B
METHYLENE CHLORIDE	1 ND	SW846 8260B
TETRACHLOROETHENE	1 ND	SW846 8260B
TOLUENE	1 ND	SW846 8260B
1,1,1-TRICHLOROETHANE	1 ND	SW846 8260B
TRICHLOROETHENE	1 ND	SW846 8260B
VINYL CHLORIDE	1 ND	SW846 8260B
XYLENES (TOTAL)	3 ND	SW846 8260B

T Please indicate detection limit if analyte is not detected.



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT

Date Prepared/Revised
02/21/2023

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: Creswell Landfill

Facility ID (as issued by DEP): 100008

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: CWMP016W Well Spring Stream Other
 Upgradient/Upstream Downgradient/Downstream

Location (County): Lancaster County Municipality: Manor Township

Sampling Point: Latitude: 39 ° 56 ' 55.57 " Longitude: 76 ° 26 ' 50.59 "

Depth to Water Level: 9.98 ft Measured from: Land Surface TOC

Casing Stickup: 2.53 ft Elevation of Water Level: 301.99 ft./MSL

Sampling Depth: 71 ft Volume of Water Column: _____ gal

Total Well Depth: 78.03 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): 1/18/2023 Sample Collection Time: 10:25

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): 3283581001 Final Lab Analysis CompletionDate: 1/26/2023

Name/Affiliation of Person who Filled Out Form: Daniel A. Brown

Comments: _____

I.D. No 100008

Monitoring Point No. CWMP016W

Sample Date 1/18/2023

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	EPA 350.3
BICARBONATE	12	SM18-2321
CALCIUM, TOTAL	5.8	SW846 6010B
CALCIUM, DISSOLVED		SW 8466010B
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	3.1	EPA 300.0
FLUORIDE	0.2 ND	EPA 300.0
IRON, TOTAL (ug/l)	120	SW846 6010B
IRON, DISSOLVED (ug/l)		SW846 6010B
MAGNESIUM, TOTAL	1.5	SW846 6010B
MAGNESIUM, DISSOLVED		SW846 6010B
MANGANESE, TOTAL (ug/l)	5.9	SW846 6010B
MANGANESE, DISSOLVED (ug/l)		SW846 6010B
NITRATE-NITROGEN	1.9	EPA 300.0
pH-FIELD (SU)	5.61	FIELD
pH-LAB (SU)	6.94	EPA 150.1
POTASSIUM, TOTAL	0.69	SW846 6010B
POTASSIUM, DISSOLVED		SW846 6010B
SODIUM, TOTAL	3.5	SW846 6010B
SODIUM, DISSOLVED		SW846 6010B
SPEC. COND., FIELD (umhos/cm)	64	FIELD
SPEC. COND., LAB (umhos/cm)	66	EPA 120.1
SULFATE	9.1	EPA 300.0
ALKALINITY	12	SM18-2320B
TDS (TOTAL DISSOLVED SOLIDS)	72	SM18-2540C
TOC (TOTAL ORGANIC CARBON)	0.5 ND	SM18-5310B
TOTAL PHENOLICS (ug/l)	4 ND	SW846 9066
TURBIDITY (N.T.U.)	1.1	SM 2130B

* Indicator Analyte - For comparison with detection zone analytes.

T Please indicate detection limit if analyte is not detected.

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

Remaining quarterly samples only require total metals analysis.

I.D. No 100008

Monitoring Point No. CWMP016W

Sample Date 1/18/2023

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 (EDB) (ETHYLENE D	1 ND	SW846 8260B
1,1-DICHLOROETHANE	1 ND	SW846 8260B
1,1-DICHLOROETHENE	1 ND	SW846 8260B
1,2-DICHLOROETHANE	1 ND	SW846 8260B
cis 1,2-DICHLOROETHENE	1 ND	SW846 8260B
trans 1,2-DICHLOROETHENE	1 ND	SW846 8260B
ETHYLBENZENE	1 ND	SW846 8260B
METHYLENE CHLORIDE	1 ND	SW846 8260B
TETRACHLOROETHENE	1 ND	SW846 8260B
TOLUENE	1 ND	SW846 8260B
1,1,1-TRICHLOROETHANE	1 ND	SW846 8260B
TRICHLOROETHENE	1 ND	SW846 8260B
VINYL CHLORIDE	1 ND	SW846 8260B
XYLENES (TOTAL)	3 ND	SW846 8260B

T Please indicate detection limit if analyte is not detected.



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT

Date Prepared/Revised
02/21/2023

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: Creswell Landfill

Facility ID (as issued by DEP): 100008

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: CWMP018S Well Spring Stream Other
 Upgradient/Upstream Downgradient/Downstream

Location (County): Lancaster County

Municipality: Manor

Sampling Point: Latitude: 39 ° 56 ' 55.11 " Longitude: 76 ° 26 ' 51.66 "

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

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

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

Total Well Depth: _____ 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): 1/18/2023 Sample Collection Time: 10:55

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): 3283581002 Final Lab Analysis CompletionDate: 1/26/2023

Name/Affiliation of Person who Filled Out Form: Daniel A. Brown

Comments: _____

I.D. No 100008

Monitoring Point No. CWMP018S

Sample Date 1/18/2023

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	0.372	EPA 350.3
BICARBONATE	297	SM18-2321
CALCIUM, TOTAL	75.9	SW846 6010B
CALCIUM, DISSOLVED		SW 8466010B
COD (CHEMICAL OXYGEN DEMAND)	18	EPA 410.4
CHLORIDE	532	EPA 300.0
FLUORIDE	0.5 ND	EPA 300.0
IRON, TOTAL (ug/l)	150	SW846 6010B
IRON, DISSOLVED (ug/l)		SW846 6010B
MAGNESIUM, TOTAL	73.7	SW846 6010B
MAGNESIUM, DISSOLVED		SW846 6010B
MANGANESE, TOTAL (ug/l)	130	SW846 6010B
MANGANESE, DISSOLVED (ug/l)		SW846 6010B
NITRATE-NITROGEN	20.1	EPA 300.0
pH-FIELD (SU)	8.3	FIELD
pH-LAB (SU)	8.56	EPA 150.1
POTASSIUM, TOTAL	18.5	SW846 6010B
POTASSIUM, DISSOLVED		SW846 6010B
SODIUM, TOTAL	315	SW846 6010B
SODIUM, DISSOLVED		SW846 6010B
SPEC. COND., FIELD (umhos/cm)	2287	FIELD
SPEC. COND., LAB (umhos/cm)	554	EPA 120.1
SULFATE	47.1	EPA 300.0
ALKALINITY	327	SM18-2320B
TDS (TOTAL DISSOLVED SOLIDS)	1380	SM18-2540C
TOC (TOTAL ORGANIC CARBON)	6.4	SM18-5310B
TOTAL PHENOLICS (ug/l)	4 ND	SW846 9066
TURBIDITY (N.T.U.)	0.5	SM 2130B

* Indicator Analyte - For comparison with detection zone analytes.

T Please indicate detection limit if analyte is not detected.

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

Remaining quarterly samples only require total metals analysis.

I.D. No 100008

Monitoring Point No. CWMP018S

Sample Date 1/18/2023

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 (EDB) (ETHYLENE D	1 ND	SW846 8260B
1,1-DICHLOROETHANE	1 ND	SW846 8260B
1,1-DICHLOROETHENE	1 ND	SW846 8260B
1,2-DICHLOROETHANE	1 ND	SW846 8260B
cis 1,2-DICHLOROETHENE	1 ND	SW846 8260B
trans 1,2-DICHLOROETHENE	1 ND	SW846 8260B
ETHYLBENZENE	1 ND	SW846 8260B
METHYLENE CHLORIDE	1 ND	SW846 8260B
TETRACHLOROETHENE	1 ND	SW846 8260B
TOLUENE	1 ND	SW846 8260B
1,1,1-TRICHLOROETHANE	1 ND	SW846 8260B
TRICHLOROETHENE	1 ND	SW846 8260B
VINYL CHLORIDE	1 ND	SW846 8260B
XYLENES (TOTAL)	3 ND	SW846 8260B

T Please indicate detection limit if analyte is not detected.



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT

Date Prepared/Revised
02/21/2023

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: Creswell Landfill

Facility ID (as issued by DEP): 100008

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: CWMP017S Well Spring Stream Other
 Upgradient/Upstream Downgradient/Downstream

Location (County): Lancaster County

Municipality: Manor Township

Sampling Point: Latitude: 39 ° 57 ' 20.41 " Longitude: 76 ° 26 ' 45.1 "

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

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

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

Total Well Depth: _____ 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): 1/18/2023 Sample Collection Time: 11:30

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): 3283581003 Final Lab Analysis CompletionDate: 1/26/2023

Name/Affiliation of Person who Filled Out Form: Daniel A. Brown

Comments: _____

I.D. No 100008

Monitoring Point No. CWMP017S

Sample Date 1/18/2023

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	EPA 350.3
BICARBONATE	534	SM18-2321
CALCIUM, TOTAL	92.1	SW846 6010B
CALCIUM, DISSOLVED		SW 8466010B
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	822	EPA 300.0
FLUORIDE	0.5 ND	EPA 300.0
IRON, TOTAL (ug/l)	600	SW846 6010B
IRON, DISSOLVED (ug/l)		SW846 6010B
MAGNESIUM, TOTAL	120	SW846 6010B
MAGNESIUM, DISSOLVED		SW846 6010B
MANGANESE, TOTAL (ug/l)	74	SW846 6010B
MANGANESE, DISSOLVED (ug/l)		SW846 6010B
NITRATE-NITROGEN	29.7	EPA 300.0
pH-FIELD (SU)	7.79	FIELD
pH-LAB (SU)	8.49	EPA 150.1
POTASSIUM, TOTAL	23.1	SW846 6010B
POTASSIUM, DISSOLVED		SW846 6010B
SODIUM, TOTAL	498	SW846 6010B
SODIUM, DISSOLVED		SW846 6010B
SPEC. COND., FIELD (umhos/cm)	3645	FIELD
SPEC. COND., LAB (umhos/cm)	818	EPA 120.1
SULFATE	22.8	EPA 300.0
ALKALINITY	534	SM18-2320B
TDS (TOTAL DISSOLVED SOLIDS)	2030	SM18-2540C
TOC (TOTAL ORGANIC CARBON)	4.5	SM18-5310B
TOTAL PHENOLICS (ug/l)	4 ND	SW846 9066
TURBIDITY (N.T.U.)	1.6	SM 2130B

* Indicator Analyte - For comparison with detection zone analytes.

T Please indicate detection limit if analyte is not detected.

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

I.D. No 100008

Monitoring Point No. CWMP017S

Sample Date 1/18/2023

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 (EDB) (ETHYLENE D	1 ND	SW846 8260B
1,1-DICHLOROETHANE	1 ND	SW846 8260B
1,1-DICHLOROETHENE	1 ND	SW846 8260B
1,2-DICHLOROETHANE	1 ND	SW846 8260B
cis 1,2-DICHLOROETHENE	1 ND	SW846 8260B
trans 1,2-DICHLOROETHENE	1 ND	SW846 8260B
ETHYLBENZENE	1 ND	SW846 8260B
METHYLENE CHLORIDE	1 ND	SW846 8260B
TETRACHLOROETHENE	1 ND	SW846 8260B
TOLUENE	1 ND	SW846 8260B
1,1,1-TRICHLOROETHANE	1 ND	SW846 8260B
TRICHLOROETHENE	1 ND	SW846 8260B
VINYL CHLORIDE	1 ND	SW846 8260B
XYLENES (TOTAL)	3 ND	SW846 8260B

T Please indicate detection limit if analyte is not detected.



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT

Date Prepared/Revised
02/21/2023

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: Creswell Landfill

Facility ID (as issued by DEP): 100008

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: CWMP010W Well Spring Stream Other
 Upgradient/Upstream Downgradient/Downstream

Location (County): Lancaster County

Municipality: Manor Township

Sampling Point: Latitude: 39 ° 57 ' 2.38 " Longitude: 76 ° 26 ' 57.92 "

Depth to Water Level: 8.65 ft Measured from: Land Surface TOC

Casing Stickup: 2.10 ft Elevation of Water Level: 352.25 ft./MSL

Sampling Depth: 17 ft Volume of Water Column: 7.15 gal

Total Well Depth: 19.6 ft Sampling Method: Pumped Bailed Grab

Well Purged: Yes No Well Volumes Purged: 2.6

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

Spring Flow Rate: gpm

Sample Date (mm/dd/yy): 1/19/2023 Sample Collection Time: 10:18

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): 3283832001 Final Lab Analysis CompletionDate: 1/30/2023

Name/Affiliation of Person who Filled Out Form: Daniel A. Brown

Comments: _____

I.D. No 100008

Monitoring Point No. CWMP010W

Sample Date 1/19/2023

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	EPA 350.3
BICARBONATE	122	SM18-2321
CALCIUM, TOTAL	31.1	SW846 6010B
CALCIUM, DISSOLVED		SW 8466010B
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	150	EPA 300.0
FLUORIDE	0.2 ND	EPA 300.0
IRON, TOTAL (ug/l)	280	SW846 6010B
IRON, DISSOLVED (ug/l)		SW846 6010B
MAGNESIUM, TOTAL	27.6	SW846 6010B
MAGNESIUM, DISSOLVED		SW846 6010B
MANGANESE, TOTAL (ug/l)	150	SW846 6010B
MANGANESE, DISSOLVED (ug/l)		SW846 6010B
NITRATE-NITROGEN	15.5	EPA 300.0
pH-FIELD (SU)	6.52	FIELD
pH-LAB (SU)	7.62	EPA 150.1
POTASSIUM, TOTAL	6.1	SW846 6010B
POTASSIUM, DISSOLVED		SW846 6010B
SODIUM, TOTAL	105	SW846 6010B
SODIUM, DISSOLVED		SW846 6010B
SPEC. COND., FIELD (umhos/cm)	1345	FIELD
SPEC. COND., LAB (umhos/cm)	894	EPA 120.1
SULFATE	21.6	EPA 300.0
ALKALINITY	122	SM18-2320B
TDS (TOTAL DISSOLVED SOLIDS)	448	SM18-2540C
TOC (TOTAL ORGANIC CARBON)	2.6	SM18-5310B
TOTAL PHENOLICS (ug/l)	4 ND	SW846 9066
TURBIDITY (N.T.U.)	5.1	SM 2130B

* Indicator Analyte - For comparison with detection zone analytes.

T Please indicate detection limit if analyte is not detected.

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

I.D. No 100008

Monitoring Point No. CWMP010W

Sample Date 1/19/2023

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 (EDB) (ETHYLENE D	1 ND	SW846 8260B
1,1-DICHLOROETHANE	1 ND	SW846 8260B
1,1-DICHLOROETHENE	1 ND	SW846 8260B
1,2-DICHLOROETHANE	1 ND	SW846 8260B
cis 1,2-DICHLOROETHENE	1 ND	SW846 8260B
trans 1,2-DICHLOROETHENE	1 ND	SW846 8260B
ETHYLBENZENE	1 ND	SW846 8260B
METHYLENE CHLORIDE	1 ND	SW846 8260B
TETRACHLOROETHENE	1 ND	SW846 8260B
TOLUENE	1 ND	SW846 8260B
1,1,1-TRICHLOROETHANE	1 ND	SW846 8260B
TRICHLOROETHENE	1 ND	SW846 8260B
VINYL CHLORIDE	1 ND	SW846 8260B
XYLENES (TOTAL)	3 ND	SW846 8260B

T Please indicate detection limit if analyte is not detected.



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT

Date Prepared/Revised
02/21/2023

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: Creswell Landfill

Facility ID (as issued by DEP): 100008

SECTION B. FACILITY INFORMATION

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

Monitoring Point Number: CWMP009W Well Spring Stream Other
 Upgradient/Upstream Downgradient/Downstream

Location (County): Lancaster County

Municipality: Manor Township

Sampling Point: Latitude: 39 ° 57 ' 10.82 " Longitude: 76 ° 26 ' 55.8 "

Depth to Water Level: 9.08 ft Measured from: Land Surface TOC

Casing Stickup: 2.70 ft Elevation of Water Level: 395.12 ft./MSL

Sampling Depth: 16 ft Volume of Water Column: 6.93 gal

Total Well Depth: 19.7 ft Sampling Method: Pumped Bailed Grab

Well Purged: Yes No Well Volumes Purged: 4.5

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

Spring Flow Rate: gpm

Sample Date (mm/dd/yy): 1/19/2023 Sample Collection Time: 11:54

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 3283832002 Final Lab Analysis Completion Date: 1/30/2023

Name/Affiliation of Person who Filled Out Form: Daniel A. Brown

Comments: _____

I.D. No 100008

Monitoring Point No. CWMP009W

Sample Date 1/19/2023

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	33	EPA 350.3
BICARBONATE	529	SM18-2321
CALCIUM, TOTAL	179	SW846 6010B
CALCIUM, DISSOLVED		SW 8466010B
COD (CHEMICAL OXYGEN DEMAND)	106	EPA 410.4
CHLORIDE	626	EPA 300.0
FLUORIDE	0.5 ND	EPA 300.0
IRON, TOTAL (ug/l)	38200	SW846 6010B
IRON, DISSOLVED (ug/l)		SW846 6010B
MAGNESIUM, TOTAL	87.2	SW846 6010B
MAGNESIUM, DISSOLVED		SW846 6010B
MANGANESE, TOTAL (ug/l)	13000	SW846 6010B
MANGANESE, DISSOLVED (ug/l)		SW846 6010B
NITRATE-NITROGEN	2.5 ND	EPA 300.0
pH-FIELD (SU)	6.03	FIELD
pH-LAB (SU)	6.71	EPA 150.1
POTASSIUM, TOTAL	35.6	SW846 6010B
POTASSIUM, DISSOLVED		SW846 6010B
SODIUM, TOTAL	203	SW846 6010B
SODIUM, DISSOLVED		SW846 6010B
SPEC. COND., FIELD (umhos/cm)	4076	FIELD
SPEC. COND., LAB (umhos/cm)	3180	EPA 120.1
SULFATE	6.1	EPA 300.0
ALKALINITY	529	SM18-2320B
TDS (TOTAL DISSOLVED SOLIDS)	1570	SM18-2540C
TOC (TOTAL ORGANIC CARBON)	37	SM18-5310B
TOTAL PHENOLICS (ug/l)	4 ND	SW846 9066
TURBIDITY (N.T.U.)	30	SM 2130B

* Indicator Analyte - For comparison with detection zone analytes.

T Please indicate detection limit if analyte is not detected.

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

I.D. No 100008

Monitoring Point No. CWMP009W

Sample Date 1/19/2023

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

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
BENZENE	2.3	SW846 8260B
1,2-DIBROMOETHANE (EDB) (ETHYLENE D	1 ND	SW846 8260B
1,1-DICHLOROETHANE	1.2	SW846 8260B
1,1-DICHLOROETHENE	1 ND	SW846 8260B
1,2-DICHLOROETHANE	1 ND	SW846 8260B
cis 1,2-DICHLOROETHENE	1 ND	SW846 8260B
trans 1,2-DICHLOROETHENE	1 ND	SW846 8260B
ETHYLBENZENE	1 ND	SW846 8260B
METHYLENE CHLORIDE	1 ND	SW846 8260B
TETRACHLOROETHENE	1 ND	SW846 8260B
TOLUENE	1 ND	SW846 8260B
1,1,1-TRICHLOROETHANE	1 ND	SW846 8260B
TRICHLOROETHENE	1 ND	SW846 8260B
VINYL CHLORIDE	1 ND	SW846 8260B
XYLENES (TOTAL)	3 ND	SW846 8260B

T Please indicate detection limit if analyte is not detected.



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT

Date Prepared/Revised
02/21/2023

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: Creswell Landfill

Facility ID (as issued by DEP): 100008

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: CWMP008W Well Spring Stream Other
 Upgradient/Upstream Downgradient/Downstream

Location (County): Lancaster County

Municipality: Manor Township

Sampling Point: Latitude: 39 ° 57 ' 16.97 " Longitude: 76 ° 26 ' 47.58 "

Depth to Water Level: 2.66 ft Measured from: Land Surface TOC

Casing Stickup: 2.80 ft Elevation of Water Level: 419.64 ft./MSL

Sampling Depth: 19 ft Volume of Water Column: 3.29 gal

Total Well Depth: 22.8 ft Sampling Method: Pumped Bailed Grab

Well Purged: Yes No Well Volumes Purged: 5.7

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

Spring Flow Rate: gpm

Sample Date (mm/dd/yy): 1/19/2023 Sample Collection Time: 12:36

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): 3283832003 Final Lab Analysis CompletionDate: 1/30/2023

Name/Affiliation of Person who Filled Out Form: Daniel A. Brown

Comments: _____

I.D. No 100008

Monitoring Point No. CWMP008W

Sample Date 1/19/2023

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	6.47	EPA 350.3
BICARBONATE	319	SM18-2321
CALCIUM, TOTAL	62.4	SW846 6010B
CALCIUM, DISSOLVED		SW 8466010B
COD (CHEMICAL OXYGEN DEMAND)	17	EPA 410.4
CHLORIDE	26.5	EPA 300.0
FLUORIDE	0.2 ND	EPA 300.0
IRON, TOTAL (ug/l)	23300	SW846 6010B
IRON, DISSOLVED (ug/l)		SW846 6010B
MAGNESIUM, TOTAL	28.2	SW846 6010B
MAGNESIUM, DISSOLVED		SW846 6010B
MANGANESE, TOTAL (ug/l)	14800	SW846 6010B
MANGANESE, DISSOLVED (ug/l)		SW846 6010B
NITRATE-NITROGEN	1 ND	EPA 300.0
pH-FIELD (SU)	6.19	FIELD
pH-LAB (SU)	6.88	EPA 150.1
POTASSIUM, TOTAL	7.8	SW846 6010B
POTASSIUM, DISSOLVED		SW846 6010B
SODIUM, TOTAL	32.6	SW846 6010B
SODIUM, DISSOLVED		SW846 6010B
SPEC. COND., FIELD (umhos/cm)	1034	FIELD
SPEC. COND., LAB (umhos/cm)	710	EPA 120.1
SULFATE	6.2	EPA 300.0
ALKALINITY	319	SM18-2320B
TDS (TOTAL DISSOLVED SOLIDS)	402	SM18-2540C
TOC (TOTAL ORGANIC CARBON)	6.8	SM18-5310B
TOTAL PHENOLICS (ug/l)	4 ND	SW846 9066
TURBIDITY (N.T.U.)	5.9	SM 2130B

* Indicator Analyte - For comparison with detection zone analytes.

T Please indicate detection limit if analyte is not detected.

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

I.D. No 100008

Monitoring Point No. CWMP008W

Sample Date 1/19/2023

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

ANALYTE	VALUE^T	ANALYSIS METHOD NUMBER
BENZENE	1.1	SW846 8260B
1,2-DIBROMOETHANE (EDB) (ETHYLENE D	1 ND	SW846 8260B
1,1-DICHLOROETHANE	2	SW846 8260B
1,1-DICHLOROETHENE	1 ND	SW846 8260B
1,2-DICHLOROETHANE	1 ND	SW846 8260B
cis 1,2-DICHLOROETHENE	1 ND	SW846 8260B
trans 1,2-DICHLOROETHENE	1 ND	SW846 8260B
ETHYLBENZENE	1 ND	SW846 8260B
METHYLENE CHLORIDE	1 ND	SW846 8260B
TETRACHLOROETHENE	1 ND	SW846 8260B
TOLUENE	1 ND	SW846 8260B
1,1,1-TRICHLOROETHANE	1 ND	SW846 8260B
TRICHLOROETHENE	1 ND	SW846 8260B
VINYL CHLORIDE	1 ND	SW846 8260B
XYLENES (TOTAL)	3 ND	SW846 8260B

T Please indicate detection limit if analyte is not detected.



