1904407

GC/MS Volatiles:
The samples were analyzed using GC/MS following the current revision of SOP 525 based on SW-846 Method 8260C. The samples were also analyzed for Gasoline Range Organics (GRO).

All acceptance criteria were met.

Dissolved Gasses:
The samples were prepared and analyzed according to method RSK-175 procedures and the current revision of SOP 449.

All acceptance criteria were met.

DRO:
The samples were analyzed following the current revision of SOP 406 generally based on SW-846 Methods 8000C and 8015D. TEPH is a multicomponent mixture and is quantitated by summing the entire carbon range, rather than individual peaks. The carbon range integrated in this test extends from C10 to C28.

All acceptance criteria were met.

BART:
The Biological Activity Reaction Test was completed with the Iron-Related Bacteria, Sulfate-Reducing Bacteria, and Slime-Forming Bacteria kit manufactured by Hach Company. The analysis was performed following the manufacturer provided instructions. If the target analyte is not detected (absent), then the sample will be reported with “ND” in the result field. If the target analyte is detected (present), then the sample will be reported with the estimated colony forming units/mL (cfu/mL) as provided by the manufacturer based on the day reaction was observed.

Metals:
The samples were analyzed following Methods for the Determination of Metals in Environmental Samples – Supplement 1 procedures. Analysis by ICPMS followed method 200.8 and the current revision of SOP 827.

The samples were to be analyzed for dissolved metals. The samples were filtered through a 0.45 micron filter and preserved with nitric acid to a pH less than two prior to analysis.

All acceptance criteria were met.

Inorganics:
The samples were analyzed following MCAWW, EMSL and Standard Method procedures for the current revisions of the following SOPs and methods:

Analyte	Method	SOP #
Alkalinity	SM2320B	1106
Bicarbonate	SM2320B	1106
Carbonate	SM2320B	1106
pH	SM4500-H^+ B	1126
Total phosphorus	365.2	1119
Specific conductance	SM2510B	1128
TDS	SM2540C	1101
Bromide	300.0 Revision 2.1	1113
Chloride	300.0 Revision 2.1	1113
Fluoride	300.0 Revision 2.1	1113
Nitrate as N	300.0 Revision 2.1	1113
Nitrite as N	300.0 Revision 2.1	1113
Total Nitrates	300.0 Revision 2.1	1113
Sulfate	300.0 Revision 2.1	1113

- A matrix spike (MS) was prepared and analyzed with the anion batch. All guidance criteria for precision and accuracy were met with the following exception:

Analyte	Sample ID
Bromide	1904407-1MS

The native sample result is flagged for bromide. The laboratory control sample indicates that the procedure was in control.

- Matrix spike recoveries could not be evaluated for the following analytes:

Analyte	Sample ID
Chloride	1904407-1MS
Sulfate	1904407-1MS

The concentration of these analytes in the native sample was greater than four times the concentration of matrix spike added. When sample concentration is that much greater than the spike added, spike recoveries may not be accurate. The laboratory control sample indicates that the analysis was in control.

All remaining acceptance criteria were met.

Client: Western Water and Land, Inc. **Date:** *06-May-19*
Project: PA 22-25 BWQ **Work Order:** 1904407
Sample ID: Naugle Well **Lab ID:** 1904407-1
Legal Location: **Matrix:** WATER
Collection Date: 4/18/2019 09:00 **Percent Moisture:**