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT

Date Prepared/Revised
02/21/2023

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: Creswell Landfill

Facility ID (as issued by DEP): 100008

SECTION B. FACILITY INFORMATION

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

Monitoring Point Number: CWMP012W Well Spring Stream Other
 Upgradient/Upstream Downgradient/Downstream

Location (County): Lancaster County Municipality: Manor Township

Sampling Point: Latitude: 39 ° 57 ' 1.48 " Longitude: 76 ° 26 ' 36.02 "

Depth to Water Level: 63.84 ft Measured from: Land Surface TOC

Casing Stickup: 1.90 ft Elevation of Water Level: 318.86 ft./MSL

Sampling Depth: 63.84 ft Volume of Water Column: 55.90 gal

Total Well Depth: 101.9 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): 1/20/2023 Sample Collection Time: 10:00

Sample Collector's Name: Mr. Brian G Shade

Sample Collector's Affiliation: ALS

Laboratory(ies) Performing Analysis: ALS Environmental

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

Lab Accreditation Number(s): 22-293

Lab Sample Number(s): 3284023001 Final Lab Analysis Completion Date: 2/1/2023

Name/Affiliation of Person who Filled Out Form: Daniel A. Brown

Comments: _____

I.D. No 100008

Monitoring Point No. CWMP012W

Sample Date 1/20/2023

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	0.322	EPA 350.3
BICARBONATE	71	SM18-2321
CALCIUM, TOTAL	37.3	SW846 6010B
CALCIUM, DISSOLVED		SW 8466010B
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	31.9	EPA 300.0
FLUORIDE	0.2 ND	EPA 300.0
IRON, TOTAL (ug/l)	123000	SW846 6010B
IRON, DISSOLVED (ug/l)		SW846 6010B
MAGNESIUM, TOTAL	9.4	SW846 6010B
MAGNESIUM, DISSOLVED		SW846 6010B
MANGANESE, TOTAL (ug/l)	650	SW846 6010B
MANGANESE, DISSOLVED (ug/l)		SW846 6010B
NITRATE-NITROGEN	7.4	EPA 300.0
pH-FIELD (SU)	5.83	FIELD
pH-LAB (SU)	6.99	EPA 150.1
POTASSIUM, TOTAL	1.5	SW846 6010B
POTASSIUM, DISSOLVED		SW846 6010B
SODIUM, TOTAL	14.7	SW846 6010B
SODIUM, DISSOLVED		SW846 6010B
SPEC. COND., FIELD (umhos/cm)	469	FIELD
SPEC. COND., LAB (umhos/cm)	324	EPA 120.1
SULFATE	5	EPA 300.0
ALKALINITY	71	SM18-2320B
TDS (TOTAL DISSOLVED SOLIDS)	216	SM18-2540C
TOC (TOTAL ORGANIC CARBON)	3.1	SM18-5310B
TOTAL PHENOLICS (ug/l)	4 ND	SW846 9066
TURBIDITY (N.T.U.)	280	SM 2130B

* Indicator Analyte - For comparison with detection zone analytes.

T Please indicate detection limit if analyte is not detected.

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

I.D. No 100008

Monitoring Point No. CWMP012W

Sample Date 1/20/2023

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 (EDB) (ETHYLENE D	1 ND	SW846 8260B
1,1-DICHLOROETHANE	1 ND	SW846 8260B
1,1-DICHLOROETHENE	1 ND	SW846 8260B
1,2-DICHLOROETHANE	1 ND	SW846 8260B
cis 1,2-DICHLOROETHENE	1 ND	SW846 8260B
trans 1,2-DICHLOROETHENE	1 ND	SW846 8260B
ETHYLBENZENE	1 ND	SW846 8260B
METHYLENE CHLORIDE	1 ND	SW846 8260B
TETRACHLOROETHENE	1 ND	SW846 8260B
TOLUENE	1 ND	SW846 8260B
1,1,1-TRICHLOROETHANE	1 ND	SW846 8260B
TRICHLOROETHENE	1 ND	SW846 8260B
VINYL CHLORIDE	1 ND	SW846 8260B
XYLENES (TOTAL)	3 ND	SW846 8260B

T Please indicate detection limit if analyte is not detected.



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT

Date Prepared/Revised
02/21/2023

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: Creswell Landfill

Facility ID (as issued by DEP): 100008

SECTION B. FACILITY INFORMATION

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

Monitoring Point Number: CWMP002W Well Spring Stream Other
 Upgradient/Upstream Downgradient/Downstream

Location (County): Lancaster County Municipality: Manor Township

Sampling Point: Latitude: 39 ° 57 ' 19.97 " Longitude: 76 ° 26 ' 12.3 "

Depth to Water Level: 90.13 ft Measured from: Land Surface TOC

Casing Stickup: -1.19 ft Elevation of Water Level: 435.68 ft./MSL

Sampling Depth: 85 ft Volume of Water Column: 14.50 gal

Total Well Depth: 100 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): 1/20/2023 Sample Collection Time: 10:47

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): 3284023002 Final Lab Analysis Completion Date: 2/1/2023

Name/Affiliation of Person who Filled Out Form: Daniel A. Brown

Comments: _____

I.D. No 100008

Monitoring Point No. CWMP002W

Sample Date 1/20/2023

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	0.153	EPA 350.3
BICARBONATE	56	SM18-2321
CALCIUM, TOTAL	36.7	SW846 6010B
CALCIUM, DISSOLVED		SW 8466010B
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	63.7	EPA 300.0
FLUORIDE	0.2 ND	EPA 300.0
IRON, TOTAL (ug/l)	67 ND	SW846 6010B
IRON, DISSOLVED (ug/l)		SW846 6010B
MAGNESIUM, TOTAL	12.7	SW846 6010B
MAGNESIUM, DISSOLVED		SW846 6010B
MANGANESE, TOTAL (ug/l)	160	SW846 6010B
MANGANESE, DISSOLVED (ug/l)		SW846 6010B
NITRATE-NITROGEN	6.3	EPA 300.0
pH-FIELD (SU)	5.85	FIELD
pH-LAB (SU)	6.64	EPA 150.1
POTASSIUM, TOTAL	2.3	SW846 6010B
POTASSIUM, DISSOLVED		SW846 6010B
SODIUM, TOTAL	21.7	SW846 6010B
SODIUM, DISSOLVED		SW846 6010B
SPEC. COND., FIELD (umhos/cm)	553	FIELD
SPEC. COND., LAB (umhos/cm)	423	EPA 120.1
SULFATE	13.9	EPA 300.0
ALKALINITY	56	SM18-2320B
TDS (TOTAL DISSOLVED SOLIDS)	270	SM18-2540C
TOC (TOTAL ORGANIC CARBON)	0.95	SM18-5310B
TOTAL PHENOLICS (ug/l)	4 ND	SW846 9066
TURBIDITY (N.T.U.)	0.8	SM 2130B

* Indicator Analyte - For comparison with detection zone analytes.

T Please indicate detection limit if analyte is not detected.

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

Remaining quarterly samples only require total metals analysis.

I.D. No 100008

Monitoring Point No. CWMP002W

Sample Date 1/20/2023

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 (EDB) (ETHYLENE D	1 ND	SW846 8260B
1,1-DICHLOROETHANE	2.3	SW846 8260B
1,1-DICHLOROETHENE	1 ND	SW846 8260B
1,2-DICHLOROETHANE	1 ND	SW846 8260B
cis 1,2-DICHLOROETHENE	1 ND	SW846 8260B
trans 1,2-DICHLOROETHENE	1 ND	SW846 8260B
ETHYLBENZENE	1 ND	SW846 8260B
METHYLENE CHLORIDE	1 ND	SW846 8260B
TETRACHLOROETHENE	1 ND	SW846 8260B
TOLUENE	1 ND	SW846 8260B
1,1,1-TRICHLOROETHANE	1 ND	SW846 8260B
TRICHLOROETHENE	1 ND	SW846 8260B
VINYL CHLORIDE	1 ND	SW846 8260B
XYLENES (TOTAL)	3 ND	SW846 8260B

T Please indicate detection limit if analyte is not detected.



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT

Date Prepared/Revised
02/21/2023

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: Creswell Landfill

Facility ID (as issued by DEP): 100008

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: CWMP003W Well Spring Stream Other
 Upgradient/Upstream Downgradient/Downstream

Location (County): Lancaster County

Municipality: Manor Township

Sampling Point: Latitude: 39 ° 57 ' 20.17 " Longitude: 76 ° 26 ' 8.37 "

Depth to Water Level: 100.23 ft Measured from: Land Surface TOC

Casing Stickup: -1.29 ft Elevation of Water Level: 423.98 ft./MSL

Sampling Depth: 100 ft Volume of Water Column: -37.05 gal

Total Well Depth: 75 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): 1/20/2023 Sample Collection Time: 11:05

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): 3284023003 Final Lab Analysis CompletionDate: 2/1/2023

Name/Affiliation of Person who Filled Out Form: Daniel A. Brown

Comments: _____

I.D. No 100008

Monitoring Point No. CWMP003W

Sample Date 1/20/2023

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	0.156	EPA 350.3
BICARBONATE	25	SM18-2321
CALCIUM, TOTAL	23.7	SW846 6010B
CALCIUM, DISSOLVED		SW 8466010B
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	59.1	EPA 300.0
FLUORIDE	0.2 ND	EPA 300.0
IRON, TOTAL (ug/l)	67 ND	SW846 6010B
IRON, DISSOLVED (ug/l)		SW846 6010B
MAGNESIUM, TOTAL	8.9	SW846 6010B
MAGNESIUM, DISSOLVED		SW846 6010B
MANGANESE, TOTAL (ug/l)	6.7	SW846 6010B
MANGANESE, DISSOLVED (ug/l)		SW846 6010B
NITRATE-NITROGEN	5.6	EPA 300.0
pH-FIELD (SU)	5.73	FIELD
pH-LAB (SU)	6.39	EPA 150.1
POTASSIUM, TOTAL	2	SW846 6010B
POTASSIUM, DISSOLVED		SW846 6010B
SODIUM, TOTAL	19.5	SW846 6010B
SODIUM, DISSOLVED		SW846 6010B
SPEC. COND., FIELD (umhos/cm)	355	FIELD
SPEC. COND., LAB (umhos/cm)	319	EPA 120.1
SULFATE	4.5	EPA 300.0
ALKALINITY	25	SM18-2320B
TDS (TOTAL DISSOLVED SOLIDS)	232	SM18-2540C
TOC (TOTAL ORGANIC CARBON)	2.6	SM18-5310B
TOTAL PHENOLICS (ug/l)	4 ND	SW846 9066
TURBIDITY (N.T.U.)	1.4	SM 2130B

* Indicator Analyte - For comparison with detection zone analytes.

T Please indicate detection limit if analyte is not detected.

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

Remaining quarterly samples only require total metals analysis.

I.D. No 100008

Monitoring Point No. CWMP003W

Sample Date 1/20/2023

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 (EDB) (ETHYLENE D	1 ND	SW846 8260B
1,1-DICHLOROETHANE	1.9	SW846 8260B
1,1-DICHLOROETHENE	1 ND	SW846 8260B
1,2-DICHLOROETHANE	1 ND	SW846 8260B
cis 1,2-DICHLOROETHENE	1 ND	SW846 8260B
trans 1,2-DICHLOROETHENE	1 ND	SW846 8260B
ETHYLBENZENE	1 ND	SW846 8260B
METHYLENE CHLORIDE	1 ND	SW846 8260B
TETRACHLOROETHENE	1 ND	SW846 8260B
TOLUENE	1 ND	SW846 8260B
1,1,1-TRICHLOROETHANE	1 ND	SW846 8260B
TRICHLOROETHENE	1 ND	SW846 8260B
VINYL CHLORIDE	1 ND	SW846 8260B
XYLENES (TOTAL)	3 ND	SW846 8260B

T Please indicate detection limit if analyte is not detected.



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF WASTE MANAGEMENT

Date Prepared/Revised
02/21/2023

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: Creswell Landfill

Facility ID (as issued by DEP): 100008

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: CWMP004W Well Spring Stream Other
 Upgradient/Upstream Downgradient/Downstream

Location (County): Lancaster County

Municipality: Manor Township

Sampling Point: Latitude: 39 ° 57 ' 17.9 " Longitude: 76 ° 26 ' 7.05 "

Depth to Water Level: 101.46 ft Measured from: Land Surface TOC

Casing Stickup: -1.37 ft Elevation of Water Level: 428.07 ft./MSL

Sampling Depth: 130 ft Volume of Water Column: 56.60 gal

Total Well Depth: 140 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): 1/20/2023 Sample Collection Time: 11:21

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): 3284023004 Final Lab Analysis CompletionDate: 2/1/2023

Name/Affiliation of Person who Filled Out Form: Daniel A. Brown

Comments: _____

I.D. No 100008

Monitoring Point No. CWMP004W

Sample Date 1/20/2023

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	0.296	EPA 350.3
BICARBONATE	26	SM18-2321
CALCIUM, TOTAL	21.9	SW846 6010B
CALCIUM, DISSOLVED		SW 8466010B
COD (CHEMICAL OXYGEN DEMAND)	15 ND	EPA 410.4
CHLORIDE	47.8	EPA 300.0
FLUORIDE	0.2 ND	EPA 300.0
IRON, TOTAL (ug/l)	67 ND	SW846 6010B
IRON, DISSOLVED (ug/l)		SW846 6010B
MAGNESIUM, TOTAL	7.6	SW846 6010B
MAGNESIUM, DISSOLVED		SW846 6010B
MANGANESE, TOTAL (ug/l)	9.8	SW846 6010B
MANGANESE, DISSOLVED (ug/l)		SW846 6010B
NITRATE-NITROGEN	5.6	EPA 300.0
pH-FIELD (SU)	5.74	FIELD
pH-LAB (SU)	6.38	EPA 150.1
POTASSIUM, TOTAL	1.5	SW846 6010B
POTASSIUM, DISSOLVED		SW846 6010B
SODIUM, TOTAL	16.9	SW846 6010B
SODIUM, DISSOLVED		SW846 6010B
SPEC. COND., FIELD (umhos/cm)	392	FIELD
SPEC. COND., LAB (umhos/cm)	283	EPA 120.1
SULFATE	6	EPA 300.0
ALKALINITY	26	SM18-2320B
TDS (TOTAL DISSOLVED SOLIDS)	206	SM18-2540C
TOC (TOTAL ORGANIC CARBON)	0.56	SM18-5310B
TOTAL PHENOLICS (ug/l)	4 ND	SW846 9066
TURBIDITY (N.T.U.)	0.3 ND	SM 2130B

* Indicator Analyte - For comparison with detection zone analytes.

T Please indicate detection limit if analyte is not detected.

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

I.D. No 100008

Monitoring Point No. CWMP004W

Sample Date 1/20/2023

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 (EDB) (ETHYLENE D	1 ND	SW846 8260B
1,1-DICHLOROETHANE	1	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.



301 Fulling Mill Road | Middletown, PA 17057 | Phone: 717-944-5541 | Fax: 717-944-1430 | www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: PJLA 74618
State Certifications: FL E871113 , WA C999 , MD 128 , VA 460157 , WV DW 9961-C , WV 343

Analytical Results Report For

Lancaster County Solid Waste Authority

Project 1st QTR 2023 GWMP-FORM 19Q

Workorder 3283194

Report ID 221351 on 1/27/2023

Certificate of Analysis

Enclosed are the analytical results for samples received by the laboratory on Jan 16, 2023.

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 Susan 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 Global.
ALS Middletown: 301 Fulling Mill Road, Middletown, PA 17057 : 717-944-5541.

Recipient(s):

Ashley Gichuki - Lancaster County Solid Waste Authority
Daniel Brown - Lancaster County Solid Waste Authority
Jordan Gallagher - Lancaster County Solid Waste Authority
Jeff Musser - Lancaster County Solid Waste Authority

Susan Scherer

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

Susan Scherer
Project Coordinator

(ALS Digital Signature)



Sample Summary

<u>Lab ID</u>	<u>Sample ID</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>Date Received</u>	<u>Collector</u>	<u>Collection Company</u>
3283194001	CWMP007W	Ground Water	01/16/2023 11:12	01/16/2023 15:36	BGS	Analytical Laboratory Service
3283194002	CWMP001W	Ground Water	01/16/2023 12:31	01/16/2023 15:36	BGS	Analytical Laboratory Service
3283194003	CWMP005W	Ground Water	01/16/2023 14:21	01/16/2023 15:36	BGS	Analytical Laboratory Service



Reference

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).
- Except as qualified, Clean Water Act sample analyses are consistent with methodology requirements in 40 CFR Part 136.
- Except as qualified, Safe Drinking Water Act sample analyses are consistent with methodology requirements in 40 CFR Part 141.
- 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.
- An Analysis-Prep Method Cross Reference Table is included after Analytical Results & Qualifiers section in this report.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.

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) above the MDL
N	Indicates presumptive evidence of the presence of a compound
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
RDL	Practical Quantitation Limit for this Project
ND	Not Detected - indicates that the analyte was Not Detected
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
#	Please reference the result in the Results Section for analyte-level flags.



Project Notations

Sample Notations

Lab ID **Sample ID**

Result Notations

Notation Ref.

1	The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L.
2	Method ASTMD6919-09 is equivalent to Method ASTMD6919-17.
3	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.



Detected Results Summary

Client Sample ID	CWMP007W	Collected	01/16/2023 11:12
Lab Sample ID	3283194001	Lab Receipt	01/16/2023 15:36

Compound	Result	Units	RDL	Method	Flag
FIELD PARAMETERS					
Depth to Water Level	5.35	Feet		Field	#
Dissolved Oxygen	5.16	mg/L	0.01	Field	#
Elev Top MW Casing above MSL	453.40	Feet		Field	#
Flow Rate	1.75	gal/min		Field	#
Ground Water Elevation	448.05	ft/MSL		Field	#
Oxidation-Reduction Potential	320	mV		Field	#
pH, Field (SM4500B)	5.29	pH_Units		Field	#
Sample Depth	33.00	Feet		Field	#
Specific Conductance, Field	546	umhos/cm	1	Field	#
Temperature	13.27	Deg. C		Field	#
Total Well Depth	36.50	Feet		Field	#
Volume in Water Column	45.79	Gallons		Field	#
Water Level After Purge	6.72	Feet		Field	#
Well Volumes Purged	2.29	Vol		Field	#
METALS					
Calcium, Total	19.6	mg/L	0.11	SW846 6010C	#
Magnesium, Total	10.5	mg/L	0.11	SW846 6010C	#
Manganese, Total	0.0072	mg/L	0.0056	SW846 6010C	#
Potassium, Total	2.2	mg/L	0.56	SW846 6010C	#
Sodium, Total	34.0	mg/L	0.56	SW846 6010C	#
WET CHEMISTRY					
Alkalinity, Bicarbonate	10	mg/L	5	SM2320B-2011	#
Alkalinity, Total	10	mg/L	5	SM2320B-2011	#
Chloride	75.0	mg/L	2.0	EPA 300.0	#
Nitrate-N	9.9	mg/L	1.0	EPA 300.0	#
pH	6.59	pH_Units		S4500HB-11	#
Specific Conductance	406	umhos/cm	5	SM2510B-2011	#
Sulfate	16.4	mg/L	2.0	EPA 300.0	#
Total Dissolved Solids	254	mg/L	25	S2540C-11	#



Detected Results Summary

Client Sample ID	CWMP001W	Collected	01/16/2023 12:31
Lab Sample ID	3283194002	Lab Receipt	01/16/2023 15:36

Compound	Result	Units	RDL	Method	Flag
FIELD PARAMETERS					
Depth to Water Level	29.54	Feet		Field	#
Dissolved Oxygen	8.72	mg/L	0.01	Field	#
Elev Top MW Casing above MSL	515.13	Feet		Field	#
Flow Rate	1.90	gal/min		Field	#
Ground Water Elevation	485.59	ft/MSL		Field	#
Oxidation-Reduction Potential	334	mV		Field	#
pH, Field (SM4500B)	5.21	pH_Units		Field	#
Sample Depth	57.00	Feet		Field	#
Specific Conductance, Field	355	umhos/cm	1	Field	#
Temperature	13.54	Deg. C		Field	#
Total Well Depth	66.30	Feet		Field	#
Turbidity, Field	27	NTU	1	Field	#
Volume in Water Column	54.04	Gallons		Field	#
Water Level After Purge	52.16	Feet		Field	#
Well Volumes Purged	2.11	Vol		Field	#
METALS					
Calcium, Total	14.8	mg/L	0.11	SW846 6010C	#
Iron, Total	0.17	mg/L	0.067	SW846 6010C	#
Magnesium, Total	10.6	mg/L	0.11	SW846 6010C	#
Manganese, Total	0.053	mg/L	0.0056	SW846 6010C	#
Potassium, Total	2.3	mg/L	0.56	SW846 6010C	#
Sodium, Total	13.0	mg/L	0.56	SW846 6010C	#
WET CHEMISTRY					
Chloride	26.4	mg/L	2.0	EPA 300.0	#
Nitrate-N	17.8	mg/L	1.0	EPA 300.0	#
pH	6.31	pH_Units		S4500HB-11	#
Specific Conductance	266	umhos/cm	5	SM2510B-2011	#
Sulfate	2.7	mg/L	2.0	EPA 300.0	#
Total Dissolved Solids	188	mg/L	25	S2540C-11	#
Turbidity	28	NTU	0.30	SM2130B-2011	#



Detected Results Summary

Client Sample ID	CWMP005W	Collected	01/16/2023 14:21
Lab Sample ID	3283194003	Lab Receipt	01/16/2023 15:36

Compound	Result	Units	RDL	Method	Flag
FIELD PARAMETERS					
Depth to Water Level	44.02	Feet		Field	#
Dissolved Oxygen	6.44	mg/L	0.01	Field	#
Elev Top MW Casing above MSL	513.43	Feet		Field	#
Flow Rate	2.32	gal/min		Field	#
Ground Water Elevation	469.41	ft/MSL		Field	#
Oxidation-Reduction Potential	309	mV		Field	#
pH, Field (SM4500B)	5.36	pH_Units		Field	#
Sample Depth	130.00	Feet		Field	#
Specific Conductance, Field	466	umhos/cm	1	Field	#
Temperature	13.00	Deg. C		Field	#
Total Well Depth	138.92	Feet		Field	#
Volume in Water Column	139.50	Gallons		Field	#
Water Level After Purge	45.57	Feet		Field	#
Well Volumes Purged	1.17	Vol		Field	#
METALS					
Calcium, Total	14.8	mg/L	0.11	SW846 6010C	#
Magnesium, Total	8.0	mg/L	0.11	SW846 6010C	#
Manganese, Total	0.046	mg/L	0.0056	SW846 6010C	#
Potassium, Total	2.1	mg/L	0.56	SW846 6010C	#
Sodium, Total	31.5	mg/L	0.56	SW846 6010C	#
WET CHEMISTRY					
Alkalinity, Bicarbonate	15	mg/L	5	SM2320B-2011	#
Alkalinity, Total	15	mg/L	5	SM2320B-2011	#
Chloride	64.9	mg/L	2.0	EPA 300.0	#
Nitrate-N	7.3	mg/L	1.0	EPA 300.0	#
pH	6.65	pH_Units		S4500HB-11	#
Specific Conductance	340	umhos/cm	5	SM2510B-2011	#
Sulfate	4.7	mg/L	2.0	EPA 300.0	#
Total Dissolved Solids	220	mg/L	25	S2540C-11	#
Turbidity	0.60	NTU	0.30	SM2130B-2011	#



Results

Client Sample ID	CWMP007W	Collected	01/16/2023 11:12
Lab Sample ID	3283194001	Lab Receipt	01/16/2023 15:36

FIELD PARAMETERS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Depth to Water Level	5.35		Feet		Field	1	01/16/2023 11:12	BGS	F
Dissolved Oxygen	5.16		mg/L	0.01	Field	1	01/16/2023 11:12	BGS	F
Elev Top MW Casing above MSL	453.40		Feet		Field	1	01/16/2023 11:12	BGS	F
Flow Rate	1.75		gal/min		Field	1	01/16/2023 11:12	BGS	F
Ground Water Elevation	448.05		ft/MSL		Field	1	01/16/2023 11:12	BGS	F
Oxidation-Reduction Potential	320		mV		Field	1	01/16/2023 11:12	BGS	F
pH, Field (SM4500B)	5.29		pH_Units		Field	1	01/16/2023 11:12	BGS	F
Sample Depth	33.00		Feet		Field	1	01/16/2023 11:12	BGS	F
Specific Conductance, Field	546		umhos/cm	1	Field	1	01/16/2023 11:12	BGS	F
Temperature	13.27		Deg. C		Field	1	01/16/2023 11:12	BGS	F
Total Well Depth	36.50		Feet		Field	1	01/16/2023 11:12	BGS	F
Turbidity, Field	ND	ND	NTU	1	Field	1	01/16/2023 11:12	BGS	F
Volume in Water Column	45.79		Gallons		Field	1	01/16/2023 11:12	BGS	F
Water Level After Purge	6.72		Feet		Field	1	01/16/2023 11:12	BGS	F
Well Volumes Purged	2.29		Vol		Field	1	01/16/2023 11:12	BGS	F

METALS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Calcium, Total	19.6		mg/L	0.11	SW846 6010C	1	01/24/2023 09:43	A1S	D1
Iron, Total	ND	ND	mg/L	0.067	SW846 6010C	1	01/24/2023 09:43	A1S	D1
Magnesium, Total	10.5		mg/L	0.11	SW846 6010C	1	01/24/2023 09:43	A1S	D1
Manganese, Total	0.0072		mg/L	0.0056	SW846 6010C	1	01/24/2023 09:43	A1S	D1
Potassium, Total	2.2		mg/L	0.56	SW846 6010C	1	01/24/2023 09:43	A1S	D1
Sodium, Total	34.0		mg/L	0.56	SW846 6010C	1	01/24/2023 09:43	A1S	D1

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1-Trichloroethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/19/2023 01:20	PDK	J
1,1-Dichloroethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/19/2023 01:20	PDK	J
1,1-Dichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/19/2023 01:20	PDK	J
1,2-Dibromoethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/19/2023 01:20	PDK	J
1,2-Dichloroethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/19/2023 01:20	PDK	J
Benzene	ND	ND	ug/L	1.0	SW846 8260B	1	01/19/2023 01:20	PDK	J
cis-1,2-Dichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/19/2023 01:20	PDK	J
Ethylbenzene	ND	ND	ug/L	1.0	SW846 8260B	1	01/19/2023 01:20	PDK	J
Methylene Chloride	ND	ND	ug/L	1.0	SW846 8260B	1	01/19/2023 01:20	PDK	J
Tetrachloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/19/2023 01:20	PDK	J
Toluene	ND	ND	ug/L	1.0	SW846 8260B	1	01/19/2023 01:20	PDK	J
Total Xylenes	ND	ND	ug/L	3.0	SW846 8260B	1	01/19/2023 01:20	PDK	J
trans-1,2-Dichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/19/2023 01:20	PDK	J
Trichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/19/2023 01:20	PDK	J
Vinyl Chloride	ND	ND	ug/L	1.0	SW846 8260B	1	01/19/2023 01:20	PDK	J



Results

Client Sample ID	CWMP007W	Collected	01/16/2023 11:12
Lab Sample ID	3283194001	Lab Receipt	01/16/2023 15:36

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
<i>SURROGATES</i>									
Compound	CAS No			Recovery	Limits(%)		Analysis Date/Time		Qualifiers
1,2-Dichloroethane-d4	17060-07-0			86.9%	62 – 133		01/19/2023 01:20		
4-Bromofluorobenzene	460-00-4			110%	79 – 114		01/19/2023 01:20		
Dibromofluoromethane	1868-53-7			86.8%	78 – 116		01/19/2023 01:20		
Toluene-d8	2037-26-5			97.3%	76 – 127		01/19/2023 01:20		

WET CHEMISTRY

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Alkalinity, Bicarbonate	10		mg/L	5	SM2320B-2011	1	01/18/2023 04:13	NML	A
Alkalinity, Total	10	1	mg/L	5	SM2320B-2011	1	01/18/2023 04:13	NML	A
Ammonia-N	ND	ND,2	mg/L	0.100	ASTM D6919-09	10	01/19/2023 19:27	NML	C
Chemical Oxygen Demand (COD)	ND	ND	mg/L	15	EPA 410.4	1	01/23/2023 14:07	KMS	C
Chloride	75.0		mg/L	2.0	EPA 300.0	2	01/17/2023 13:08	J1W	A
Fluoride	ND	ND	mg/L	0.20	EPA 300.0	2	01/17/2023 13:08	J1W	A
Nitrate-N	9.9		mg/L	1.0	EPA 300.0	2	01/17/2023 13:08	J1W	A
pH	6.59	3	pH_Units		S4500HB-11	1	01/18/2023 04:13	NML	A
Phenolics	ND	ND	mg/L	0.004	SW846 9066	1	01/25/2023 13:33	AKH	I
Specific Conductance	406		umhos/cm	5	SM2510B-2011	1	01/17/2023 08:30	JXL	A
Sulfate	16.4		mg/L	2.0	EPA 300.0	2	01/17/2023 13:08	J1W	A
Total Dissolved Solids	254		mg/L	25	S2540C-11	1	01/18/2023 06:42	SMS	A
Total Organic Carbon (TOC)	ND	ND	mg/L	0.50	SM5310B-2011	1	01/17/2023 22:34	PAG	G
Turbidity	ND	ND	NTU	0.30	SM2130B-2011	1	01/17/2023 00:55	NRB	A



Results

Client Sample ID	CWMP001W	Collected	01/16/2023 12:31
Lab Sample ID	3283194002	Lab Receipt	01/16/2023 15:36

FIELD PARAMETERS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Depth to Water Level	29.54		Feet		Field	1	01/16/2023 12:31	BGS	F
Dissolved Oxygen	8.72		mg/L	0.01	Field	1	01/16/2023 12:31	BGS	F
Elev Top MW Casing above MSL	515.13		Feet		Field	1	01/16/2023 12:31	BGS	F
Flow Rate	1.90		gal/min		Field	1	01/16/2023 12:31	BGS	F
Ground Water Elevation	485.59		ft/MSL		Field	1	01/16/2023 12:31	BGS	F
Oxidation-Reduction Potential	334		mV		Field	1	01/16/2023 12:31	BGS	F
pH, Field (SM4500B)	5.21		pH_Units		Field	1	01/16/2023 12:31	BGS	F
Sample Depth	57.00		Feet		Field	1	01/16/2023 12:31	BGS	F
Specific Conductance, Field	355		umhos/cm	1	Field	1	01/16/2023 12:31	BGS	F
Temperature	13.54		Deg. C		Field	1	01/16/2023 12:31	BGS	F
Total Well Depth	66.30		Feet		Field	1	01/16/2023 12:31	BGS	F
Turbidity, Field	27		NTU	1	Field	1	01/16/2023 12:31	BGS	F
Volume in Water Column	54.04		Gallons		Field	1	01/16/2023 12:31	BGS	F
Water Level After Purge	52.16		Feet		Field	1	01/16/2023 12:31	BGS	F
Well Volumes Purged	2.11		Vol		Field	1	01/16/2023 12:31	BGS	F

METALS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Calcium, Total	14.8		mg/L	0.11	SW846 6010C	1	01/24/2023 09:50	A1S	D1
Iron, Total	0.17		mg/L	0.067	SW846 6010C	1	01/24/2023 09:50	A1S	D1
Magnesium, Total	10.6		mg/L	0.11	SW846 6010C	1	01/24/2023 09:50	A1S	D1
Manganese, Total	0.053		mg/L	0.0056	SW846 6010C	1	01/24/2023 09:50	A1S	D1
Potassium, Total	2.3		mg/L	0.56	SW846 6010C	1	01/24/2023 09:50	A1S	D1
Sodium, Total	13.0		mg/L	0.56	SW846 6010C	1	01/24/2023 09:50	A1S	D1

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1-Trichloroethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/19/2023 01:42	PDK	J
1,1-Dichloroethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/19/2023 01:42	PDK	J
1,1-Dichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/19/2023 01:42	PDK	J
1,2-Dibromoethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/19/2023 01:42	PDK	J
1,2-Dichloroethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/19/2023 01:42	PDK	J
Benzene	ND	ND	ug/L	1.0	SW846 8260B	1	01/19/2023 01:42	PDK	J
cis-1,2-Dichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/19/2023 01:42	PDK	J
Ethylbenzene	ND	ND	ug/L	1.0	SW846 8260B	1	01/19/2023 01:42	PDK	J
Methylene Chloride	ND	ND	ug/L	1.0	SW846 8260B	1	01/19/2023 01:42	PDK	J
Tetrachloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/19/2023 01:42	PDK	J
Toluene	ND	ND	ug/L	1.0	SW846 8260B	1	01/19/2023 01:42	PDK	J
Total Xylenes	ND	ND	ug/L	3.0	SW846 8260B	1	01/19/2023 01:42	PDK	J
trans-1,2-Dichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/19/2023 01:42	PDK	J
Trichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/19/2023 01:42	PDK	J
Vinyl Chloride	ND	ND	ug/L	1.0	SW846 8260B	1	01/19/2023 01:42	PDK	J



Results

Client Sample ID	CWMP001W	Collected	01/16/2023 12:31
Lab Sample ID	3283194002	Lab Receipt	01/16/2023 15:36

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
<i>SURROGATES</i>									
Compound	CAS No			Recovery	Limits(%)		Analysis Date/Time		Qualifiers
1,2-Dichloroethane-d4	17060-07-0			88.1%	62 – 133		01/19/2023 01:42		
4-Bromofluorobenzene	460-00-4			111%	79 – 114		01/19/2023 01:42		
Dibromofluoromethane	1868-53-7			88.9%	78 – 116		01/19/2023 01:42		
Toluene-d8	2037-26-5			98.7%	76 – 127		01/19/2023 01:42		

WET CHEMISTRY

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Alkalinity, Bicarbonate	ND	ND	mg/L	5	SM2320B-2011	1	01/18/2023 04:24	NML	A
Alkalinity, Total	ND	ND,1	mg/L	5	SM2320B-2011	1	01/18/2023 04:24	NML	A
Ammonia-N	ND	ND,2	mg/L	0.100	ASTM D6919-09	10	01/20/2023 02:04	NML	C
Chemical Oxygen Demand (COD)	ND	ND	mg/L	15	EPA 410.4	1	01/23/2023 14:07	KMS	C
Chloride	26.4		mg/L	2.0	EPA 300.0	2	01/17/2023 13:18	J1W	A
Fluoride	ND	ND	mg/L	0.20	EPA 300.0	2	01/17/2023 13:18	J1W	A
Nitrate-N	17.8		mg/L	1.0	EPA 300.0	2	01/17/2023 13:18	J1W	A
pH	6.31	3	pH_Units		S4500HB-11	1	01/18/2023 04:24	NML	A
Phenolics	ND	ND	mg/L	0.004	SW846 9066	1	01/25/2023 15:34	AKH	C
Specific Conductance	266		umhos/cm	5	SM2510B-2011	1	01/17/2023 08:30	JXL	A
Sulfate	2.7		mg/L	2.0	EPA 300.0	2	01/17/2023 13:18	J1W	A
Total Dissolved Solids	188		mg/L	25	S2540C-11	1	01/18/2023 06:42	SMS	A
Total Organic Carbon (TOC)	ND	ND	mg/L	0.50	SM5310B-2011	1	01/17/2023 22:34	PAG	G
Turbidity	28		NTU	0.30	SM2130B-2011	1	01/17/2023 00:55	NRB	A



Results

Client Sample ID	CWMP005W	Collected	01/16/2023 14:21
Lab Sample ID	3283194003	Lab Receipt	01/16/2023 15:36

FIELD PARAMETERS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Depth to Water Level	44.02		Feet		Field	1	01/16/2023 14:21	BGS	F
Dissolved Oxygen	6.44		mg/L	0.01	Field	1	01/16/2023 14:21	BGS	F
Elev Top MW Casing above MSL	513.43		Feet		Field	1	01/16/2023 14:21	BGS	F
Flow Rate	2.32		gal/min		Field	1	01/16/2023 14:21	BGS	F
Ground Water Elevation	469.41		ft/MSL		Field	1	01/16/2023 14:21	BGS	F
Oxidation-Reduction Potential	309		mV		Field	1	01/16/2023 14:21	BGS	F
pH, Field (SM4500B)	5.36		pH_Units		Field	1	01/16/2023 14:21	BGS	F
Sample Depth	130.00		Feet		Field	1	01/16/2023 14:21	BGS	F
Specific Conductance, Field	466		umhos/cm	1	Field	1	01/16/2023 14:21	BGS	F
Temperature	13.00		Deg. C		Field	1	01/16/2023 14:21	BGS	F
Total Well Depth	138.92		Feet		Field	1	01/16/2023 14:21	BGS	F
Turbidity, Field	ND	ND	NTU	1	Field	1	01/16/2023 14:21	BGS	F
Volume in Water Column	139.50		Gallons		Field	1	01/16/2023 14:21	BGS	F
Water Level After Purge	45.57		Feet		Field	1	01/16/2023 14:21	BGS	F
Well Volumes Purged	1.17		Vol		Field	1	01/16/2023 14:21	BGS	F

METALS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Calcium, Total	14.8		mg/L	0.11	SW846 6010C	1	01/24/2023 09:51	A1S	D1
Iron, Total	ND	ND	mg/L	0.067	SW846 6010C	1	01/24/2023 09:51	A1S	D1
Magnesium, Total	8.0		mg/L	0.11	SW846 6010C	1	01/24/2023 09:51	A1S	D1
Manganese, Total	0.046		mg/L	0.0056	SW846 6010C	1	01/24/2023 09:51	A1S	D1
Potassium, Total	2.1		mg/L	0.56	SW846 6010C	1	01/24/2023 09:51	A1S	D1
Sodium, Total	31.5		mg/L	0.56	SW846 6010C	1	01/24/2023 09:51	A1S	D1

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1-Trichloroethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/19/2023 02:05	PDK	J
1,1-Dichloroethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/19/2023 02:05	PDK	J
1,1-Dichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/19/2023 02:05	PDK	J
1,2-Dibromoethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/19/2023 02:05	PDK	J
1,2-Dichloroethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/19/2023 02:05	PDK	J
Benzene	ND	ND	ug/L	1.0	SW846 8260B	1	01/19/2023 02:05	PDK	J
cis-1,2-Dichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/19/2023 02:05	PDK	J
Ethylbenzene	ND	ND	ug/L	1.0	SW846 8260B	1	01/19/2023 02:05	PDK	J
Methylene Chloride	ND	ND	ug/L	1.0	SW846 8260B	1	01/19/2023 02:05	PDK	J
Tetrachloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/19/2023 02:05	PDK	J
Toluene	ND	ND	ug/L	1.0	SW846 8260B	1	01/19/2023 02:05	PDK	J
Total Xylenes	ND	ND	ug/L	3.0	SW846 8260B	1	01/19/2023 02:05	PDK	J
trans-1,2-Dichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/19/2023 02:05	PDK	J
Trichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/19/2023 02:05	PDK	J
Vinyl Chloride	ND	ND	ug/L	1.0	SW846 8260B	1	01/19/2023 02:05	PDK	J



Results

Client Sample ID	CWMP005W	Collected	01/16/2023 14:21
Lab Sample ID	3283194003	Lab Receipt	01/16/2023 15:36

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
<i>SURROGATES</i>									
Compound	CAS No			Recovery	Limits(%)		Analysis Date/Time		Qualifiers
1,2-Dichloroethane-d4	17060-07-0			87.9%	62 – 133		01/19/2023 02:05		
4-Bromofluorobenzene	460-00-4			110%	79 – 114		01/19/2023 02:05		
Dibromofluoromethane	1868-53-7			89.5%	78 – 116		01/19/2023 02:05		
Toluene-d8	2037-26-5			97.6%	76 – 127		01/19/2023 02:05		

WET CHEMISTRY

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Alkalinity, Bicarbonate	15		mg/L	5	SM2320B-2011	1	01/18/2023 04:38	NML	A
Alkalinity, Total	15	1	mg/L	5	SM2320B-2011	1	01/18/2023 04:38	NML	A
Ammonia-N	ND	ND,2	mg/L	0.100	ASTM D6919-09	10	01/20/2023 01:50	NML	C
Chemical Oxygen Demand (COD)	ND	ND	mg/L	15	EPA 410.4	1	01/23/2023 14:07	KMS	C
Chloride	64.9		mg/L	2.0	EPA 300.0	2	01/17/2023 13:28	J1W	A
Fluoride	ND	ND	mg/L	0.20	EPA 300.0	2	01/17/2023 13:28	J1W	A
Nitrate-N	7.3		mg/L	1.0	EPA 300.0	2	01/17/2023 13:28	J1W	A
pH	6.65	3	pH_Units		S4500HB-11	1	01/18/2023 04:38	NML	A
Phenolics	ND	ND	mg/L	0.004	SW846 9066	1	01/25/2023 14:37	AKH	I
Specific Conductance	340		umhos/cm	5	SM2510B-2011	1	01/17/2023 08:30	JXL	A
Sulfate	4.7		mg/L	2.0	EPA 300.0	2	01/17/2023 13:28	J1W	A
Total Dissolved Solids	220		mg/L	25	S2540C-11	1	01/18/2023 06:42	SMS	A
Total Organic Carbon (TOC)	ND	ND	mg/L	0.50	SM5310B-2011	1	01/17/2023 22:34	PAG	G
Turbidity	0.60		NTU	0.30	SM2130B-2011	1	01/17/2023 00:55	NRB	A



Sample - Method Cross Reference Table

Lab ID	Sample ID	Analysis Method	Preparation Method	Leachate Method
3283194001	CWMP007W	Field	N/A	
		SW846 6010C	SW846 3015A	
		SW846 8260B	N/A	
		ASTM D6919-09	N/A	
		EPA 300.0	N/A	
		EPA 410.4	N/A	
		S2540C-11	N/A	
		S4500HB-11	N/A	
		SM2130B-2011	N/A	
		SM2320B-2011	N/A	
		SM2510B-2011	N/A	
		SM5310B-2011	N/A	
		SW846 9066	SW846 9066	
3283194002	CWMP001W	Field	N/A	
		SW846 6010C	SW846 3015A	
		SW846 8260B	N/A	
		ASTM D6919-09	N/A	
		EPA 300.0	N/A	
		EPA 410.4	N/A	
		S2540C-11	N/A	
		S4500HB-11	N/A	
		SM2130B-2011	N/A	
		SM2320B-2011	N/A	
		SM2510B-2011	N/A	
		SM5310B-2011	N/A	
		SW846 9066	SW846 9066	
3283194003	CWMP005W	Field	N/A	
		SW846 6010C	SW846 3015A	
		SW846 8260B	N/A	
		ASTM D6919-09	N/A	
		EPA 300.0	N/A	
		EPA 410.4	N/A	
		S2540C-11	N/A	
		S4500HB-11	N/A	
		SM2130B-2011	N/A	
		SM2320B-2011	N/A	
		SM2510B-2011	N/A	
		SM5310B-2011	N/A	
		SW846 9066	SW846 9066	



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Lab ID	Sample ID	Preparation Method	Prep Batch	Prep Date/Time	By	Analysis Method	Anly Batch
3283194001	CWMP007W	N/A	N/A	N/A		Field	939184
		SW846 3015A	936602	01/18/2023 21:24	ANN	SW846 6010C	937676
		N/A	N/A	N/A		SW846 8260B	936652
		N/A	N/A	N/A		ASTM D6919-09	936475
		N/A	N/A	N/A		EPA 300.0	936272
		N/A	N/A	N/A		EPA 410.4	937589
		N/A	N/A	N/A		S2540C-11	936406
		N/A	N/A	N/A		S4500HB-11	936294
		N/A	N/A	N/A		SM2130B-2011	936254
		N/A	N/A	N/A		SM2320B-2011	936294
		N/A	N/A	N/A		SM2510B-2011	936266
		N/A	N/A	N/A		SM5310B-2011	936332
		SW846 9066	938473	01/25/2023 08:58	AKH	SW846 9066	938496
3283194002	CWMP001W	N/A	N/A	N/A		Field	939184
		SW846 3015A	936602	01/18/2023 21:24	ANN	SW846 6010C	937676
		N/A	N/A	N/A		SW846 8260B	936652
		N/A	N/A	N/A		ASTM D6919-09	937055
		N/A	N/A	N/A		EPA 300.0	936272
		N/A	N/A	N/A		EPA 410.4	937589
		N/A	N/A	N/A		S2540C-11	936406
		N/A	N/A	N/A		S4500HB-11	936294
		N/A	N/A	N/A		SM2130B-2011	936254
		N/A	N/A	N/A		SM2320B-2011	936294
		N/A	N/A	N/A		SM2510B-2011	936266
		N/A	N/A	N/A		SM5310B-2011	936332
		SW846 9066	938473	01/25/2023 08:58	AKH	SW846 9066	938496
3283194003	CWMP005W	N/A	N/A	N/A		Field	939184
		SW846 3015A	936602	01/18/2023 21:24	ANN	SW846 6010C	937676
		N/A	N/A	N/A		SW846 8260B	936652
		N/A	N/A	N/A		ASTM D6919-09	937055
		N/A	N/A	N/A		EPA 300.0	936272
		N/A	N/A	N/A		EPA 410.4	937589
		N/A	N/A	N/A		S2540C-11	936406
		N/A	N/A	N/A		S4500HB-11	936294
		N/A	N/A	N/A		SM2130B-2011	936254
		N/A	N/A	N/A		SM2320B-2011	936294
		N/A	N/A	N/A		SM2510B-2011	936266
		N/A	N/A	N/A		SM5310B-2011	936332
		SW846 9066	938473	01/25/2023 08:58	AKH	SW846 9066	938496



301 Filling Mill Road • Middletown, PA 17057 • Phone: 717-944-5541 • Fax: 717-944-1430 • www.alsglobal.com

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

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

Generated by ALS

Client Name: Lancaster County Solid Waste MA
Address: 1299 Harrisburg Pike, P.O. Box 4424
Lancaster, PA 17604
Contact: Dan Brown
Phone#: (717) 735-0193
Project Name#: Creswell/GWMP Form 19Q Wells
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 **dbrown@lcswwma.org**
Fax? Y N **No.: (717) 397-9973**

Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	* G or C	** Matrix
1. CWMP007W	01/16/23	1112	G	GW
2. CWMP001W	01/16/23	1231	G	GW
3. CWMP005W	01/16/23	1421	G	GW
4				
5				
6				
7				
8				
9				
10				

Project Comments:

Relinquished By / Company Name: AW Date: 1-16-23 Time: 15:36
 Received By / Company Name: DD/ALS Date: 1/16/23 Time: 15:36

LOGGED BY (signature): _____ DATE: _____ TIME: _____
 REVIEWED BY (signature): _____ DATE: _____ TIME: _____

3
4
5
6
7
8
9
10

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

ANALYSES/METHOD REQUESTED						
Field Measurements	Sample Depth for AUX Data	NH3-N, COD	Total Metals: Ca, Fe, Mn, Mg, K, Na	PH, NO3, Cl, F, SPC, SO4, Turb.	TDS	Alkalinity, HCO3
8260 VOCs - Form 19Q	O-OH	1	2	1	2	1
X	X	X	X	X	X	X
1	2	1	2	1	2	1
X	X	X	X	X	X	X
2	1	2	1	2	1	1
X	X	X	X	X	X	X
2	1	2	1	2	1	1
X	X	X	X	X	X	X

Receipt information (completed by Receiving Lab)
 Cooler Temp: 9 Therm ID: 573
 No. of Coolers: Y N Initial

Custody Seals Present?
 (if present) Seals Intact?

Temp By: DD WO Temp (°C) 9 Therm ID 573

Receipt Info Completed By:
 Cooler Custody Seal Intact Y N NA
 Sample Custody Seal Intact Y N NA
 Received on Ice Y N NA
 Cooler & Samples Intact Y N NA
 Correct Containers Provided Y N NA
 Sample Label/COC Agree Y N NA
 Adequate Sample Volumes Y N NA
 CR6 Samples Filtered Y N NA
 OP Samples Filtered Y N NA
 VOA Headspace Present Y N NA
 Voa Trip Blank Y N NA
 NLS-4 Days? Y N NA
 Rad Screen (uCi) _____
 Courier/Tracking #: _____

SDWA Compliance Y N
 PWSID _____
 WV Containers 0-6°C Y N NA
 * NONE = 00P

ALS Field Services: Pickup Labor
 Composite_Sampling Rental_Equipment
 Other:

Standard	Special Processing	State Samples Collected In
<input type="checkbox"/> Standard	USACE <input type="checkbox"/>	<input type="checkbox"/> NY
<input type="checkbox"/> CLP-like	Navy <input type="checkbox"/>	<input type="checkbox"/> NJ
<input type="checkbox"/> USACE		<input type="checkbox"/> PA
<input type="checkbox"/>		<input type="checkbox"/> NC

Reportable to PADEP? Yes No Lab Special

PWSID # _____
 EDDS: Format Type: _____



301 Fulling Mill Road | Middletown, PA 17057 | Phone: 717-944-5541 | Fax: 717-944-1430 | www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: PJLA 74618
State Certifications: FL E871113 , WA C999 , MD 128 , VA 460157 , WV DW 9961-C , WV 343

Analytical Results Report For **Lancaster County Solid Waste Authority**
Project 1st QTR 2023 GWMP-FORM 19Q
Workorder 3284023
Report ID 222546 on 2/3/2023

Certificate of Analysis

Enclosed are the analytical results for samples received by the laboratory on Jan 20, 2023.

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 Susan 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 Global.
ALS Middletown: 301 Fulling Mill Road, Middletown, PA 17057 : 717-944-5541.

Recipient(s):
Ashley Gichuki - Lancaster County Solid Waste Authority
Daniel Brown - Lancaster County Solid Waste Authority
Jordan Gallagher - Lancaster County Solid Waste Authority
Jeff Musser - Lancaster County Solid Waste Authority

Susan Scherer

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

Susan Scherer (ALS Digital Signature)
Project Coordinator



Sample Summary

<u>Lab ID</u>	<u>Sample ID</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>Date Received</u>	<u>Collector</u>	<u>Collection Company</u>
3284023001	CWMP012W	Ground Water	01/20/2023 10:00	01/20/2023 13:45	BGS	Analytical Laboratory Service
3284023002	CWMP002W	Ground Water	01/20/2023 10:47	01/20/2023 13:45	BGS	Analytical Laboratory Service
3284023003	CWMP003W	Ground Water	01/20/2023 11:05	01/20/2023 13:45	BGS	Analytical Laboratory Service
3284023004	CWMP004W	Ground Water	01/20/2023 11:21	01/20/2023 13:45	BGS	Analytical Laboratory Service
3284023005	Field Blank	Water	01/20/2023 12:00	01/20/2023 13:45	BGS	Analytical Laboratory Service
3284023006	Trip Blank	Water	01/20/2023 13:45	01/20/2023 13:45	BGS	Analytical Laboratory Service



Reference

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).
- Except as qualified, Clean Water Act sample analyses are consistent with methodology requirements in 40 CFR Part 136.
- Except as qualified, Safe Drinking Water Act sample analyses are consistent with methodology requirements in 40 CFR Part 141.
- 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.
- An Analysis-Prep Method Cross Reference Table is included after Analytical Results & Qualifiers section in this report.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.

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) above the MDL
N	Indicates presumptive evidence of the presence of a compound
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
RDL	Practical Quantitation Limit for this Project
ND	Not Detected - indicates that the analyte was Not Detected
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
#	Please reference the result in the Results Section for analyte-level flags.



Project Notations

Sample Notations

Lab ID **Sample ID**

Result Notations

Notation Ref.

- | | |
|---|---|
| 1 | The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO ₃ /L. |
| 2 | Method ASTMD6919-09 is equivalent to Method ASTMD6919-17. |
| 3 | 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. |



Detected Results Summary

Client Sample ID	CWMP012W	Collected	01/20/2023 10:00
Lab Sample ID	3284023001	Lab Receipt	01/20/2023 13:45

Compound	Result	Units	RDL	Method	Flag
FIELD PARAMETERS					
Depth to Water Level	63.84	Feet		Field	#
Dissolved Oxygen	4.10	mg/L	0.01	Field	#
Oxidation-Reduction Potential	185	mV		Field	#
pH, Field (SM4500B)	5.83	pH_Units		Field	#
Specific Conductance, Field	469	umhos/cm	1	Field	#
Temperature	14.83	Deg. C		Field	#
Turbidity, Field	896	NTU	1	Field	#
METALS					
Calcium, Total	37.3	mg/L	0.11	SW846 6010C	#
Iron, Total	123	mg/L	0.067	SW846 6010C	#
Magnesium, Total	9.4	mg/L	0.11	SW846 6010C	#
Manganese, Total	0.65	mg/L	0.0056	SW846 6010C	#
Potassium, Total	1.5	mg/L	0.56	SW846 6010C	#
Sodium, Total	14.7	mg/L	0.56	SW846 6010C	#
WET CHEMISTRY					
Alkalinity, Bicarbonate	71	mg/L	5	SM2320B-2011	#
Alkalinity, Total	71	mg/L	5	SM2320B-2011	#
Ammonia-N	0.322	mg/L	0.100	ASTM D6919-09	#
Chloride	31.9	mg/L	2.0	EPA 300.0	#
Nitrate-N	7.4	mg/L	1.0	EPA 300.0	#
pH	6.99	pH_Units		S4500HB-11	#
Specific Conductance	324	umhos/cm	5	SW846 9050A	#
Sulfate	5.0	mg/L	2.0	EPA 300.0	#
Total Dissolved Solids	216	mg/L	25	S2540C-11	#
Total Organic Carbon (TOC)	3.1	mg/L	1.0	SW846 9060A	#
Turbidity	280	NTU	0.30	SM2130B-2011	#



Detected Results Summary

Client Sample ID	CWMP002W	Collected	01/20/2023 10:47
Lab Sample ID	3284023002	Lab Receipt	01/20/2023 13:45

Compound	Result	Units	RDL	Method	Flag
FIELD PARAMETERS					
Depth to Water Level	90.13	Feet		Field	#
Dissolved Oxygen	7.25	mg/L	0.01	Field	#
Elev Top MW Casing above MSL	525.81	Feet		Field	#
Ground Water Elevation	435.68	ft/MSL		Field	#
Oxidation-Reduction Potential	186	mV		Field	#
pH, Field (SM4500B)	5.85	pH_Units		Field	#
Sample Depth	85.00	Feet		Field	#
Specific Conductance, Field	553	umhos/cm	1	Field	#
Temperature	14.18	Deg. C		Field	#
Total Well Depth	100.00	Feet		Field	#
METALS					
Calcium, Total	36.7	mg/L	0.11	SW846 6010C	#
Magnesium, Total	12.7	mg/L	0.11	SW846 6010C	#
Manganese, Total	0.16	mg/L	0.0056	SW846 6010C	#
Potassium, Total	2.3	mg/L	0.56	SW846 6010C	#
Sodium, Total	21.7	mg/L	0.56	SW846 6010C	#
VOLATILE ORGANICS					
1,1-Dichloroethane	2.3	ug/L	1.0	SW846 8260B	#
WET CHEMISTRY					
Alkalinity, Bicarbonate	56	mg/L	5	SM2320B-2011	#
Alkalinity, Total	56	mg/L	5	SM2320B-2011	#
Ammonia-N	0.153	mg/L	0.100	ASTM D6919-09	#
Chloride	63.7	mg/L	2.0	EPA 300.0	#
Nitrate-N	6.3	mg/L	1.0	EPA 300.0	#
pH	6.64	pH_Units		S4500HB-11	#
Specific Conductance	423	umhos/cm	5	SW846 9050A	#
Sulfate	13.9	mg/L	2.0	EPA 300.0	#
Total Dissolved Solids	270	mg/L	25	S2540C-11	#
Total Organic Carbon (TOC)	0.95	mg/L	0.50	SW846 9060A	#
Turbidity	0.80	NTU	0.30	SM2130B-2011	#



Detected Results Summary

Client Sample ID	CWMP003W	Collected	01/20/2023 11:05
Lab Sample ID	3284023003	Lab Receipt	01/20/2023 13:45

Compound	Result	Units	RDL	Method	Flag
FIELD PARAMETERS					
Depth to Water Level	100.23	Feet		Field	#
Dissolved Oxygen	8.89	mg/L	0.01	Field	#
Elev Top MW Casing above MSL	524.21	Feet		Field	#
Ground Water Elevation	423.98	ft/MSL		Field	#
Oxidation-Reduction Potential	232	mV		Field	#
pH, Field (SM4500B)	5.73	pH_Units		Field	#
Sample Depth	100.00	Feet		Field	#
Specific Conductance, Field	355	umhos/cm	1	Field	#
Temperature	14.11	Deg. C		Field	#
Total Well Depth	140.00	Feet		Field	#
Turbidity, Field	4	NTU	1	Field	#
METALS					
Calcium, Total	23.7	mg/L	0.11	SW846 6010C	#
Magnesium, Total	8.9	mg/L	0.11	SW846 6010C	#
Manganese, Total	0.0067	mg/L	0.0056	SW846 6010C	#
Potassium, Total	2.0	mg/L	0.56	SW846 6010C	#
Sodium, Total	19.5	mg/L	0.56	SW846 6010C	#
VOLATILE ORGANICS					
1,1-Dichloroethane	1.9	ug/L	1.0	SW846 8260B	#
WET CHEMISTRY					
Alkalinity, Bicarbonate	25	mg/L	5	SM2320B-2011	#
Alkalinity, Total	25	mg/L	5	SM2320B-2011	#
Ammonia-N	0.156	mg/L	0.100	ASTM D6919-09	#
Chloride	59.1	mg/L	2.0	EPA 300.0	#
Nitrate-N	5.6	mg/L	1.0	EPA 300.0	#
pH	6.39	pH_Units		S4500HB-11	#
Specific Conductance	319	umhos/cm	5	SW846 9050A	#
Sulfate	4.5	mg/L	2.0	EPA 300.0	#
Total Dissolved Solids	232	mg/L	25	S2540C-11	#
Total Organic Carbon (TOC)	2.6	mg/L	0.50	SW846 9060A	#
Turbidity	1.4	NTU	0.30	SM2130B-2011	#



Detected Results Summary

Client Sample ID	CWMP004W	Collected	01/20/2023 11:21
Lab Sample ID	3284023004	Lab Receipt	01/20/2023 13:45

Compound	Result	Units	RDL	Method	Flag
FIELD PARAMETERS					
Depth to Water Level	101.46	Feet		Field	#
Dissolved Oxygen	6.09	mg/L	0.01	Field	#
Elev Top MW Casing above MSL	529.53	Feet		Field	#
Ground Water Elevation	428.07	ft/MSL		Field	#
Oxidation-Reduction Potential	231	mV		Field	#
pH, Field (SM4500B)	5.74	pH_Units		Field	#
Sample Depth	130.00	Feet		Field	#
Specific Conductance, Field	392	umhos/cm	1	Field	#
Temperature	14.49	Deg. C		Field	#
Total Well Depth	140.00	Feet		Field	#
METALS					
Calcium, Total	21.9	mg/L	0.11	SW846 6010C	#
Magnesium, Total	7.6	mg/L	0.11	SW846 6010C	#
Manganese, Total	0.0098	mg/L	0.0056	SW846 6010C	#
Potassium, Total	1.5	mg/L	0.56	SW846 6010C	#
Sodium, Total	16.9	mg/L	0.56	SW846 6010C	#
VOLATILE ORGANICS					
1,1-Dichloroethane	1.0	ug/L	1.0	SW846 8260B	#
WET CHEMISTRY					
Alkalinity, Bicarbonate	26	mg/L	5	SM2320B-2011	#
Alkalinity, Total	26	mg/L	5	SM2320B-2011	#
Ammonia-N	0.296	mg/L	0.100	ASTM D6919-09	#
Chloride	47.8	mg/L	2.0	EPA 300.0	#
Nitrate-N	5.6	mg/L	1.0	EPA 300.0	#
pH	6.38	pH_Units		S4500HB-11	#
Specific Conductance	283	umhos/cm	5	SW846 9050A	#
Sulfate	6.0	mg/L	2.0	EPA 300.0	#
Total Dissolved Solids	206	mg/L	25	S2540C-11	#
Total Organic Carbon (TOC)	0.56	mg/L	0.50	SW846 9060A	#



Detected Results Summary

Client Sample ID	Field Blank	Collected	01/20/2023 12:00
Lab Sample ID	3284023005	Lab Receipt	01/20/2023 13:45

<u>Compound</u>	<u>Result</u>	<u>Units</u>	<u>RDL</u>	<u>Method</u>	<u>Flag</u>
VOLATILE ORGANICS					
Methylene Chloride	1.0	ug/L	1.0	SW846 8260B	#
WET CHEMISTRY					
pH	5.86	pH_Units		S4500HB-11	#
Turbidity	0.30	NTU	0.30	SM2130B-2011	#



Results

Client Sample ID	CWMP012W	Collected	01/20/2023 10:00
Lab Sample ID	3284023001	Lab Receipt	01/20/2023 13:45

FIELD PARAMETERS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Depth to Water Level	63.84		Feet		Field	1	01/20/2023 10:01	BGS	D
Dissolved Oxygen	4.10		mg/L	0.01	Field	1	01/20/2023 10:01	BGS	D
Oxidation-Reduction Potential	185		mV		Field	1	01/20/2023 10:01	BGS	D
pH, Field (SM4500B)	5.83		pH_Units		Field	1	01/20/2023 10:01	BGS	D
Specific Conductance, Field	469		umhos/cm	1	Field	1	01/20/2023 10:01	BGS	D
Temperature	14.83		Deg. C		Field	1	01/20/2023 10:01	BGS	D
Turbidity, Field	896		NTU	1	Field	1	01/20/2023 10:01	BGS	D

METALS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Calcium, Total	37.3		mg/L	0.11	SW846 6010C	1	01/25/2023 13:26	A1S	J1
Iron, Total	123		mg/L	0.067	SW846 6010C	1	01/25/2023 13:26	A1S	J1
Magnesium, Total	9.4		mg/L	0.11	SW846 6010C	1	01/25/2023 13:26	A1S	J1
Manganese, Total	0.65		mg/L	0.0056	SW846 6010C	1	01/25/2023 13:26	A1S	J1
Potassium, Total	1.5		mg/L	0.56	SW846 6010C	1	01/25/2023 13:26	A1S	J1
Sodium, Total	14.7		mg/L	0.56	SW846 6010C	1	01/25/2023 13:26	A1S	J1

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1-Trichloroethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 19:46	TMP	H
1,1-Dichloroethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 19:46	TMP	H
1,1-Dichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 19:46	TMP	H
1,2-Dibromoethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 19:46	TMP	H
1,2-Dichloroethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 19:46	TMP	H
Benzene	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 19:46	TMP	H
cis-1,2-Dichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 19:46	TMP	H
Ethylbenzene	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 19:46	TMP	H
Methylene Chloride	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 19:46	TMP	H
Tetrachloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 19:46	TMP	H
Toluene	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 19:46	TMP	H
Total Xylenes	ND	ND	ug/L	3.0	SW846 8260B	1	01/31/2023 19:46	TMP	H
trans-1,2-Dichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 19:46	TMP	H
Trichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 19:46	TMP	H
Vinyl Chloride	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 19:46	TMP	H

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	115%	62 - 133	01/31/2023 19:46	
4-Bromofluorobenzene	460-00-4	93.8%	79 - 114	01/31/2023 19:46	
Dibromofluoromethane	1868-53-7	112%	78 - 116	01/31/2023 19:46	
Toluene-d8	2037-26-5	93.9%	76 - 127	01/31/2023 19:46	

WET CHEMISTRY



Results

Client Sample ID	CWMP012W	Collected	01/20/2023 10:00
Lab Sample ID	3284023001	Lab Receipt	01/20/2023 13:45

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Alkalinity, Bicarbonate	71		mg/L	5	SM2320B-2011	1	01/25/2023 16:05	NML	B
Alkalinity, Total	71	1	mg/L	5	SM2320B-2011	1	01/25/2023 16:05	NML	B
Ammonia-N	0.322	2	mg/L	0.100	ASTM D6919-09	10	01/31/2023 03:50	NML	A
Chemical Oxygen Demand (COD)	ND	ND	mg/L	15	EPA 410.4	1	01/26/2023 14:25	KMS	A
Chloride	31.9		mg/L	2.0	EPA 300.0	2	01/21/2023 09:05	AXW	B
Fluoride	ND	ND	mg/L	0.20	EPA 300.0	2	01/21/2023 09:05	AXW	B
Nitrate-N	7.4		mg/L	1.0	EPA 300.0	2	01/21/2023 09:05	AXW	B
pH	6.99	3	pH_Units		S4500HB-11	1	01/24/2023 01:55	NML	B
Phenolics	ND	ND	mg/L	0.004	SW846 9066	1	02/01/2023 10:35	AKH	G
Specific Conductance	324		umhos/cm	5	SW846 9050A	1	01/26/2023 13:30	J1W	B
Sulfate	5.0		mg/L	2.0	EPA 300.0	2	01/21/2023 09:05	AXW	B
Total Dissolved Solids	216		mg/L	25	S2540C-11	1	01/24/2023 08:45	SMS	B
Total Organic Carbon (TOC)	3.1		mg/L	1.0	SW846 9060A	2	01/25/2023 03:05	PAG	E
Turbidity	280		NTU	0.30	SM2130B-2011	1	01/20/2023 23:35	NRB	B



Results

Client Sample ID	CWMP002W	Collected	01/20/2023 10:47
Lab Sample ID	3284023002	Lab Receipt	01/20/2023 13:45

FIELD PARAMETERS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Depth to Water Level	90.13		Feet		Field	1	01/20/2023 10:47	BGS	D
Dissolved Oxygen	7.25		mg/L	0.01	Field	1	01/20/2023 10:47	BGS	D
Elev Top MW Casing above MSL	525.81		Feet		Field	1	01/20/2023 10:47	BGS	D
Ground Water Elevation	435.68		ft/MSL		Field	1	01/20/2023 10:47	BGS	D
Oxidation-Reduction Potential	186		mV		Field	1	01/20/2023 10:47	BGS	D
pH, Field (SM4500B)	5.85		pH_Units		Field	1	01/20/2023 10:47	BGS	D
Sample Depth	85.00		Feet		Field	1	01/20/2023 10:47	BGS	D
Specific Conductance, Field	553		umhos/cm	1	Field	1	01/20/2023 10:47	BGS	D
Temperature	14.18		Deg. C		Field	1	01/20/2023 10:47	BGS	D
Total Well Depth	100.00		Feet		Field	1	01/20/2023 10:47	BGS	D
Turbidity, Field	ND	ND	NTU	1	Field	1	01/20/2023 10:47	BGS	D

METALS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Calcium, Total	36.7		mg/L	0.11	SW846 6010C	1	01/25/2023 13:34	A1S	J1
Iron, Total	ND	ND	mg/L	0.067	SW846 6010C	1	01/25/2023 13:34	A1S	J1
Magnesium, Total	12.7		mg/L	0.11	SW846 6010C	1	01/25/2023 13:34	A1S	J1
Manganese, Total	0.16		mg/L	0.0056	SW846 6010C	1	01/25/2023 13:34	A1S	J1
Potassium, Total	2.3		mg/L	0.56	SW846 6010C	1	01/25/2023 13:34	A1S	J1
Sodium, Total	21.7		mg/L	0.56	SW846 6010C	1	01/25/2023 13:34	A1S	J1

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1-Trichloroethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 17:06	TMP	H
1,1,2,2-Tetrachloroethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 17:06	TMP	H
1,1,2-Trichloroethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 17:06	TMP	H
1,1-Dichloroethane	2.3		ug/L	1.0	SW846 8260B	1	01/31/2023 17:06	TMP	H
1,1-Dichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 17:06	TMP	H
1,2,3-Trichloropropane	ND	ND	ug/L	2.0	SW846 8260B	1	01/31/2023 17:06	TMP	H
1,2,4-Trichlorobenzene	ND	ND	ug/L	2.0	SW846 8260B	1	01/31/2023 17:06	TMP	H
1,2-Dibromoethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 17:06	TMP	H
1,2-Dichlorobenzene	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 17:06	TMP	H
1,2-Dichloroethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 17:06	TMP	H
1,2-Dichloropropane	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 17:06	TMP	H
1,3-Dichlorobenzene	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 17:06	TMP	H
1,3-Dichloropropene, Total	ND	ND	ug/L	2.0	SW846 8260B	1	01/31/2023 17:06	TMP	H
1,4-Dichlorobenzene	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 17:06	TMP	H
Benzene	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 17:06	TMP	H
Bromodichloromethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 17:06	TMP	H
Bromoform	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 17:06	TMP	H
Bromomethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 17:06	TMP	H
Carbon Tetrachloride	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 17:06	TMP	H
Chlorobenzene	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 17:06	TMP	H
Chlorodibromomethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 17:06	TMP	H



Results

Client Sample ID	CWMP002W	Collected	01/20/2023 10:47
Lab Sample ID	3284023002	Lab Receipt	01/20/2023 13:45

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Chloroethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 17:06	TMP	H
Chloroform	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 17:06	TMP	H
Chloromethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 17:06	TMP	H
cis-1,2-Dichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 17:06	TMP	H
Ethylbenzene	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 17:06	TMP	H
Methylene Chloride	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 17:06	TMP	H
Styrene	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 17:06	TMP	H
Tetrachloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 17:06	TMP	H
Toluene	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 17:06	TMP	H
Total Xylenes	ND	ND	ug/L	3.0	SW846 8260B	1	01/31/2023 17:06	TMP	H
trans-1,2-Dichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 17:06	TMP	H
Trichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 17:06	TMP	H
Trichlorofluoromethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 17:06	TMP	H
Vinyl Chloride	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 17:06	TMP	H

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	111%	62 – 133	01/31/2023 17:06	
4-Bromofluorobenzene	460-00-4	95.2%	79 – 114	01/31/2023 17:06	
Dibromofluoromethane	1868-53-7	108%	78 – 116	01/31/2023 17:06	
Toluene-d8	2037-26-5	94.3%	76 – 127	01/31/2023 17:06	

WET CHEMISTRY

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Alkalinity, Bicarbonate	56		mg/L	5	SM2320B-2011	1	01/25/2023 16:18	NML	B
Alkalinity, Total	56	1	mg/L	5	SM2320B-2011	1	01/25/2023 16:18	NML	B
Ammonia-N	0.153	2	mg/L	0.100	ASTM D6919-09	10	01/31/2023 04:45	NML	A
Chemical Oxygen Demand (COD)	ND	ND	mg/L	15	EPA 410.4	1	01/26/2023 14:25	KMS	A
Chloride	63.7		mg/L	2.0	EPA 300.0	2	01/21/2023 09:15	AXW	B
Fluoride	ND	ND	mg/L	0.20	EPA 300.0	2	01/21/2023 09:15	AXW	B
Nitrate-N	6.3		mg/L	1.0	EPA 300.0	2	01/21/2023 09:15	AXW	B
pH	6.64	3	pH_Units		S4500HB-11	1	01/24/2023 02:48	NML	B
Phenolics	ND	ND	mg/L	0.004	SW846 9066	1	02/01/2023 10:39	AKH	G
Specific Conductance	423		umhos/cm	5	SW846 9050A	1	01/26/2023 13:30	J1W	B
Sulfate	13.9		mg/L	2.0	EPA 300.0	2	01/21/2023 09:15	AXW	B
Total Dissolved Solids	270		mg/L	25	S2540C-11	1	01/24/2023 08:45	SMS	B
Total Organic Carbon (TOC)	0.95		mg/L	0.50	SW846 9060A	1	01/25/2023 03:05	PAG	E
Turbidity	0.80		NTU	0.30	SM2130B-2011	1	01/20/2023 23:35	NRB	B



Results

Client Sample ID	CWMP003W	Collected	01/20/2023 11:05
Lab Sample ID	3284023003	Lab Receipt	01/20/2023 13:45

FIELD PARAMETERS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Depth to Water Level	100.23		Feet		Field	1	01/20/2023 11:09	BGS	D
Dissolved Oxygen	8.89		mg/L	0.01	Field	1	01/20/2023 11:09	BGS	D
Elev Top MW Casing above MSL	524.21		Feet		Field	1	01/20/2023 11:09	BGS	D
Ground Water Elevation	423.98		ft/MSL		Field	1	01/20/2023 11:09	BGS	D
Oxidation-Reduction Potential	232		mV		Field	1	01/20/2023 11:09	BGS	D
pH, Field (SM4500B)	5.73		pH_Units		Field	1	01/20/2023 11:09	BGS	D
Sample Depth	100.00		Feet		Field	1	01/20/2023 11:09	BGS	D
Specific Conductance, Field	355		umhos/cm	1	Field	1	01/20/2023 11:09	BGS	D
Temperature	14.11		Deg. C		Field	1	01/20/2023 11:09	BGS	D
Total Well Depth	140.00		Feet		Field	1	01/20/2023 11:09	BGS	D
Turbidity, Field	4		NTU	1	Field	1	01/20/2023 11:09	BGS	D

METALS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Calcium, Total	23.7		mg/L	0.11	SW846 6010C	1	01/25/2023 13:36	A1S	J1
Iron, Total	ND	ND	mg/L	0.067	SW846 6010C	1	01/25/2023 13:36	A1S	J1
Magnesium, Total	8.9		mg/L	0.11	SW846 6010C	1	01/25/2023 13:36	A1S	J1
Manganese, Total	0.0067		mg/L	0.0056	SW846 6010C	1	01/25/2023 13:36	A1S	J1
Potassium, Total	2.0		mg/L	0.56	SW846 6010C	1	01/25/2023 13:36	A1S	J1
Sodium, Total	19.5		mg/L	0.56	SW846 6010C	1	01/25/2023 13:36	A1S	J1

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1-Trichloroethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 15:57	TMP	H
1,1,2,2-Tetrachloroethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 15:57	TMP	H
1,1,2-Trichloroethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 15:57	TMP	H
1,1-Dichloroethane	1.9		ug/L	1.0	SW846 8260B	1	01/31/2023 15:57	TMP	H
1,1-Dichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 15:57	TMP	H
1,2,3-Trichloropropane	ND	ND	ug/L	2.0	SW846 8260B	1	01/31/2023 15:57	TMP	H
1,2,4-Trichlorobenzene	ND	ND	ug/L	2.0	SW846 8260B	1	01/31/2023 15:57	TMP	H
1,2-Dibromoethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 15:57	TMP	H
1,2-Dichlorobenzene	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 15:57	TMP	H
1,2-Dichloroethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 15:57	TMP	H
1,2-Dichloropropane	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 15:57	TMP	H
1,3-Dichlorobenzene	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 15:57	TMP	H
1,3-Dichloropropene, Total	ND	ND	ug/L	2.0	SW846 8260B	1	01/31/2023 15:57	TMP	H
1,4-Dichlorobenzene	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 15:57	TMP	H
Benzene	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 15:57	TMP	H
Bromodichloromethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 15:57	TMP	H
Bromoform	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 15:57	TMP	H
Bromomethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 15:57	TMP	H
Carbon Tetrachloride	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 15:57	TMP	H
Chlorobenzene	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 15:57	TMP	H
Chlorodibromomethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 15:57	TMP	H



Results

Client Sample ID	CWMP003W	Collected	01/20/2023 11:05
Lab Sample ID	3284023003	Lab Receipt	01/20/2023 13:45

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Chloroethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 15:57	TMP	H
Chloroform	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 15:57	TMP	H
Chloromethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 15:57	TMP	H
cis-1,2-Dichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 15:57	TMP	H
Ethylbenzene	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 15:57	TMP	H
Methylene Chloride	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 15:57	TMP	H
Styrene	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 15:57	TMP	H
Tetrachloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 15:57	TMP	H
Toluene	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 15:57	TMP	H
Total Xylenes	ND	ND	ug/L	3.0	SW846 8260B	1	01/31/2023 15:57	TMP	H
trans-1,2-Dichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 15:57	TMP	H
Trichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 15:57	TMP	H
Trichlorofluoromethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 15:57	TMP	H
Vinyl Chloride	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 15:57	TMP	H

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	112%	62 – 133	01/31/2023 15:57	
4-Bromofluorobenzene	460-00-4	94%	79 – 114	01/31/2023 15:57	
Dibromofluoromethane	1868-53-7	106%	78 – 116	01/31/2023 15:57	
Toluene-d8	2037-26-5	94.6%	76 – 127	01/31/2023 15:57	

WET CHEMISTRY

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Alkalinity, Bicarbonate	25		mg/L	5	SM2320B-2011	1	01/25/2023 16:33	NML	B
Alkalinity, Total	25	1	mg/L	5	SM2320B-2011	1	01/25/2023 16:33	NML	B
Ammonia-N	0.156	2	mg/L	0.100	ASTM D6919-09	10	01/31/2023 04:31	NML	A
Chemical Oxygen Demand (COD)	ND	ND	mg/L	15	EPA 410.4	1	01/26/2023 14:25	KMS	A
Chloride	59.1		mg/L	2.0	EPA 300.0	2	01/21/2023 09:25	AXW	B
Fluoride	ND	ND	mg/L	0.20	EPA 300.0	2	01/21/2023 09:25	AXW	B
Nitrate-N	5.6		mg/L	1.0	EPA 300.0	2	01/21/2023 09:25	AXW	B
pH	6.39	3	pH_Units		S4500HB-11	1	01/24/2023 03:01	NML	B
Phenolics	ND	ND	mg/L	0.004	SW846 9066	1	02/01/2023 10:42	AKH	G
Specific Conductance	319		umhos/cm	5	SW846 9050A	1	01/26/2023 13:30	J1W	B
Sulfate	4.5		mg/L	2.0	EPA 300.0	2	01/21/2023 09:25	AXW	B
Total Dissolved Solids	232		mg/L	25	S2540C-11	1	01/24/2023 08:45	SMS	B
Total Organic Carbon (TOC)	2.6		mg/L	0.50	SW846 9060A	1	01/25/2023 03:05	PAG	E
Turbidity	1.4		NTU	0.30	SM2130B-2011	1	01/20/2023 23:35	NRB	B



Results

Client Sample ID	CWMP004W	Collected	01/20/2023 11:21
Lab Sample ID	3284023004	Lab Receipt	01/20/2023 13:45

FIELD PARAMETERS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Depth to Water Level	101.46		Feet		Field	1	01/20/2023 11:22	BGS	D
Dissolved Oxygen	6.09		mg/L	0.01	Field	1	01/20/2023 11:22	BGS	D
Elev Top MW Casing above MSL	529.53		Feet		Field	1	01/20/2023 11:22	BGS	D
Ground Water Elevation	428.07		ft/MSL		Field	1	01/20/2023 11:22	BGS	D
Oxidation-Reduction Potential	231		mV		Field	1	01/20/2023 11:22	BGS	D
pH, Field (SM4500B)	5.74		pH_Units		Field	1	01/20/2023 11:22	BGS	D
Sample Depth	130.00		Feet		Field	1	01/20/2023 11:22	BGS	D
Specific Conductance, Field	392		umhos/cm	1	Field	1	01/20/2023 11:22	BGS	D
Temperature	14.49		Deg. C		Field	1	01/20/2023 11:22	BGS	D
Total Well Depth	140.00		Feet		Field	1	01/20/2023 11:22	BGS	D
Turbidity, Field	ND	ND	NTU	1	Field	1	01/20/2023 11:22	BGS	D

METALS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Calcium, Total	21.9		mg/L	0.11	SW846 6010C	1	01/25/2023 13:37	A1S	J1
Iron, Total	ND	ND	mg/L	0.067	SW846 6010C	1	01/25/2023 13:37	A1S	J1
Magnesium, Total	7.6		mg/L	0.11	SW846 6010C	1	01/25/2023 13:37	A1S	J1
Manganese, Total	0.0098		mg/L	0.0056	SW846 6010C	1	01/25/2023 13:37	A1S	J1
Potassium, Total	1.5		mg/L	0.56	SW846 6010C	1	01/25/2023 13:37	A1S	J1
Sodium, Total	16.9		mg/L	0.56	SW846 6010C	1	01/25/2023 13:37	A1S	J1

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1-Trichloroethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 16:43	TMP	H
1,1,2,2-Tetrachloroethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 16:43	TMP	H
1,1,2-Trichloroethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 16:43	TMP	H
1,1-Dichloroethane	1.0		ug/L	1.0	SW846 8260B	1	01/31/2023 16:43	TMP	H
1,1-Dichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 16:43	TMP	H
1,2,3-Trichloropropane	ND	ND	ug/L	2.0	SW846 8260B	1	01/31/2023 16:43	TMP	H
1,2,4-Trichlorobenzene	ND	ND	ug/L	2.0	SW846 8260B	1	01/31/2023 16:43	TMP	H
1,2-Dibromoethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 16:43	TMP	H
1,2-Dichlorobenzene	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 16:43	TMP	H
1,2-Dichloroethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 16:43	TMP	H
1,2-Dichloropropane	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 16:43	TMP	H
1,3-Dichlorobenzene	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 16:43	TMP	H
1,3-Dichloropropene, Total	ND	ND	ug/L	2.0	SW846 8260B	1	01/31/2023 16:43	TMP	H
1,4-Dichlorobenzene	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 16:43	TMP	H
Benzene	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 16:43	TMP	H
Bromodichloromethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 16:43	TMP	H
Bromoform	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 16:43	TMP	H
Bromomethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 16:43	TMP	H
Carbon Tetrachloride	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 16:43	TMP	H
Chlorobenzene	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 16:43	TMP	H
Chlorodibromomethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 16:43	TMP	H



Results

Client Sample ID	CWMP004W	Collected	01/20/2023 11:21
Lab Sample ID	3284023004	Lab Receipt	01/20/2023 13:45

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Chloroethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 16:43	TMP	H
Chloroform	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 16:43	TMP	H
Chloromethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 16:43	TMP	H
cis-1,2-Dichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 16:43	TMP	H
Ethylbenzene	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 16:43	TMP	H
Methylene Chloride	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 16:43	TMP	H
Styrene	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 16:43	TMP	H
Tetrachloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 16:43	TMP	H
Toluene	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 16:43	TMP	H
Total Xylenes	ND	ND	ug/L	3.0	SW846 8260B	1	01/31/2023 16:43	TMP	H
trans-1,2-Dichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 16:43	TMP	H
Trichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 16:43	TMP	H
Trichlorofluoromethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 16:43	TMP	H
Vinyl Chloride	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 16:43	TMP	H

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	113%	62 - 133	01/31/2023 16:43	
4-Bromofluorobenzene	460-00-4	95.8%	79 - 114	01/31/2023 16:43	
Dibromofluoromethane	1868-53-7	110%	78 - 116	01/31/2023 16:43	
Toluene-d8	2037-26-5	95.2%	76 - 127	01/31/2023 16:43	

WET CHEMISTRY

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Alkalinity, Bicarbonate	26		mg/L	5	SM2320B-2011	1	01/25/2023 16:47	NML	B
Alkalinity, Total	26	1	mg/L	5	SM2320B-2011	1	01/25/2023 16:47	NML	B
Ammonia-N	0.296	2	mg/L	0.100	ASTM D6919-09	10	01/31/2023 04:18	NML	A
Chemical Oxygen Demand (COD)	ND	ND	mg/L	15	EPA 410.4	1	01/26/2023 14:25	KMS	A
Chloride	47.8		mg/L	2.0	EPA 300.0	2	01/21/2023 09:36	AXW	B
Fluoride	ND	ND	mg/L	0.20	EPA 300.0	2	01/21/2023 09:36	AXW	B
Nitrate-N	5.6		mg/L	1.0	EPA 300.0	2	01/21/2023 09:36	AXW	B
pH	6.38	3	pH_Units		S4500HB-11	1	01/24/2023 03:13	NML	B
Phenolics	ND	ND	mg/L	0.004	SW846 9066	1	02/01/2023 10:45	AKH	G
Specific Conductance	283		umhos/cm	5	SW846 9050A	1	01/26/2023 13:30	J1W	B
Sulfate	6.0		mg/L	2.0	EPA 300.0	2	01/21/2023 09:36	AXW	B
Total Dissolved Solids	206		mg/L	25	S2540C-11	1	01/24/2023 08:45	SMS	B
Total Organic Carbon (TOC)	0.56		mg/L	0.50	SW846 9060A	1	01/25/2023 03:05	PAG	E
Turbidity	ND	ND	NTU	0.30	SM2130B-2011	1	01/20/2023 23:35	NRB	B



Results

Client Sample ID	Field Blank	Collected	01/20/2023 12:00
Lab Sample ID	3284023005	Lab Receipt	01/20/2023 13:45

METALS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Calcium, Total	ND	ND	mg/L	0.11	SW846 6010C	1	01/25/2023 13:38	A1S	J1
Iron, Total	ND	ND	mg/L	0.067	SW846 6010C	1	01/25/2023 13:38	A1S	J1
Magnesium, Total	ND	ND	mg/L	0.11	SW846 6010C	1	01/25/2023 13:38	A1S	J1
Manganese, Total	ND	ND	mg/L	0.0056	SW846 6010C	1	01/25/2023 13:38	A1S	J1
Potassium, Total	ND	ND	mg/L	0.56	SW846 6010C	1	01/25/2023 13:38	A1S	J1
Sodium, Total	ND	ND	mg/L	0.56	SW846 6010C	1	01/25/2023 13:38	A1S	J1

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1-Trichloroethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 13:41	TMP	H
1,1-Dichloroethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 13:41	TMP	H
1,1-Dichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 13:41	TMP	H
1,2-Dibromoethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 13:41	TMP	H
1,2-Dichloroethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 13:41	TMP	H
Benzene	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 13:41	TMP	H
cis-1,2-Dichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 13:41	TMP	H
Ethylbenzene	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 13:41	TMP	H
Methylene Chloride	1.0		ug/L	1.0	SW846 8260B	1	01/31/2023 13:41	TMP	H
Tetrachloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 13:41	TMP	H
Toluene	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 13:41	TMP	H
Total Xylenes	ND	ND	ug/L	3.0	SW846 8260B	1	01/31/2023 13:41	TMP	H
trans-1,2-Dichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 13:41	TMP	H
Trichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 13:41	TMP	H
Vinyl Chloride	ND	ND	ug/L	1.0	SW846 8260B	1	01/31/2023 13:41	TMP	H

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	108%	62 - 133	01/31/2023 13:41	
4-Bromofluorobenzene	460-00-4	95.8%	79 - 114	01/31/2023 13:41	
Dibromofluoromethane	1868-53-7	106%	78 - 116	01/31/2023 13:41	
Toluene-d8	2037-26-5	94.3%	76 - 127	01/31/2023 13:41	

WET CHEMISTRY

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Alkalinity, Bicarbonate	ND	ND	mg/L	5	SM2320B-2011	1	01/25/2023 16:55	NML	B
Alkalinity, Total	ND	ND,1	mg/L	5	SM2320B-2011	1	01/25/2023 16:55	NML	B
Ammonia-N	ND	ND,2	mg/L	0.100	ASTM D6919-09	1	02/01/2023 11:17	NML	A
Chemical Oxygen Demand (COD)	ND	ND	mg/L	15	EPA 410.4	1	01/26/2023 14:25	KMS	A
Chloride	ND	ND	mg/L	2.0	EPA 300.0	2	01/21/2023 09:46	AXW	B
Fluoride	ND	ND	mg/L	0.20	EPA 300.0	2	01/21/2023 09:46	AXW	B
Nitrate-N	ND	ND	mg/L	1.0	EPA 300.0	2	01/21/2023 09:46	AXW	B
pH	5.86	3	pH_Units		S4500HB-11	1	01/24/2023 03:28	NML	B
Phenolics	ND	ND	mg/L	0.004	SW846 9066	1	02/01/2023 11:07	AKH	G



Results

Client Sample ID	Field Blank	Collected	01/20/2023 12:00
Lab Sample ID	3284023005	Lab Receipt	01/20/2023 13:45

WET CHEMISTRY (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Specific Conductance	ND	ND	umhos/cm	5	SW846 9050A	1	01/26/2023 13:30	J1W	B
Sulfate	ND	ND	mg/L	2.0	EPA 300.0	2	01/21/2023 09:46	AXW	B
Total Dissolved Solids	ND	ND	mg/L	25	S2540C-11	1	01/24/2023 08:45	SMS	B
Total Organic Carbon (TOC)	ND	ND	mg/L	0.50	SW846 9060A	1	01/25/2023 03:05	PAG	E
Turbidity	0.30		NTU	0.30	SM2130B-2011	1	01/20/2023 23:35	NRB	B



Results

Client Sample ID	Trip Blank	Collected	01/20/2023 13:45
Lab Sample ID	3284023006	Lab Receipt	01/20/2023 13:45

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1-Trichloroethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/30/2023 00:04	PDK	A
1,1-Dichloroethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/30/2023 00:04	PDK	A
1,1-Dichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/30/2023 00:04	PDK	A
1,2-Dibromoethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/30/2023 00:04	PDK	A
1,2-Dichloroethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/30/2023 00:04	PDK	A
Benzene	ND	ND	ug/L	1.0	SW846 8260B	1	01/30/2023 00:04	PDK	A
cis-1,2-Dichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/30/2023 00:04	PDK	A
Ethylbenzene	ND	ND	ug/L	1.0	SW846 8260B	1	01/30/2023 00:04	PDK	A
Methylene Chloride	ND	ND	ug/L	1.0	SW846 8260B	1	01/30/2023 00:04	PDK	A
Tetrachloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/30/2023 00:04	PDK	A
Toluene	ND	ND	ug/L	1.0	SW846 8260B	1	01/30/2023 00:04	PDK	A
Total Xylenes	ND	ND	ug/L	3.0	SW846 8260B	1	01/30/2023 00:04	PDK	A
trans-1,2-Dichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/30/2023 00:04	PDK	A
Trichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/30/2023 00:04	PDK	A
Vinyl Chloride	ND	ND	ug/L	1.0	SW846 8260B	1	01/30/2023 00:04	PDK	A

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	98.8%	62 – 133	01/30/2023 00:04	
4-Bromofluorobenzene	460-00-4	99.2%	79 – 114	01/30/2023 00:04	
Dibromofluoromethane	1868-53-7	96.3%	78 – 116	01/30/2023 00:04	
Toluene-d8	2037-26-5	101%	76 – 127	01/30/2023 00:04	



Sample - Method Cross Reference Table

Lab ID	Sample ID	Analysis Method	Preparation Method	Leachate Method
3284023001	CWMP012W	Field	N/A	
		SW846 6010C	SW846 3015A	
		SW846 8260B	N/A	
		ASTM D6919-09	N/A	
		EPA 300.0	N/A	
		EPA 410.4	N/A	
		S2540C-11	N/A	
		S4500HB-11	N/A	
		SM2130B-2011	N/A	
		SM2320B-2011	N/A	
		SW846 9050A	N/A	
		SW846 9060A	N/A	
		SW846 9066	SW846 9066	
3284023002	CWMP002W	Field	N/A	
		SW846 6010C	SW846 3015A	
		SW846 8260B	N/A	
		ASTM D6919-09	N/A	
		EPA 300.0	N/A	
		EPA 410.4	N/A	
		S2540C-11	N/A	
		S4500HB-11	N/A	
		SM2130B-2011	N/A	
		SM2320B-2011	N/A	
		SW846 9050A	N/A	
		SW846 9060A	N/A	
		SW846 9066	SW846 9066	
3284023003	CWMP003W	Field	N/A	
		SW846 6010C	SW846 3015A	
		SW846 8260B	N/A	
		ASTM D6919-09	N/A	
		EPA 300.0	N/A	
		EPA 410.4	N/A	
		S2540C-11	N/A	
		S4500HB-11	N/A	
		SM2130B-2011	N/A	
		SM2320B-2011	N/A	
		SW846 9050A	N/A	
		SW846 9060A	N/A	
		SW846 9066	SW846 9066	
3284023004	CWMP004W	Field	N/A	
		SW846 6010C	SW846 3015A	
		SW846 8260B	N/A	
		ASTM D6919-09	N/A	
		EPA 300.0	N/A	
		EPA 410.4	N/A	
		S2540C-11	N/A	
		S4500HB-11	N/A	
		SM2130B-2011	N/A	
		SM2320B-2011	N/A	
		SW846 9050A	N/A	
		SW846 9060A	N/A	
		SW846 9066	SW846 9066	



Project 1st QTR 2023 GWMP-FORM 19Q

Workorder 3284023

Lab ID	Sample ID	Analysis Method	Preparation Method	Leachate Method
3284023005	Field Blank	SW846 6010C	SW846 3015A	
		SW846 8260B	N/A	
		ASTM D6919-09	N/A	
		EPA 300.0	N/A	
		EPA 410.4	N/A	
		S2540C-11	N/A	
		S4500HB-11	N/A	
		SM2130B-2011	N/A	
		SM2320B-2011	N/A	
		SW846 9050A	N/A	
		SW846 9060A	N/A	
		SW846 9066	SW846 9066	
3284023006	Trip Blank	SW846 8260B	N/A	



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Lab ID	Sample ID	Preparation Method	Prep Batch	Prep Date/Time	By	Analysis Method	Anly Batch
3284023001	CWMP012W	N/A	N/A	N/A		Field	939184
		SW846 3015A	937467	01/24/2023 15:00	JSE	SW846 6010C	938498
		N/A	N/A	N/A		SW846 8260B	939818
		N/A	N/A	N/A		ASTM D6919-09	939440
		N/A	N/A	N/A		EPA 300.0	937438
		N/A	N/A	N/A		EPA 410.4	938983
		N/A	N/A	N/A		S2540C-11	937477
		N/A	N/A	N/A		S4500HB-11	937571
		N/A	N/A	N/A		SM2130B-2011	937433
		N/A	N/A	N/A		SM2320B-2011	938476
		N/A	N/A	N/A		SW846 9050A	939070
		N/A	N/A	N/A		SW846 9060A	937945
		N/A	SW846 9066	938564	01/25/2023 13:04	MXF	SW846 9066
3284023002	CWMP002W	N/A	N/A	N/A		Field	939184
		SW846 3015A	937467	01/24/2023 15:00	JSE	SW846 6010C	938498
		N/A	N/A	N/A		SW846 8260B	939818
		N/A	N/A	N/A		ASTM D6919-09	939440
		N/A	N/A	N/A		EPA 300.0	937438
		N/A	N/A	N/A		EPA 410.4	938983
		N/A	N/A	N/A		S2540C-11	937477
		N/A	N/A	N/A		S4500HB-11	937571
		N/A	N/A	N/A		SM2130B-2011	937433
		N/A	N/A	N/A		SM2320B-2011	938476
		N/A	N/A	N/A		SW846 9050A	939070
		N/A	N/A	N/A		SW846 9060A	937945
		N/A	SW846 9066	938564	01/25/2023 13:04	MXF	SW846 9066
3284023003	CWMP003W	N/A	N/A	N/A		Field	939184
		SW846 3015A	937467	01/24/2023 15:00	JSE	SW846 6010C	938498
		N/A	N/A	N/A		SW846 8260B	939818
		N/A	N/A	N/A		ASTM D6919-09	939440
		N/A	N/A	N/A		EPA 300.0	937438
		N/A	N/A	N/A		EPA 410.4	938983
		N/A	N/A	N/A		S2540C-11	937477
		N/A	N/A	N/A		S4500HB-11	937571
		N/A	N/A	N/A		SM2130B-2011	937433
		N/A	N/A	N/A		SM2320B-2011	938476
		N/A	N/A	N/A		SW846 9050A	939070
		N/A	N/A	N/A		SW846 9060A	937945
		N/A	SW846 9066	938564	01/25/2023 13:04	MXF	SW846 9066
3284023004	CWMP004W	N/A	N/A	N/A		Field	939184
		SW846 3015A	937467	01/24/2023 15:00	JSE	SW846 6010C	938498
		N/A	N/A	N/A		SW846 8260B	939818
		N/A	N/A	N/A		ASTM D6919-09	939440
		N/A	N/A	N/A		EPA 300.0	937438
		N/A	N/A	N/A		EPA 410.4	938983
		N/A	N/A	N/A		S2540C-11	937477
		N/A	N/A	N/A		S4500HB-11	937571
		N/A	N/A	N/A		SM2130B-2011	937433
		N/A	N/A	N/A		SM2320B-2011	938476
		N/A	N/A	N/A		SW846 9050A	939070
		N/A	N/A	N/A		SW846 9060A	937945
		N/A	SW846 9066	938564	01/25/2023 13:04	MXF	SW846 9066



Project 1st QTR 2023 GWMP-FORM 19Q

Workorder 3284023

Lab ID	Sample ID	Preparation Method	Prep Batch	Prep Date/Time	By	Analysis Method	Anly Batch
3284023005	Field Blank	SW846 3015A	937467	01/24/2023 15:00	JSE	SW846 6010C	938498
		N/A	N/A	N/A		SW846 8260B	939818
		N/A	N/A	N/A		ASTM D6919-09	940161
		N/A	N/A	N/A		EPA 300.0	937438
		N/A	N/A	N/A		EPA 410.4	938983
		N/A	N/A	N/A		S2540C-11	937477
		N/A	N/A	N/A		S4500HB-11	937571
		N/A	N/A	N/A		SM2130B-2011	937433
		N/A	N/A	N/A		SM2320B-2011	938476
		N/A	N/A	N/A		SW846 9050A	939070
		N/A	N/A	N/A		SW846 9060A	937945
		N/A	N/A	N/A		SW846 9066	939792
		3284023006	Trip Blank	N/A	N/A	N/A	



34 Dogwood Lane • Middletown, PA 17057 • Phone: 717-944-5541 • Fax: 717-944-1430 • www.alsglobal.com

301 Felling Mill Road • Middletown, PA 17057 • 717-944-5541 • Fax: 717-944-1430

Client Name: Lancaster County Solid Waste MA

Address: 1299 Harrisburg Pike, P.O. Box 4424
Lancaster, PA 17604

Contact: Dan Brown

Phone#: (717) 735-0193

Project Name#: Creswell/GWMP Form 19Q Wells

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 **dbrown@lcswwma.org**

Fax? Y N **No.: (717) 397-9973**

Sample Description/Location (as it will appear on the lab report)	Sample Date	Time	* G or C	# Matrix	TOC	O-H	8260 VOCs - Form 19Q	Field Measurements	Sample Depth for AUX Data	NH3-N, COD	Total Metals: Ca, Fe, Mn, Mg, K, Na	PH, NO3, Cl, F, SpC, SO4, Turb,	TDS	Alkalinity, HCO3	Cc
1. CWMP012W	01/20/23	1000	G GW	2	1	2	X	X	1	2	1	1	1	1	
2. CWMP002W	01/20/23	1047	G GW	2	1	2	X	X	1	2	1	1	1	1	
3. CWMP003W	01/20/23	1105	G GW	2	1	2	X	X	1	2	1	1	1	1	
4. CWMP004W	01/20/23	1121	G GW	2	1	2	X	X	1	2	1	1	1	1	
5. Field Blank	01/20/23	1200	G GW	2	1	2			1	2	1	1	1	1	
6. Trip Blank	01/20/23	1345	G GW	2											
7															
8															
9															
10															

Generated by ALS
3284023
Logged By: KSB
PM: SJB

COC
ALS

Temp By: AMRF
WO Temp (°C): 7
Therm ID: 576
initial

Receipt Info Completed By:
Cooler Custody Seal Intact
Sample Custody Seal Intact
Received on Ice
Cooler & Samples Intact
Correct Container's Provided
Sample Label/COC Agree
Adequate Sample Volumes
CR6 Samples Filtered
OP Samples Filtered
VOA Headspace Present
Voa Trip Blank
NJ≤ 4 Days?
Rad Screen (uCi)
Courier/Tracking #:

SDWA Compliance
PWSID
WW Containers 0-6 C

ALS Field Services: Pickup Labor
 Composite_Sampling Rental_Equipment
 Other:

Standard	Special Processing	State Samples Collected In
<input type="checkbox"/> Standard	USACE	<input type="checkbox"/> NY
<input type="checkbox"/> CLP-like	Navy	<input type="checkbox"/> NJ
<input type="checkbox"/> USACE		<input checked="" type="checkbox"/> PA
<input type="checkbox"/>		<input type="checkbox"/> NC

Reportable to PADEP? Yes No
Lab Special
PWSID #
EDDS: Format Type:

LOGGED BY (signature):	REVIEWED BY (signature):	Date	Time	Received By / Company Name	Date	Time
		1/20/23	1345	AMRF / ALS	1/20/23	1345

Project Comments:
Relinquished By / Company Name
1. [Signature] well B
3
5
7
9



301 Fulling Mill Road | Middletown, PA 17057 | Phone: 717-944-5541 | Fax: 717-944-1430 | www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: PJLA 74618
State Certifications: FL E871113 , WA C999 , MD 128 , VA 460157 , WV DW 9961-C , WV 343

Analytical Results Report For **Lancaster County Solid Waste Authority**
Project 1st QTR 2023 GWMP-FORM 19Q
Workorder 3283581
Report ID 221576 on 1/30/2023

Certificate of Analysis

Enclosed are the analytical results for samples received by the laboratory on Jan 18, 2023.

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 Susan 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 Global.
ALS Middletown: 301 Fulling Mill Road, Middletown, PA 17057 : 717-944-5541.

Recipient(s):
Ashley Gichuki - Lancaster County Solid Waste Authority
Daniel Brown - Lancaster County Solid Waste Authority
Jordan Gallagher - Lancaster County Solid Waste Authority
Jeff Musser - Lancaster County Solid Waste Authority

Susan Scherer

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

Susan Scherer (ALS Digital Signature)
Project Coordinator



Sample Summary

<u>Lab ID</u>	<u>Sample ID</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>Date Received</u>	<u>Collector</u>	<u>Collection Company</u>
3283581001	CWMP016W	Ground Water	01/18/2023 10:25	01/18/2023 16:07	BGS	Analytical Laboratory Service
3283581002	CWMP018S	Ground Water	01/18/2023 10:55	01/18/2023 16:07	BGS	Analytical Laboratory Service
3283581003	CWMP017S	Ground Water	01/18/2023 11:30	01/18/2023 16:07	BGS	Analytical Laboratory Service



Reference

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).
- Except as qualified, Clean Water Act sample analyses are consistent with methodology requirements in 40 CFR Part 136.
- Except as qualified, Safe Drinking Water Act sample analyses are consistent with methodology requirements in 40 CFR Part 141.
- 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.
- An Analysis-Prep Method Cross Reference Table is included after Analytical Results & Qualifiers section in this report.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.

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) above the MDL
N	Indicates presumptive evidence of the presence of a compound
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
RDL	Practical Quantitation Limit for this Project
ND	Not Detected - indicates that the analyte was Not Detected
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
#	Please reference the result in the Results Section for analyte-level flags.



Project Notations

Sample Notations

Lab ID **Sample ID**

Result Notations

Notation Ref.

- | | |
|---|---|
| 1 | The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L. |
| 2 | Method ASTMD6919-09 is equivalent to Method ASTMD6919-17. |
| 3 | 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. |
| 4 | The QC sample type MS for method SW846 9066 was outside the control limits for the analyte Phenolics. The % Recovery was reported as 121 and the control limits were 90 to 110. |



Detected Results Summary

Client Sample ID	CWMP016W	Collected	01/18/2023 10:25
Lab Sample ID	3283581001	Lab Receipt	01/18/2023 16:07

Compound	Result	Units	RDL	Method	Flag
FIELD PARAMETERS					
Depth to Water Level	9.98	Feet		Field	#
Dissolved Oxygen	9.20	mg/L	0.01	Field	#
Elev Top MW Casing above MSL	311.97	Feet		Field	#
Flow Rate	2.26	gal/min		Field	#
Ground Water Elevation	301.99	ft/MSL		Field	#
Oxidation-Reduction Potential	288	mV		Field	#
pH, Field (SM4500B)	5.61	pH_Units		Field	#
Sample Depth	71.00	Feet		Field	#
Specific Conductance, Field	64	umhos/cm	1	Field	#
Temperature	12.70	Deg. C		Field	#
Total Well Depth	73.52	Feet		Field	#
Volume in Water Column	93.40	Gallons		Field	#
Water Level After Purge	19.15	Feet		Field	#
Well Volumes Purged	1.45	Vol		Field	#
METALS					
Calcium, Total	5.8	mg/L	0.11	SW846 6010C	#
Iron, Total	0.12	mg/L	0.067	SW846 6010C	#
Magnesium, Total	1.5	mg/L	0.11	SW846 6010C	#
Manganese, Total	0.0059	mg/L	0.0056	SW846 6010C	#
Potassium, Total	0.69	mg/L	0.56	SW846 6010C	#
Sodium, Total	3.5	mg/L	0.56	SW846 6010C	#
WET CHEMISTRY					
Alkalinity, Bicarbonate	12	mg/L	5	SM2320B-2011	#
Alkalinity, Total	12	mg/L	5	SM2320B-2011	#
Chloride	3.1	mg/L	2.0	EPA 300.0	#
Nitrate-N	1.9	mg/L	1.0	EPA 300.0	#
pH	6.94	pH_Units		S4500HB-11	#
Specific Conductance	66	umhos/cm	5	SW846 9050A	#
Sulfate	9.1	mg/L	2.0	EPA 300.0	#
Total Dissolved Solids	72	mg/L	25	S2540C-11	#
Turbidity	1.1	NTU	0.30	SM2130B-2011	#



Detected Results Summary

Client Sample ID	CWMP018S	Collected	01/18/2023 10:55
Lab Sample ID	3283581002	Lab Receipt	01/18/2023 16:07

Compound	Result	Units	RDL	Method	Flag
FIELD PARAMETERS					
Dissolved Oxygen	12.87	mg/L	0.01	Field	#
pH, Field (SM4500B)	8.30	pH_Units		Field	#
Specific Conductance, Field	2287	umhos/cm	1	Field	#
Temperature	7.49	Deg. C		Field	#
METALS					
Calcium, Total	75.9	mg/L	0.11	SW846 6010C	#
Iron, Total	0.15	mg/L	0.067	SW846 6010C	#
Magnesium, Total	73.7	mg/L	0.11	SW846 6010C	#
Manganese, Total	0.13	mg/L	0.0056	SW846 6010C	#
Potassium, Total	18.5	mg/L	0.56	SW846 6010C	#
Sodium, Total	315	mg/L	0.56	SW846 6010C	#
WET CHEMISTRY					
Alkalinity, Bicarbonate	297	mg/L	5	SM2320B-2011	#
Alkalinity, Total	327	mg/L	5	SM2320B-2011	#
Ammonia-N	0.372	mg/L	0.100	ASTM D6919-09	#
Chemical Oxygen Demand (COD)	18	mg/L	15	EPA 410.4	#
Chloride	532	mg/L	10.0	EPA 300.0	#
Nitrate-N	20.1	mg/L	2.5	EPA 300.0	#
pH	8.56	pH_Units		S4500HB-11	#
Specific Conductance	554	umhos/cm	50	SW846 9050A	#
Sulfate	47.1	mg/L	5.0	EPA 300.0	#
Total Dissolved Solids	1380	mg/L	25	S2540C-11	#
Total Organic Carbon (TOC)	6.4	mg/L	0.50	SW846 9060A	#
Turbidity	0.50	NTU	0.30	SM2130B-2011	#



Detected Results Summary

Client Sample ID	CWMP017S	Collected	01/18/2023 11:30
Lab Sample ID	3283581003	Lab Receipt	01/18/2023 16:07

Compound	Result	Units	RDL	Method	Flag
FIELD PARAMETERS					
Dissolved Oxygen	11.45	mg/L	0.01	Field	#
pH, Field (SM4500B)	7.79	pH_Units		Field	#
Specific Conductance, Field	3645	umhos/cm	1	Field	#
Temperature	13.44	Deg. C		Field	#
METALS					
Calcium, Total	92.1	mg/L	0.11	SW846 6010C	#
Iron, Total	0.60	mg/L	0.067	SW846 6010C	#
Magnesium, Total	120	mg/L	0.11	SW846 6010C	#
Manganese, Total	0.074	mg/L	0.0056	SW846 6010C	#
Potassium, Total	23.1	mg/L	0.56	SW846 6010C	#
Sodium, Total	498	mg/L	0.56	SW846 6010C	#
WET CHEMISTRY					
Alkalinity, Bicarbonate	534	mg/L	50	SM2320B-2011	#
Alkalinity, Total	534	mg/L	50	SM2320B-2011	#
Chloride	822	mg/L	25.0	EPA 300.0	#
Nitrate-N	29.7	mg/L	2.5	EPA 300.0	#
pH	8.49	pH_Units		S4500HB-11	#
Specific Conductance	818	umhos/cm	50	SW846 9050A	#
Sulfate	22.8	mg/L	5.0	EPA 300.0	#
Total Dissolved Solids	2030	mg/L	25	S2540C-11	#
Total Organic Carbon (TOC)	4.5	mg/L	0.50	SW846 9060A	#
Turbidity	1.6	NTU	0.30	SM2130B-2011	#



Results

Client Sample ID	CWMP016W	Collected	01/18/2023 10:25
Lab Sample ID	3283581001	Lab Receipt	01/18/2023 16:07

FIELD PARAMETERS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Depth to Water Level	9.98		Feet		Field	1	01/18/2023 10:25	BGS	A
Dissolved Oxygen	9.20		mg/L	0.01	Field	1	01/18/2023 10:25	BGS	A
Elev Top MW Casing above MSL	311.97		Feet		Field	1	01/18/2023 10:25	BGS	A
Flow Rate	2.26		gal/min		Field	1	01/18/2023 10:25	BGS	A
Ground Water Elevation	301.99		ft/MSL		Field	1	01/18/2023 10:25	BGS	A
Oxidation-Reduction Potential	288		mV		Field	1	01/18/2023 10:25	BGS	A
pH, Field (SM4500B)	5.61		pH_Units		Field	1	01/18/2023 10:25	BGS	A
Sample Depth	71.00		Feet		Field	1	01/18/2023 10:25	BGS	A
Specific Conductance, Field	64		umhos/cm	1	Field	1	01/18/2023 10:25	BGS	A
Temperature	12.70		Deg. C		Field	1	01/18/2023 10:25	BGS	A
Total Well Depth	73.52		Feet		Field	1	01/18/2023 10:25	BGS	A
Turbidity, Field	ND	ND	NTU	1	Field	1	01/18/2023 10:25	BGS	A
Volume in Water Column	93.40		Gallons		Field	1	01/18/2023 10:25	BGS	A
Water Level After Purge	19.15		Feet		Field	1	01/18/2023 10:25	BGS	A
Well Volumes Purged	1.45		Vol		Field	1	01/18/2023 10:25	BGS	A

METALS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Calcium, Total	5.8		mg/L	0.11	SW846 6010C	1	01/25/2023 13:09	A1S	A1
Iron, Total	0.12		mg/L	0.067	SW846 6010C	1	01/25/2023 13:09	A1S	A1
Magnesium, Total	1.5		mg/L	0.11	SW846 6010C	1	01/25/2023 13:09	A1S	A1
Manganese, Total	0.0059		mg/L	0.0056	SW846 6010C	1	01/25/2023 13:09	A1S	A1
Potassium, Total	0.69		mg/L	0.56	SW846 6010C	1	01/25/2023 13:09	A1S	A1
Sodium, Total	3.5		mg/L	0.56	SW846 6010C	1	01/25/2023 13:09	A1S	A1

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1-Trichloroethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/26/2023 00:07	PDK	A
1,1-Dichloroethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/26/2023 00:07	PDK	A
1,1-Dichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/26/2023 00:07	PDK	A
1,2-Dibromoethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/26/2023 00:07	PDK	A
1,2-Dichloroethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/26/2023 00:07	PDK	A
Benzene	ND	ND	ug/L	1.0	SW846 8260B	1	01/26/2023 00:07	PDK	A
cis-1,2-Dichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/26/2023 00:07	PDK	A
Ethylbenzene	ND	ND	ug/L	1.0	SW846 8260B	1	01/26/2023 00:07	PDK	A
Methylene Chloride	ND	ND	ug/L	1.0	SW846 8260B	1	01/26/2023 00:07	PDK	A
Tetrachloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/26/2023 00:07	PDK	A
Toluene	ND	ND	ug/L	1.0	SW846 8260B	1	01/26/2023 00:07	PDK	A
Total Xylenes	ND	ND	ug/L	3.0	SW846 8260B	1	01/26/2023 00:07	PDK	A
trans-1,2-Dichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/26/2023 00:07	PDK	A
Trichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/26/2023 00:07	PDK	A
Vinyl Chloride	ND	ND	ug/L	1.0	SW846 8260B	1	01/26/2023 00:07	PDK	A



Results

Client Sample ID	CWMP016W	Collected	01/18/2023 10:25
Lab Sample ID	3283581001	Lab Receipt	01/18/2023 16:07

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
<i>SURROGATES</i>									
Compound	CAS No			Recovery	Limits(%)		Analysis Date/Time		Qualifiers
1,2-Dichloroethane-d4	17060-07-0			87.7%	62 – 133		01/26/2023 00:07		
4-Bromofluorobenzene	460-00-4			113%	79 – 114		01/26/2023 00:07		
Dibromofluoromethane	1868-53-7			92%	78 – 116		01/26/2023 00:07		
Toluene-d8	2037-26-5			100%	76 – 127		01/26/2023 00:07		

WET CHEMISTRY

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Alkalinity, Bicarbonate	12		mg/L	5	SM2320B-2011	1	01/20/2023 06:15	NML	A
Alkalinity, Total	12	1	mg/L	5	SM2320B-2011	1	01/20/2023 06:15	NML	A
Ammonia-N	ND	ND,2	mg/L	0.100	ASTM D6919-09	10	01/25/2023 02:37	NML	A
Chemical Oxygen Demand (COD)	ND	ND	mg/L	15	EPA 410.4	1	01/26/2023 14:25	KMS	A
Chloride	3.1		mg/L	2.0	EPA 300.0	2	01/19/2023 12:06	J1W	A
Fluoride	ND	ND	mg/L	0.20	EPA 300.0	2	01/19/2023 12:06	J1W	A
Nitrate-N	1.9		mg/L	1.0	EPA 300.0	2	01/19/2023 12:06	J1W	A
pH	6.94	3	pH_Units		S4500HB-11	1	01/20/2023 06:15	NML	A
Phenolics	ND	ND	mg/L	0.004	SW846 9066	1	01/25/2023 15:39	AKH	A
Specific Conductance	66		umhos/cm	5	SW846 9050A	1	01/26/2023 10:50	JXL	A
Sulfate	9.1		mg/L	2.0	EPA 300.0	2	01/19/2023 12:06	J1W	A
Total Dissolved Solids	72		mg/L	25	S2540C-11	1	01/24/2023 07:48	SMS	A
Total Organic Carbon (TOC)	ND	ND	mg/L	0.50	SW846 9060A	1	01/24/2023 01:22	PAG	A
Turbidity	1.1		NTU	0.30	SM2130B-2011	1	01/19/2023 00:50	NRB	A



Results

Client Sample ID	CWMP018S	Collected	01/18/2023 10:55
Lab Sample ID	3283581002	Lab Receipt	01/18/2023 16:07

FIELD PARAMETERS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Dissolved Oxygen	12.87		mg/L	0.01	Field	1	01/18/2023 10:55	BGS	A
pH, Field (SM4500B)	8.30		pH_Units		Field	1	01/18/2023 10:55	BGS	A
Specific Conductance, Field	2287		umhos/cm	1	Field	1	01/18/2023 10:55	BGS	A
Temperature	7.49		Deg. C		Field	1	01/18/2023 10:55	BGS	A

METALS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Calcium, Total	75.9		mg/L	0.11	SW846 6010C	1	01/25/2023 13:16	A1S	A1
Iron, Total	0.15		mg/L	0.067	SW846 6010C	1	01/25/2023 13:16	A1S	A1
Magnesium, Total	73.7		mg/L	0.11	SW846 6010C	1	01/25/2023 13:16	A1S	A1
Manganese, Total	0.13		mg/L	0.0056	SW846 6010C	1	01/25/2023 13:16	A1S	A1
Potassium, Total	18.5		mg/L	0.56	SW846 6010C	1	01/25/2023 13:16	A1S	A1
Sodium, Total	315		mg/L	0.56	SW846 6010C	1	01/25/2023 13:16	A1S	A1

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1-Trichloroethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/26/2023 00:30	PDK	A
1,1-Dichloroethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/26/2023 00:30	PDK	A
1,1-Dichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/26/2023 00:30	PDK	A
1,2-Dibromoethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/26/2023 00:30	PDK	A
1,2-Dichloroethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/26/2023 00:30	PDK	A
Benzene	ND	ND	ug/L	1.0	SW846 8260B	1	01/26/2023 00:30	PDK	A
cis-1,2-Dichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/26/2023 00:30	PDK	A
Ethylbenzene	ND	ND	ug/L	1.0	SW846 8260B	1	01/26/2023 00:30	PDK	A
Methylene Chloride	ND	ND	ug/L	1.0	SW846 8260B	1	01/26/2023 00:30	PDK	A
Tetrachloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/26/2023 00:30	PDK	A
Toluene	ND	ND	ug/L	1.0	SW846 8260B	1	01/26/2023 00:30	PDK	A
Total Xylenes	ND	ND	ug/L	3.0	SW846 8260B	1	01/26/2023 00:30	PDK	A
trans-1,2-Dichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/26/2023 00:30	PDK	A
Trichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/26/2023 00:30	PDK	A
Vinyl Chloride	ND	ND	ug/L	1.0	SW846 8260B	1	01/26/2023 00:30	PDK	A

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	89.3%	62 - 133	01/26/2023 00:30	
4-Bromofluorobenzene	460-00-4	111%	79 - 114	01/26/2023 00:30	
Dibromofluoromethane	1868-53-7	89.7%	78 - 116	01/26/2023 00:30	
Toluene-d8	2037-26-5	99.5%	76 - 127	01/26/2023 00:30	

WET CHEMISTRY

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Alkalinity, Bicarbonate	297		mg/L	5	SM2320B-2011	1	01/20/2023 06:31	NML	A



Results

Client Sample ID	CWMP018S	Collected	01/18/2023 10:55
Lab Sample ID	3283581002	Lab Receipt	01/18/2023 16:07

WET CHEMISTRY (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Alkalinity, Total	327	1	mg/L	5	SM2320B-2011	1	01/20/2023 06:31	NML	A
Ammonia-N	0.372	2	mg/L	0.100	ASTM D6919-09	10	01/25/2023 02:24	NML	A
Chemical Oxygen Demand (COD)	18		mg/L	15	EPA 410.4	1	01/26/2023 14:25	KMS	A
Chloride	532		mg/L	10.0	EPA 300.0	10	01/25/2023 21:18	J1W	A
Fluoride	ND	ND	mg/L	0.50	EPA 300.0	5	01/19/2023 12:17	J1W	A
Nitrate-N	20.1		mg/L	2.5	EPA 300.0	5	01/19/2023 12:17	J1W	A
pH	8.56	3	pH_Units		S4500HB-11	1	01/20/2023 06:31	NML	A
Phenolics	ND	ND,4	mg/L	0.004	SW846 9066	1	01/25/2023 16:01	AKH	A
Specific Conductance	554		umhos/cm	50	SW846 9050A	10	01/26/2023 11:05	JXL	A
Sulfate	47.1		mg/L	5.0	EPA 300.0	5	01/19/2023 12:17	J1W	A
Total Dissolved Solids	1380		mg/L	25	S2540C-11	1	01/24/2023 07:48	SMS	A
Total Organic Carbon (TOC)	6.4		mg/L	0.50	SW846 9060A	1	01/24/2023 01:22	PAG	A
Turbidity	0.50		NTU	0.30	SM2130B-2011	1	01/19/2023 00:50	NRB	A



Results

Client Sample ID	CWMP017S	Collected	01/18/2023 11:30
Lab Sample ID	3283581003	Lab Receipt	01/18/2023 16:07

FIELD PARAMETERS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Dissolved Oxygen	11.45		mg/L	0.01	Field	1	01/18/2023 11:30	BGS	A
pH, Field (SM4500B)	7.79		pH_Units		Field	1	01/18/2023 11:30	BGS	A
Specific Conductance, Field	3645		umhos/cm	1	Field	1	01/18/2023 11:30	BGS	A
Temperature	13.44		Deg. C		Field	1	01/18/2023 11:30	BGS	A

METALS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Calcium, Total	92.1		mg/L	0.11	SW846 6010C	1	01/25/2023 13:17	A1S	A1
Iron, Total	0.60		mg/L	0.067	SW846 6010C	1	01/25/2023 13:17	A1S	A1
Magnesium, Total	120		mg/L	0.11	SW846 6010C	1	01/25/2023 13:17	A1S	A1
Manganese, Total	0.074		mg/L	0.0056	SW846 6010C	1	01/25/2023 13:17	A1S	A1
Potassium, Total	23.1		mg/L	0.56	SW846 6010C	1	01/25/2023 13:17	A1S	A1
Sodium, Total	498		mg/L	0.56	SW846 6010C	1	01/25/2023 13:17	A1S	A1

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1-Trichloroethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/26/2023 00:52	PDK	A
1,1-Dichloroethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/26/2023 00:52	PDK	A
1,1-Dichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/26/2023 00:52	PDK	A
1,2-Dibromoethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/26/2023 00:52	PDK	A
1,2-Dichloroethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/26/2023 00:52	PDK	A
Benzene	ND	ND	ug/L	1.0	SW846 8260B	1	01/26/2023 00:52	PDK	A
cis-1,2-Dichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/26/2023 00:52	PDK	A
Ethylbenzene	ND	ND	ug/L	1.0	SW846 8260B	1	01/26/2023 00:52	PDK	A
Methylene Chloride	ND	ND	ug/L	1.0	SW846 8260B	1	01/26/2023 00:52	PDK	A
Tetrachloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/26/2023 00:52	PDK	A
Toluene	ND	ND	ug/L	1.0	SW846 8260B	1	01/26/2023 00:52	PDK	A
Total Xylenes	ND	ND	ug/L	3.0	SW846 8260B	1	01/26/2023 00:52	PDK	A
trans-1,2-Dichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/26/2023 00:52	PDK	A
Trichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/26/2023 00:52	PDK	A
Vinyl Chloride	ND	ND	ug/L	1.0	SW846 8260B	1	01/26/2023 00:52	PDK	A

SURROGATES

Compound	CAS No	Recovery	Limits(%)	Analysis Date/Time	Qualifiers
1,2-Dichloroethane-d4	17060-07-0	89.1%	62 - 133	01/26/2023 00:52	
4-Bromofluorobenzene	460-00-4	108%	79 - 114	01/26/2023 00:52	
Dibromofluoromethane	1868-53-7	89.1%	78 - 116	01/26/2023 00:52	
Toluene-d8	2037-26-5	97.4%	76 - 127	01/26/2023 00:52	

WET CHEMISTRY

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Alkalinity, Bicarbonate	534		mg/L	50	SM2320B-2011	10	01/23/2023 11:59	NML	A



Results

Client Sample ID	CWMP017S	Collected	01/18/2023 11:30
Lab Sample ID	3283581003	Lab Receipt	01/18/2023 16:07

WET CHEMISTRY (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Alkalinity, Total	534	1	mg/L	50	SM2320B-2011	10	01/23/2023 11:59	NML	A
Ammonia-N	ND	ND,2	mg/L	0.100	ASTM D6919-09	10	01/26/2023 15:17	NML	A
Chemical Oxygen Demand (COD)	ND	ND	mg/L	15	EPA 410.4	1	01/26/2023 14:25	KMS	A
Chloride	822		mg/L	25.0	EPA 300.0	25	01/25/2023 21:29	J1W	A
Fluoride	ND	ND	mg/L	0.50	EPA 300.0	5	01/19/2023 12:27	J1W	A
Nitrate-N	29.7		mg/L	2.5	EPA 300.0	5	01/19/2023 12:27	J1W	A
pH	8.49	3	pH_Units		S4500HB-11	1	01/20/2023 07:25	NML	A
Phenolics	ND	ND	mg/L	0.004	SW846 9066	1	01/25/2023 16:07	AKH	A
Specific Conductance	818		umhos/cm	50	SW846 9050A	10	01/26/2023 11:05	JXL	A
Sulfate	22.8		mg/L	5.0	EPA 300.0	5	01/19/2023 12:27	J1W	A
Total Dissolved Solids	2030		mg/L	25	S2540C-11	1	01/24/2023 07:48	SMS	A
Total Organic Carbon (TOC)	4.5		mg/L	0.50	SW846 9060A	1	01/24/2023 01:22	PAG	A
Turbidity	1.6		NTU	0.30	SM2130B-2011	1	01/19/2023 00:50	NRB	A



Sample - Method Cross Reference Table

Lab ID	Sample ID	Analysis Method	Preparation Method	Leachate Method
3283581001	CWMP016W	Field	N/A	
		SW846 6010C	SW846 3015A	
		SW846 8260B	N/A	
		ASTM D6919-09	N/A	
		EPA 300.0	N/A	
		EPA 410.4	N/A	
		S2540C-11	N/A	
		S4500HB-11	N/A	
		SM2130B-2011	N/A	
		SM2320B-2011	N/A	
		SW846 9050A	N/A	
		SW846 9060A	N/A	
		SW846 9066	SW846 9066	
3283581002	CWMP018S	Field	N/A	
		SW846 6010C	SW846 3015A	
		SW846 8260B	N/A	
		ASTM D6919-09	N/A	
		EPA 300.0	N/A	
		EPA 300.0	N/A	
		EPA 410.4	N/A	
		S2540C-11	N/A	
		S4500HB-11	N/A	
		SM2130B-2011	N/A	
		SM2320B-2011	N/A	
		SW846 9050A	N/A	
		SW846 9060A	N/A	
SW846 9066	SW846 9066			
3283581003	CWMP017S	Field	N/A	
		SW846 6010C	SW846 3015A	
		SW846 8260B	N/A	
		ASTM D6919-09	N/A	
		EPA 300.0	N/A	
		EPA 300.0	N/A	
		EPA 410.4	N/A	
		S2540C-11	N/A	
		S4500HB-11	N/A	
		SM2130B-2011	N/A	
		SM2320B-2011	N/A	
		SW846 9050A	N/A	
		SW846 9060A	N/A	
SW846 9066	SW846 9066			



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Lab ID	Sample ID	Preparation Method	Prep Batch	Prep Date/Time	By	Analysis Method	Anly Batch
3283581001	CWMP016W	N/A	N/A	N/A		Field	939184
		SW846 3015A	937467	01/24/2023 15:00	JSE	SW846 6010C	938498
		N/A	N/A	N/A		SW846 8260B	938861
		N/A	N/A	N/A		ASTM D6919-09	937799
		N/A	N/A	N/A		EPA 300.0	936979
		N/A	N/A	N/A		EPA 410.4	938983
		N/A	N/A	N/A		S2540C-11	937476
		N/A	N/A	N/A		S4500HB-11	936963
		N/A	N/A	N/A		SM2130B-2011	936853
		N/A	N/A	N/A		SM2320B-2011	936963
		N/A	N/A	N/A		SW846 9050A	937931
		N/A	N/A	N/A		SW846 9060A	937681
		SW846 9066	938473	01/25/2023 08:58	AKH	SW846 9066	938496
3283581002	CWMP018S	N/A	N/A	N/A		Field	939184
		SW846 3015A	937467	01/24/2023 15:00	JSE	SW846 6010C	938498
		N/A	N/A	N/A		SW846 8260B	938861
		N/A	N/A	N/A		ASTM D6919-09	937799
		N/A	N/A	N/A		EPA 300.0	938483
		N/A	N/A	N/A		EPA 300.0	936979
		N/A	N/A	N/A		EPA 410.4	938983
		N/A	N/A	N/A		S2540C-11	937476
		N/A	N/A	N/A		S4500HB-11	936963
		N/A	N/A	N/A		SM2130B-2011	936853
		N/A	N/A	N/A		SM2320B-2011	936963
		N/A	N/A	N/A		SW846 9050A	937932
		N/A	N/A	N/A		SW846 9060A	937681
		SW846 9066	938473	01/25/2023 08:58	AKH	SW846 9066	938496
3283581003	CWMP017S	N/A	N/A	N/A		Field	939184
		SW846 3015A	937467	01/24/2023 15:00	JSE	SW846 6010C	938498
		N/A	N/A	N/A		SW846 8260B	938861
		N/A	N/A	N/A		ASTM D6919-09	939069
		N/A	N/A	N/A		EPA 300.0	938483
		N/A	N/A	N/A		EPA 300.0	936979
		N/A	N/A	N/A		EPA 410.4	938983
		N/A	N/A	N/A		S2540C-11	937476
		N/A	N/A	N/A		S4500HB-11	936963
		N/A	N/A	N/A		SM2130B-2011	936853
		N/A	N/A	N/A		SM2320B-2011	937571
		N/A	N/A	N/A		SW846 9050A	937932
		N/A	N/A	N/A		SW846 9060A	937681
		SW846 9066	938473	01/25/2023 08:58	AKH	SW846 9066	938496

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

Generated by ALS

COC #: 3283581
 Logged By: MJE
 PM: SUB



Client Name: Lancaster County Solid Waste MA
 Address: 1299 Harrisburg Pike, P.O. Box 4424
 Lancaster, PA 17604
 Contact: Dan Brown
 Phone#: (717) 735-0193
 Project Name#: Creswell/GWMP Form 19Q Wells
 Bill To: Lancaster County Solid Waste MA
 TAT: Normal-Standard TAT is 10-12 business days.
 Rush-Subject to ALS approval and surcharges.
 Date Required: Approved By: _____
 Email? Y N Email: dbrown@LCSWMA.com
 Fax? Y N No.: (717) 397-9973

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

Re-prepare instrument (performs by receiving Lab)
 Cooler Temp: 22 Therm ID: TH570
 No. of Coolers: Y N Initial
 Custody Seals Present? Y N Initial
 (If present) Seal Intact

ANALYSES/METHOD REQUESTED

Field Measurements	Sample Depth for AUX Data	Total Metals: Ca, Fe, Mn, Mg, K, Na	PH, NO3, Cl, F, SpC, SO4, Turb,	Alkalinity, HCO3
8260 VOCs - Form 19Q				
OH				
TOC				
NH3-N, COD				

Temp By: MJE WO Temp (°C) 22 Therm ID: 570
 Receipt Info Completed By: DPB
 Cooler Custody Seal Intact Y N
 Sample Custody Seal Intact Y N
 Received on Ice Y N
 Cooler & Samples Intact Y N
 Correct Containers Provided Y N
 Sample Label/COC Agree Y N
 Adequate Sample Volumes Y N
 CR6 Samples Filtered Y N
 OP Samples Filtered Y N
 VOA Headspace Present Y N
 Voa Trip Blank Y N
 NUS- 4 Days? Y N
 Rad Screen (uCi) Y N
 Courier/Tracking#: _____
 SDWA Compliance Y N
 PWSID Y N
 WV Containers 0-6°C Y N

Sample Description/Location (as it will appear on the lab report)	*G or C	Matrix	Enter Number of Containers Per Sample or Field Results Below.													
			TOC	OH	8260 VOCs - Form 19Q	Field Measurements	Sample Depth for AUX Data	Total Metals: Ca, Fe, Mn, Mg, K, Na	PH, NO3, Cl, F, SpC, SO4, Turb,	Alkalinity, HCO3	Deliverables		State Samples Collected In			
1. CWMP016W	G	GW	2	1	2	X	X	1	1	1	1	1	1	Standard	USACE	NY
2. CWMP018S	G	GW	2	1	2	X	X	1	1	1	1	1	1	CLP-like	Navy	NJ
3. CWMP017S	G	GW	2	1	2	X	X	1	1	1	1	1	1	USACE	Lab	PA
4																
5																
6																
7																
8																
9																
10																

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

Project Comments:

Relinquished By / Company Name	Date	Time	Received By / Company Name	Date	Time
<u>ALS Shovel ALS</u>	<u>1/18/23</u>	<u>1607</u>	<u>M...</u>	<u>1/18/23</u>	<u>1607</u>

LOGGED BY (signature): _____
 REVIEWED BY (signature): _____

Reportable to PADEP? Yes
 PWSID # _____
 EDDS: Format Type: _____

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



301 Fulling Mill Road | Middletown, PA 17057 | Phone: 717-944-5541 | Fax: 717-944-1430 | www.alsglobal.com

NELAP Certifications: NJ PA010 , NY 11759 , PA 22-293 DoD ELAP: PJLA 74618
State Certifications: FL E871113 , WA C999 , MD 128 , VA 460157 , WV DW 9961-C , WV 343

Analytical Results Report For **Lancaster County Solid Waste Authority**
Project 1st QTR 2023 GWMP-FORM 19Q
Workorder 3283832
Report ID 222186 on 2/1/2023

Certificate of Analysis

Enclosed are the analytical results for samples received by the laboratory on Jan 19, 2023.

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 Susan 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 Global.
ALS Middletown: 301 Fulling Mill Road, Middletown, PA 17057 : 717-944-5541.

Recipient(s):

Ashley Gichuki - Lancaster County Solid Waste Authority
Daniel Brown - Lancaster County Solid Waste Authority
Jordan Gallagher - Lancaster County Solid Waste Authority
Jeff Musser - Lancaster County Solid Waste Authority

Susan Scherer

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

Susan Scherer
Project Coordinator

(ALS Digital Signature)



Sample Summary

<u>Lab ID</u>	<u>Sample ID</u>	<u>Matrix</u>	<u>Date Collected</u>	<u>Date Received</u>	<u>Collector</u>	<u>Collection Company</u>
3283832001	CWMP010W	Ground Water	01/19/2023 10:18	01/19/2023 15:00	BGS	Analytical Laboratory Service
3283832002	CWMP009W	Ground Water	01/19/2023 11:54	01/19/2023 15:00	BGS	Analytical Laboratory Service
3283832003	CWMP008W	Ground Water	01/19/2023 12:36	01/19/2023 15:00	BGS	Analytical Laboratory Service



Reference

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).
- Except as qualified, Clean Water Act sample analyses are consistent with methodology requirements in 40 CFR Part 136.
- Except as qualified, Safe Drinking Water Act sample analyses are consistent with methodology requirements in 40 CFR Part 141.
- 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.
- An Analysis-Prep Method Cross Reference Table is included after Analytical Results & Qualifiers section in this report.
- Unless otherwise noted, all quantitative results for soils are reported on a dry weight basis.

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) above the MDL
N	Indicates presumptive evidence of the presence of a compound
MDL	Method Detection Limit
PQL	Practical Quantitation Limit
RDL	Practical Quantitation Limit for this Project
ND	Not Detected - indicates that the analyte was Not Detected
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
#	Please reference the result in the Results Section for analyte-level flags.



Project Notations

Sample Notations

Lab ID **Sample ID**

Result Notations

Notation Ref.

- | | |
|---|---|
| 1 | The Total Alkalinity is titrated to a pH of 4.5 and reported as mg CaCO3/L. |
| 2 | Method ASTMD6919-09 is equivalent to Method ASTMD6919-17. |
| 3 | 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. |
| 4 | The QC sample type MB for method EPA 300.0 was outside the control limits for the analyte Chloride. The concentration was reported at 0.467mg/L and the control limit is less than 0.44mg/L. |



Detected Results Summary

Client Sample ID	CWMP010W	Collected	01/19/2023 10:18
Lab Sample ID	3283832001	Lab Receipt	01/19/2023 15:00

Compound	Result	Units	RDL	Method	Flag
FIELD PARAMETERS					
Depth to Water Level	8.65	Feet		Field	#
Dissolved Oxygen	6.67	mg/L	0.01	Field	#
Elev Top MW Casing above MSL	360.90	Feet		Field	#
Flow Rate	1.16	gal/min		Field	#
Ground Water Elevation	352.25	ft/MSL		Field	#
Oxidation-Reduction Potential	169	mV		Field	#
pH, Field (SM4500B)	6.52	pH_Units		Field	#
Sample Depth	17.00	Feet		Field	#
Specific Conductance, Field	1345	umhos/cm	1	Field	#
Temperature	11.02	Deg. C		Field	#
Total Well Depth	19.60	Feet		Field	#
Turbidity, Field	2	NTU	1	Field	#
Volume in Water Column	7.12	Gallons		Field	#
Water Level After Purge	16.78	Feet		Field	#
Well Volumes Purged	2.61	Vol		Field	#
METALS					
Calcium, Total	31.1	mg/L	0.11	SW846 6010C	#
Iron, Total	0.28	mg/L	0.067	SW846 6010C	#
Magnesium, Total	27.6	mg/L	0.11	SW846 6010C	#
Manganese, Total	0.15	mg/L	0.0056	SW846 6010C	#
Potassium, Total	6.1	mg/L	0.56	SW846 6010C	#
Sodium, Total	105	mg/L	0.56	SW846 6010C	#
WET CHEMISTRY					
Alkalinity, Bicarbonate	122	mg/L	5	SM2320B-2011	#
Alkalinity, Total	122	mg/L	5	SM2320B-2011	#
Chloride	150	mg/L	2.0	EPA 300.0	#
Nitrate-N	15.5	mg/L	1.0	EPA 300.0	#
pH	7.62	pH_Units		S4500HB-11	#
Specific Conductance	894	umhos/cm	5	SW846 9050A	#
Sulfate	21.6	mg/L	2.0	EPA 300.0	#
Total Dissolved Solids	448	mg/L	25	S2540C-11	#
Total Organic Carbon (TOC)	2.6	mg/L	0.50	SW846 9060A	#
Turbidity	5.1	NTU	0.30	SM2130B-2011	#



Detected Results Summary

Client Sample ID	CWMP009W	Collected	01/19/2023 11:54
Lab Sample ID	3283832002	Lab Receipt	01/19/2023 15:00

Compound	Result	Units	RDL	Method	Flag
FIELD PARAMETERS					
Depth to Water Level	9.08	Feet		Field	#
Dissolved Oxygen	0.31	mg/L	0.01	Field	#
Elev Top MW Casing above MSL	404.20	Feet		Field	#
Flow Rate	1.55	gal/min		Field	#
Ground Water Elevation	395.12	ft/MSL		Field	#
Oxidation-Reduction Potential	-26	mV		Field	#
pH, Field (SM4500B)	6.03	pH_Units		Field	#
Sample Depth	16.00	Feet		Field	#
Specific Conductance, Field	4076	umhos/cm	1	Field	#
Temperature	11.52	Deg. C		Field	#
Total Well Depth	19.70	Feet		Field	#
Volume in Water Column	6.90	Gallons		Field	#
Water Level After Purge	11.21	Feet		Field	#
Well Volumes Purged	4.48	Vol		Field	#
METALS					
Calcium, Total	179	mg/L	0.11	SW846 6010C	#
Iron, Total	38.2	mg/L	0.067	SW846 6010C	#
Magnesium, Total	87.2	mg/L	0.11	SW846 6010C	#
Manganese, Total	13.0	mg/L	0.0056	SW846 6010C	#
Potassium, Total	35.6	mg/L	0.56	SW846 6010C	#
Sodium, Total	203	mg/L	0.56	SW846 6010C	#
VOLATILE ORGANICS					
1,1-Dichloroethane	1.2	ug/L	1.0	SW846 8260B	#
Benzene	2.3	ug/L	1.0	SW846 8260B	#
WET CHEMISTRY					
Alkalinity, Bicarbonate	529	mg/L	50	SM2320B-2011	#
Alkalinity, Total	529	mg/L	50	SM2320B-2011	#
Ammonia-N	33.0	mg/L	0.100	ASTM D6919-09	#
Chemical Oxygen Demand (COD)	106	mg/L	15	EPA 410.4	#
Chloride	626	mg/L	25.0	EPA 300.0	#
pH	6.71	pH_Units		S4500HB-11	#
Specific Conductance	3180	umhos/cm	50	SW846 9050A	#
Sulfate	6.1	mg/L	5.0	EPA 300.0	#
Total Dissolved Solids	1570	mg/L	25	S2540C-11	#
Total Organic Carbon (TOC)	37.0	mg/L	5.0	SW846 9060A	#
Turbidity	30	NTU	0.30	SM2130B-2011	#



Detected Results Summary

Client Sample ID	CWMP008W	Collected	01/19/2023 12:36
Lab Sample ID	3283832003	Lab Receipt	01/19/2023 15:00

Compound	Result	Units	RDL	Method	Flag
FIELD PARAMETERS					
Depth to Water Level	2.66	Feet		Field	#
Dissolved Oxygen	0.15	mg/L	0.01	Field	#
Elev Top MW Casing above MSL	422.30	Feet		Field	#
Flow Rate	0.92	gal/min		Field	#
Ground Water Elevation	419.64	ft/MSL		Field	#
Oxidation-Reduction Potential	-15	mV		Field	#
pH, Field (SM4500B)	6.19	pH_Units		Field	#
Sample Depth	19.00	Feet		Field	#
Specific Conductance, Field	1034	umhos/cm	1	Field	#
Temperature	13.37	Deg. C		Field	#
Total Well Depth	22.80	Feet		Field	#
Volume in Water Column	3.22	Gallons		Field	#
Water Level After Purge	13.61	Feet		Field	#
Well Volumes Purged	5.69	Vol		Field	#
METALS					
Calcium, Total	62.4	mg/L	0.11	SW846 6010C	#
Iron, Total	23.3	mg/L	0.067	SW846 6010C	#
Magnesium, Total	28.2	mg/L	0.11	SW846 6010C	#
Manganese, Total	14.8	mg/L	0.0056	SW846 6010C	#
Potassium, Total	7.8	mg/L	0.56	SW846 6010C	#
Sodium, Total	32.6	mg/L	0.56	SW846 6010C	#
VOLATILE ORGANICS					
1,1-Dichloroethane	2.0	ug/L	1.0	SW846 8260B	#
Benzene	1.1	ug/L	1.0	SW846 8260B	#
WET CHEMISTRY					
Alkalinity, Bicarbonate	319	mg/L	5	SM2320B-2011	#
Alkalinity, Total	319	mg/L	5	SM2320B-2011	#
Ammonia-N	6.47	mg/L	0.100	ASTM D6919-09	#
Chemical Oxygen Demand (COD)	17	mg/L	15	EPA 410.4	#
Chloride	26.5	mg/L	2.0	EPA 300.0	#
pH	6.88	pH_Units		S4500HB-11	#
Specific Conductance	710	umhos/cm	5	SW846 9050A	#
Sulfate	6.2	mg/L	2.0	EPA 300.0	#
Total Dissolved Solids	402	mg/L	25	S2540C-11	#
Total Organic Carbon (TOC)	6.8	mg/L	2.5	SW846 9060A	#
Turbidity	5.9	NTU	0.30	SM2130B-2011	#



Results

Client Sample ID	CWMP010W	Collected	01/19/2023 10:18
Lab Sample ID	3283832001	Lab Receipt	01/19/2023 15:00

FIELD PARAMETERS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Depth to Water Level	8.65		Feet		Field	1	01/19/2023 11:18	BGS	D
Dissolved Oxygen	6.67		mg/L	0.01	Field	1	01/19/2023 11:18	BGS	D
Elev Top MW Casing above MSL	360.90		Feet		Field	1	01/19/2023 11:18	BGS	D
Flow Rate	1.16		gal/min		Field	1	01/19/2023 11:18	BGS	D
Ground Water Elevation	352.25		ft/MSL		Field	1	01/19/2023 11:18	BGS	D
Oxidation-Reduction Potential	169		mV		Field	1	01/19/2023 11:18	BGS	D
pH, Field (SM4500B)	6.52		pH_Units		Field	1	01/19/2023 11:18	BGS	D
Sample Depth	17.00		Feet		Field	1	01/19/2023 11:18	BGS	D
Specific Conductance, Field	1345		umhos/cm	1	Field	1	01/19/2023 11:18	BGS	D
Temperature	11.02		Deg. C		Field	1	01/19/2023 11:18	BGS	D
Total Well Depth	19.60		Feet		Field	1	01/19/2023 11:18	BGS	D
Turbidity, Field	2		NTU	1	Field	1	01/19/2023 11:18	BGS	D
Volume in Water Column	7.12		Gallons		Field	1	01/19/2023 11:18	BGS	D
Water Level After Purge	16.78		Feet		Field	1	01/19/2023 11:18	BGS	D
Well Volumes Purged	2.61		Vol		Field	1	01/19/2023 11:18	BGS	D

METALS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Calcium, Total	31.1		mg/L	0.11	SW846 6010C	1	01/25/2023 13:19	A1S	J1
Iron, Total	0.28		mg/L	0.067	SW846 6010C	1	01/25/2023 13:19	A1S	J1
Magnesium, Total	27.6		mg/L	0.11	SW846 6010C	1	01/25/2023 13:19	A1S	J1
Manganese, Total	0.15		mg/L	0.0056	SW846 6010C	1	01/25/2023 13:19	A1S	J1
Potassium, Total	6.1		mg/L	0.56	SW846 6010C	1	01/25/2023 13:19	A1S	J1
Sodium, Total	105		mg/L	0.56	SW846 6010C	1	01/25/2023 13:19	A1S	J1

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1-Trichloroethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/30/2023 02:20	PDK	H
1,1-Dichloroethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/30/2023 02:20	PDK	H
1,1-Dichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/30/2023 02:20	PDK	H
1,2-Dibromoethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/30/2023 02:20	PDK	H
1,2-Dichloroethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/30/2023 02:20	PDK	H
Benzene	ND	ND	ug/L	1.0	SW846 8260B	1	01/30/2023 02:20	PDK	H
cis-1,2-Dichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/30/2023 02:20	PDK	H
Ethylbenzene	ND	ND	ug/L	1.0	SW846 8260B	1	01/30/2023 02:20	PDK	H
Methylene Chloride	ND	ND	ug/L	1.0	SW846 8260B	1	01/30/2023 02:20	PDK	H
Tetrachloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/30/2023 02:20	PDK	H
Toluene	ND	ND	ug/L	1.0	SW846 8260B	1	01/30/2023 02:20	PDK	H
Total Xylenes	ND	ND	ug/L	3.0	SW846 8260B	1	01/30/2023 02:20	PDK	H
trans-1,2-Dichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/30/2023 02:20	PDK	H
Trichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/30/2023 02:20	PDK	H
Vinyl Chloride	ND	ND	ug/L	1.0	SW846 8260B	1	01/30/2023 02:20	PDK	H



Results

Client Sample ID	CWMP010W	Collected	01/19/2023 10:18
Lab Sample ID	3283832001	Lab Receipt	01/19/2023 15:00

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
<i>SURROGATES</i>									
Compound	CAS No			Recovery	Limits(%)		Analysis Date/Time		Qualifiers
1,2-Dichloroethane-d4	17060-07-0			102%	62 – 133		01/30/2023 02:20		
4-Bromofluorobenzene	460-00-4			102%	79 – 114		01/30/2023 02:20		
Dibromofluoromethane	1868-53-7			100%	78 – 116		01/30/2023 02:20		
Toluene-d8	2037-26-5			101%	76 – 127		01/30/2023 02:20		

WET CHEMISTRY

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Alkalinity, Bicarbonate	122		mg/L	5	SM2320B-2011	1	01/23/2023 18:01	NML	B
Alkalinity, Total	122	1	mg/L	5	SM2320B-2011	1	01/23/2023 18:01	NML	B
Ammonia-N	ND	ND,2	mg/L	0.100	ASTM D6919-09	10	01/26/2023 17:48	NML	A
Chemical Oxygen Demand (COD)	ND	ND	mg/L	15	EPA 410.4	1	01/25/2023 15:00	KMS	A
Chloride	150		mg/L	2.0	EPA 300.0	2	01/20/2023 14:00	J1W	B
Fluoride	ND	ND	mg/L	0.20	EPA 300.0	2	01/20/2023 14:00	J1W	B
Nitrate-N	15.5		mg/L	1.0	EPA 300.0	2	01/20/2023 14:00	J1W	B
pH	7.62	3	pH_Units		S4500HB-11	1	01/23/2023 18:01	NML	B
Phenolics	ND	ND	mg/L	0.004	SW846 9066	1	01/25/2023 16:43	AKH	G
Specific Conductance	894		umhos/cm	5	SW846 9050A	1	01/26/2023 11:30	J1W	B
Sulfate	21.6		mg/L	2.0	EPA 300.0	2	01/20/2023 14:00	J1W	B
Total Dissolved Solids	448		mg/L	25	S2540C-11	1	01/23/2023 07:34	SMS	B
Total Organic Carbon (TOC)	2.6		mg/L	0.50	SW846 9060A	1	01/25/2023 03:05	PAG	E
Turbidity	5.1		NTU	0.30	SM2130B-2011	1	01/19/2023 23:32	NRB	B



Results

Client Sample ID	CWMP009W	Collected	01/19/2023 11:54
Lab Sample ID	3283832002	Lab Receipt	01/19/2023 15:00

FIELD PARAMETERS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Depth to Water Level	9.08		Feet		Field	1	01/19/2023 11:54	BGS	D
Dissolved Oxygen	0.31		mg/L	0.01	Field	1	01/19/2023 11:54	BGS	D
Elev Top MW Casing above MSL	404.20		Feet		Field	1	01/19/2023 11:54	BGS	D
Flow Rate	1.55		gal/min		Field	1	01/19/2023 11:54	BGS	D
Ground Water Elevation	395.12		ft/MSL		Field	1	01/19/2023 11:54	BGS	D
Oxidation-Reduction Potential	-26		mV		Field	1	01/19/2023 11:54	BGS	D
pH, Field (SM4500B)	6.03		pH_Units		Field	1	01/19/2023 11:54	BGS	D
Sample Depth	16.00		Feet		Field	1	01/19/2023 11:54	BGS	D
Specific Conductance, Field	4076		umhos/cm	1	Field	1	01/19/2023 11:54	BGS	D
Temperature	11.52		Deg. C		Field	1	01/19/2023 11:54	BGS	D
Total Well Depth	19.70		Feet		Field	1	01/19/2023 11:54	BGS	D
Turbidity, Field	ND	ND	NTU	1	Field	1	01/19/2023 11:54	BGS	D
Volume in Water Column	6.90		Gallons		Field	1	01/19/2023 11:54	BGS	D
Water Level After Purge	11.21		Feet		Field	1	01/19/2023 11:54	BGS	D
Well Volumes Purged	4.48		Vol		Field	1	01/19/2023 11:54	BGS	D

METALS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Calcium, Total	179		mg/L	0.11	SW846 6010C	1	01/25/2023 13:20	A1S	J1
Iron, Total	38.2		mg/L	0.067	SW846 6010C	1	01/25/2023 13:20	A1S	J1
Magnesium, Total	87.2		mg/L	0.11	SW846 6010C	1	01/25/2023 13:20	A1S	J1
Manganese, Total	13.0		mg/L	0.0056	SW846 6010C	1	01/25/2023 13:20	A1S	J1
Potassium, Total	35.6		mg/L	0.56	SW846 6010C	1	01/25/2023 13:20	A1S	J1
Sodium, Total	203		mg/L	0.56	SW846 6010C	1	01/25/2023 13:20	A1S	J1

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1-Trichloroethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/30/2023 02:42	PDK	H
1,1-Dichloroethane	1.2		ug/L	1.0	SW846 8260B	1	01/30/2023 02:42	PDK	H
1,1-Dichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/30/2023 02:42	PDK	H
1,2-Dibromoethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/30/2023 02:42	PDK	H
1,2-Dichloroethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/30/2023 02:42	PDK	H
Benzene	2.3		ug/L	1.0	SW846 8260B	1	01/30/2023 02:42	PDK	H
cis-1,2-Dichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/30/2023 02:42	PDK	H
Ethylbenzene	ND	ND	ug/L	1.0	SW846 8260B	1	01/30/2023 02:42	PDK	H
Methylene Chloride	ND	ND	ug/L	1.0	SW846 8260B	1	01/30/2023 02:42	PDK	H
Tetrachloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/30/2023 02:42	PDK	H
Toluene	ND	ND	ug/L	1.0	SW846 8260B	1	01/30/2023 02:42	PDK	H
Total Xylenes	ND	ND	ug/L	3.0	SW846 8260B	1	01/30/2023 02:42	PDK	H
trans-1,2-Dichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/30/2023 02:42	PDK	H
Trichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/30/2023 02:42	PDK	H
Vinyl Chloride	ND	ND	ug/L	1.0	SW846 8260B	1	01/30/2023 02:42	PDK	H



Results

Client Sample ID	CWMP009W	Collected	01/19/2023 11:54
Lab Sample ID	3283832002	Lab Receipt	01/19/2023 15:00

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
<i>SURROGATES</i>									
Compound	CAS No			Recovery	Limits(%)		Analysis Date/Time		Qualifiers
1,2-Dichloroethane-d4	17060-07-0			98.3%	62 – 133		01/30/2023 02:42		
4-Bromofluorobenzene	460-00-4			99.8%	79 – 114		01/30/2023 02:42		
Dibromofluoromethane	1868-53-7			98.2%	78 – 116		01/30/2023 02:42		
Toluene-d8	2037-26-5			100%	76 – 127		01/30/2023 02:42		

WET CHEMISTRY

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Alkalinity, Bicarbonate	529		mg/L	50	SM2320B-2011	10	01/25/2023 12:51	NML	B
Alkalinity, Total	529	1	mg/L	50	SM2320B-2011	10	01/25/2023 12:51	NML	B
Ammonia-N	33.0	2	mg/L	0.100	ASTM D6919-09	10	01/26/2023 17:34	NML	A
Chemical Oxygen Demand (COD)	106		mg/L	15	EPA 410.4	1	01/25/2023 15:00	KMS	A
Chloride	626	4	mg/L	25.0	EPA 300.0	25	01/24/2023 22:08	J1W	B
Fluoride	ND	ND	mg/L	0.50	EPA 300.0	5	01/20/2023 14:10	J1W	B
Nitrate-N	ND	ND	mg/L	2.5	EPA 300.0	5	01/20/2023 14:10	J1W	B
pH	6.71	3	pH_Units		S4500HB-11	1	01/23/2023 18:14	NML	B
Phenolics	ND	ND	mg/L	0.004	SW846 9066	1	01/25/2023 16:47	AKH	G
Specific Conductance	3180		umhos/cm	50	SW846 9050A	10	01/26/2023 11:30	J1W	B
Sulfate	6.1		mg/L	5.0	EPA 300.0	5	01/20/2023 14:10	J1W	B
Total Dissolved Solids	1570		mg/L	25	S2540C-11	1	01/23/2023 07:34	SMS	B
Total Organic Carbon (TOC)	37.0		mg/L	5.0	SW846 9060A	10	01/25/2023 03:05	PAG	E
Turbidity	30		NTU	0.30	SM2130B-2011	1	01/19/2023 23:32	NRB	B



Results

Client Sample ID	CWMP008W	Collected	01/19/2023 12:36
Lab Sample ID	3283832003	Lab Receipt	01/19/2023 15:00

FIELD PARAMETERS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Depth to Water Level	2.66		Feet		Field	1	01/19/2023 12:37	BGS	D
Dissolved Oxygen	0.15		mg/L	0.01	Field	1	01/19/2023 12:37	BGS	D
Elev Top MW Casing above MSL	422.30		Feet		Field	1	01/19/2023 12:37	BGS	D
Flow Rate	0.92		gal/min		Field	1	01/19/2023 12:37	BGS	D
Ground Water Elevation	419.64		ft/MSL		Field	1	01/19/2023 12:37	BGS	D
Oxidation-Reduction Potential	-15		mV		Field	1	01/19/2023 12:37	BGS	D
pH, Field (SM4500B)	6.19		pH_Units		Field	1	01/19/2023 12:37	BGS	D
Sample Depth	19.00		Feet		Field	1	01/19/2023 12:37	BGS	D
Specific Conductance, Field	1034		umhos/cm	1	Field	1	01/19/2023 12:37	BGS	D
Temperature	13.37		Deg. C		Field	1	01/19/2023 12:37	BGS	D
Total Well Depth	22.80		Feet		Field	1	01/19/2023 12:37	BGS	D
Turbidity, Field	ND	ND	NTU	1	Field	1	01/19/2023 12:37	BGS	D
Volume in Water Column	3.22		Gallons		Field	1	01/19/2023 12:37	BGS	D
Water Level After Purge	13.61		Feet		Field	1	01/19/2023 12:37	BGS	D
Well Volumes Purged	5.69		Vol		Field	1	01/19/2023 12:37	BGS	D

METALS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Calcium, Total	62.4		mg/L	0.11	SW846 6010C	1	01/25/2023 13:21	A1S	J1
Iron, Total	23.3		mg/L	0.067	SW846 6010C	1	01/25/2023 13:21	A1S	J1
Magnesium, Total	28.2		mg/L	0.11	SW846 6010C	1	01/25/2023 13:21	A1S	J1
Manganese, Total	14.8		mg/L	0.0056	SW846 6010C	1	01/25/2023 13:21	A1S	J1
Potassium, Total	7.8		mg/L	0.56	SW846 6010C	1	01/25/2023 13:21	A1S	J1
Sodium, Total	32.6		mg/L	0.56	SW846 6010C	1	01/25/2023 13:21	A1S	J1

VOLATILE ORGANICS

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
1,1,1-Trichloroethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/30/2023 03:05	PDK	H
1,1-Dichloroethane	2.0		ug/L	1.0	SW846 8260B	1	01/30/2023 03:05	PDK	H
1,1-Dichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/30/2023 03:05	PDK	H
1,2-Dibromoethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/30/2023 03:05	PDK	H
1,2-Dichloroethane	ND	ND	ug/L	1.0	SW846 8260B	1	01/30/2023 03:05	PDK	H
Benzene	1.1		ug/L	1.0	SW846 8260B	1	01/30/2023 03:05	PDK	H
cis-1,2-Dichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/30/2023 03:05	PDK	H
Ethylbenzene	ND	ND	ug/L	1.0	SW846 8260B	1	01/30/2023 03:05	PDK	H
Methylene Chloride	ND	ND	ug/L	1.0	SW846 8260B	1	01/30/2023 03:05	PDK	H
Tetrachloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/30/2023 03:05	PDK	H
Toluene	ND	ND	ug/L	1.0	SW846 8260B	1	01/30/2023 03:05	PDK	H
Total Xylenes	ND	ND	ug/L	3.0	SW846 8260B	1	01/30/2023 03:05	PDK	H
trans-1,2-Dichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/30/2023 03:05	PDK	H
Trichloroethene	ND	ND	ug/L	1.0	SW846 8260B	1	01/30/2023 03:05	PDK	H
Vinyl Chloride	ND	ND	ug/L	1.0	SW846 8260B	1	01/30/2023 03:05	PDK	H



Results

Client Sample ID	CWMP008W	Collected	01/19/2023 12:36
Lab Sample ID	3283832003	Lab Receipt	01/19/2023 15:00

VOLATILE ORGANICS (cont.)

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
<i>SURROGATES</i>									
Compound	CAS No			Recovery	Limits(%)		Analysis Date/Time	Qualifiers	
1,2-Dichloroethane-d4	17060-07-0			99.2%	62 – 133		01/30/2023 03:05		
4-Bromofluorobenzene	460-00-4			99.7%	79 – 114		01/30/2023 03:05		
Dibromofluoromethane	1868-53-7			97.9%	78 – 116		01/30/2023 03:05		
Toluene-d8	2037-26-5			103%	76 – 127		01/30/2023 03:05		

WET CHEMISTRY

Compound	Result	Flag	Units	RDL	Method	Dilution	Analysis Date/Time	By	Cntr
Alkalinity, Bicarbonate	319		mg/L	5	SM2320B-2011	1	01/23/2023 18:27	NML	B
Alkalinity, Total	319	1	mg/L	5	SM2320B-2011	1	01/23/2023 18:27	NML	B
Ammonia-N	6.47	2	mg/L	0.100	ASTM D6919-09	10	01/30/2023 16:13	NML	A
Chemical Oxygen Demand (COD)	17		mg/L	15	EPA 410.4	1	01/25/2023 15:00	KMS	A
Chloride	26.5		mg/L	2.0	EPA 300.0	2	01/20/2023 15:02	J1W	B
Fluoride	ND	ND	mg/L	0.20	EPA 300.0	2	01/20/2023 15:02	J1W	B
Nitrate-N	ND	ND	mg/L	1.0	EPA 300.0	2	01/20/2023 15:02	J1W	B
pH	6.88	3	pH_Units		S4500HB-11	1	01/23/2023 18:27	NML	B
Phenolics	ND	ND	mg/L	0.004	SW846 9066	1	01/25/2023 16:50	AKH	G
Specific Conductance	710		umhos/cm	5	SW846 9050A	1	01/26/2023 11:30	J1W	B
Sulfate	6.2		mg/L	2.0	EPA 300.0	2	01/20/2023 15:02	J1W	B
Total Dissolved Solids	402		mg/L	25	S2540C-11	1	01/23/2023 07:34	SMS	B
Total Organic Carbon (TOC)	6.8		mg/L	2.5	SW846 9060A	5	01/25/2023 03:05	PAG	E
Turbidity	5.9		NTU	0.30	SM2130B-2011	1	01/19/2023 23:32	NRB	B



Sample - Method Cross Reference Table

Lab ID	Sample ID	Analysis Method	Preparation Method	Leachate Method
3283832001	CWMP010W	Field	N/A	
		SW846 6010C	SW846 3015A	
		SW846 8260B	N/A	
		ASTM D6919-09	N/A	
		EPA 300.0	N/A	
		EPA 410.4	N/A	
		S2540C-11	N/A	
		S4500HB-11	N/A	
		SM2130B-2011	N/A	
		SM2320B-2011	N/A	
		SW846 9050A	N/A	
		SW846 9060A	N/A	
		SW846 9066	SW846 9066	
3283832002	CWMP009W	Field	N/A	
		SW846 6010C	SW846 3015A	
		SW846 8260B	N/A	
		ASTM D6919-09	N/A	
		EPA 300.0	N/A	
		EPA 300.0	N/A	
		EPA 410.4	N/A	
		S2540C-11	N/A	
		S4500HB-11	N/A	
		SM2130B-2011	N/A	
		SM2320B-2011	N/A	
		SW846 9050A	N/A	
		SW846 9060A	N/A	
SW846 9066	SW846 9066			
3283832003	CWMP008W	Field	N/A	
		SW846 6010C	SW846 3015A	
		SW846 8260B	N/A	
		ASTM D6919-09	N/A	
		EPA 300.0	N/A	
		EPA 410.4	N/A	
		S2540C-11	N/A	
		S4500HB-11	N/A	
		SM2130B-2011	N/A	
		SM2320B-2011	N/A	
		SW846 9050A	N/A	
		SW846 9060A	N/A	
		SW846 9066	SW846 9066	



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Lab ID	Sample ID	Preparation Method	Prep Batch	Prep Date/Time	By	Analysis Method	Anly Batch
3283832001	CWMP010W	N/A	N/A	N/A		Field	939184
		SW846 3015A	937467	01/24/2023 15:00	JSE	SW846 6010C	938498
		N/A	N/A	N/A		SW846 8260B	939222
		N/A	N/A	N/A		ASTM D6919-09	939069
		N/A	N/A	N/A		EPA 300.0	937272
		N/A	N/A	N/A		EPA 410.4	938485
		N/A	N/A	N/A		S2540C-11	937247
		N/A	N/A	N/A		S4500HB-11	937571
		N/A	N/A	N/A		SM2130B-2011	937239
		N/A	N/A	N/A		SM2320B-2011	937571
		N/A	N/A	N/A		SW846 9050A	937934
		N/A	N/A	N/A		SW846 9060A	937936
		SW846 9066	938563	01/25/2023 13:05	MXF	SW846 9066	938496
3283832002	CWMP009W	N/A	N/A	N/A		Field	939184
		SW846 3015A	937467	01/24/2023 15:00	JSE	SW846 6010C	938498
		N/A	N/A	N/A		SW846 8260B	939222
		N/A	N/A	N/A		ASTM D6919-09	939069
		N/A	N/A	N/A		EPA 300.0	937272
		N/A	N/A	N/A		EPA 300.0	937807
		N/A	N/A	N/A		EPA 410.4	938485
		N/A	N/A	N/A		S2540C-11	937247
		N/A	N/A	N/A		S4500HB-11	937571
		N/A	N/A	N/A		SM2130B-2011	937239
		N/A	N/A	N/A		SM2320B-2011	938476
		N/A	N/A	N/A		SW846 9050A	937934
		N/A	N/A	N/A		SW846 9060A	937936
		SW846 9066	938563	01/25/2023 13:05	MXF	SW846 9066	938496
3283832003	CWMP008W	N/A	N/A	N/A		Field	939184
		SW846 3015A	937467	01/24/2023 15:00	JSE	SW846 6010C	938498
		N/A	N/A	N/A		SW846 8260B	939222
		N/A	N/A	N/A		ASTM D6919-09	939437
		N/A	N/A	N/A		EPA 300.0	937272
		N/A	N/A	N/A		EPA 410.4	938485
		N/A	N/A	N/A		S2540C-11	937247
		N/A	N/A	N/A		S4500HB-11	937571
		N/A	N/A	N/A		SM2130B-2011	937239
		N/A	N/A	N/A		SM2320B-2011	937571
		N/A	N/A	N/A		SW846 9050A	937934
				N/A	N/A	N/A	
		SW846 9066	938563	01/25/2023 13:05	MXF	SW846 9066	938496



301 Fulfilling Mill Road • Middletown, PA 17057 • Fax: 717.944.5641 • Fax: 717.944.1430
 34 Copeland Lane • Middletown, PA 17057 • Phone: 717.944.5641 • Fax: 717.944.1430 • www.alsenv.com

Generated by ALS

3283832
 Logged By: SLS
 PM: SUB

1 of 1

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

Contact: Dan Brown
 Phone#: (717) 735-0193
 Project Name#: Creswell/GWMP Form 19Q Wells
 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 dbrown@lcswwma.org
 Fax? Y No.: (717) 397-9973

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

Sample Date	Time
01/19/23	1018
01/19/23	1154
01/19/23	1236

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

Field Measurements

8260 VOCs - Form 19Q	NH3-N, COD	Total Metals: Ca, Fe, Mn, Mg, K, Na	PH, NO3, Cl, F, SPC, SO4, Turb.	TDS	Alkalinity, HCO3
2	1	2	2	1	1
2	1	2	2	1	1
2	1	2	2	1	1

Enter Number of Containers Per Sample or Field Results Below.

* G or C	* Matrix
G	GW
G	GW
G	GW

Receipt Info Completed By: AMRE
 Cooler Custody Seal Intact: Y N
 Sample Custody Seal Intact: Y N
 Received on Ice: Y N
 Cooler & Samples Intact: Y N
 Correct Containers Provided: Y N
 Sample Label/COC Agree: Y N
 Adequate Sample Volumes: Y N
 CR6 Samples Filtered: Y N
 OP Samples Filtered: Y N
 VOA Headspace Present: Y N
 Voa Trip Blank: Y N
 NUS 4 Days?: Y N
 Rad Screen (uCi): Y N
 Courier/Tracking #: Y N
 SDWA Compliance: Y N
 PWSID: Y N
 WV Containers 0-6°C: Y N

Temp By: KSB
 WO Temp (°C): 3
 Therm ID: 570
 No. of Coolers: Y N Initial
 ALS Field Services: Pickup Labor Rental_Equipment
 Composite_Sampling Other:

Project Comments:

Relinquished By / Company Name: ALS
 Date: 1-19-23
 Time: 1500

Received By / Company Name: [Signature]
 Date: 1.19.23
 Time: 1500

Date	Time	Reportable to PADEP?	Sample Disposal	State Samples Collected In
		Yes <input type="checkbox"/>	Lab <input checked="" type="checkbox"/>	NY <input type="checkbox"/>
			Special <input type="checkbox"/>	NJ <input type="checkbox"/>
				PA <input checked="" type="checkbox"/>
				NC <input type="checkbox"/>

Deliverables: Standard CLP-like USACE
 USACE

Reportable to PADEP? Yes

PWSID # _____ EDDS: Format Type: _____