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	MDL	Date Analyzed
ALKALINITY AS CALCIUM CARBONATE			**SM2320B**		Prep Date: **4/22/2019**		PrepBy: **AEJ**
BICARBONATE AS CaCO3	**450**		**20**	**MG/L**	1		4/22/2019
CARBONATE AS CaCO3	ND		20	MG/L	1		4/22/2019
TOTAL ALKALINITY AS CaCO3	**450**		**20**	**MG/L**	1		4/22/2019
BIOLOGICAL ACTIVITY REACTION TEST			**BART**		Prep Date: **4/23/2019**		PrepBy: **JML**
IRON RELATED BACTERIA	**35000**		**1**	**cfu/ml**	1		5/1/2019
SLIME FORMING BACTERIA	**66500**		**1**	**cfu/ml**	1		5/1/2019
SULFATE REDUCING BACTERIA	**18000**		**1**	**cfu/ml**	1		5/1/2019
DIESEL RANGE ORGANICS			**SW8015M**		Prep Date: **4/23/2019**		PrepBy: **LML**
Diesel Range Organics	ND		0.52	MG/L	1	0.26	4/24/2019 00:54
Surr: O-TERPHENYL	*100*		*63-126*	*%REC*	1		4/24/2019 00:54
DISSOLVED GASSES			**RSK175**		Prep Date: **4/23/2019**		PrepBy: **LML**
METHANE	ND		1	UG/L	1	1	4/23/2019 14:27
ETHANE	ND		2	UG/L	1	2	4/23/2019 14:27
PROPANE	ND		1	UG/L	1	1	4/23/2019 14:27
GC/MS VOLATILES			**SW8260_25**		Prep Date: **4/19/2019**		PrepBy: **JXK**
BENZENE	ND		1	UG/L	1	0.3	4/19/2019 14:26
TOLUENE	ND		1	UG/L	1	0.3	4/19/2019 14:26
ETHYLBENZENE	ND		1	UG/L	1	0.3	4/19/2019 14:26
M+P-XYLENE	ND		1	UG/L	1	0.3	4/19/2019 14:26
O-XYLENE	ND		1	UG/L	1	0.3	4/19/2019 14:26
TOTAL XYLENES	ND		1	UG/L	1		4/19/2019 14:26
Surr: 4-BROMOFLUOROBENZENE	*104*		*85-115*	*%REC*	1		4/19/2019 14:26
Surr: DIBROMOFLUOROMETHANE	*94*		*84-118*	*%REC*	1		4/19/2019 14:26
Surr: TOLUENE-D8	*105*		*85-115*	*%REC*	1		4/19/2019 14:26
GASOLINE RANGE ORGANICS	ND		100	UG/L	1	30	4/19/2019 14:26
ION CHROMATOGRAPHY			**EPA300.0**		Prep Date: **4/19/2019**		PrepBy: **AEJ**
BROMIDE	ND	N	2	MG/L	10	0.6	4/19/2019 13:03
CHLORIDE	**800**		**20**	**MG/L**	100	6	4/19/2019 13:27
FLUORIDE	ND		1	MG/L	10	0.3	4/19/2019 13:03
NITRATE/NITRITE AS N	**4.1**		**0.1**	**MG/L**	1		4/19/2019 13:03
NITRATE AS N	**4.1**		**2**	**MG/L**	10	0.6	4/19/2019 13:03
NITRITE AS N	ND		1	MG/L	10	0.3	4/19/2019 13:03
SULFATE	**2600**		**100**	**MG/L**	100	30	4/19/2019 13:27
METALS BY 200.8			**EPA200.8**		Prep Date: **4/26/2019**		PrepBy: **JML**
BARIUM	**0.012**		**0.001**	**MG/L**	10	0.000086	4/29/2019 14:42
BORON	**0.16**		**0.05**	**MG/L**	10	0.0007	4/29/2019 15:48
CALCIUM	**480**		**1**	**MG/L**	10	0.087	4/29/2019 14:42
IRON	**0.016**	J	**0.1**	**MG/L**	10	0.00065	4/29/2019 14:42
MAGNESIUM	**200**		**0.1**	**MG/L**	10	0.014	4/29/2019 14:42
MANGANESE	**0.033**		**0.002**	**MG/L**	10	0.000079	4/29/2019 14:42

Client:	Western Water and Land, Inc.	**Date:**	*06-May-19*
Project:	PA 22-25 BWQ	**Work Order:**	1904407
Sample ID:	Naugle Well	**Lab ID:**	1904407-1
Legal Location:		**Matrix:**	WATER
Collection Date:	4/18/2019 09:00	**Percent Moisture:**	

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	MDL	Date Analyzed
POTASSIUM	**9.3**		**1**	**MG/L**	10	0.057	4/29/2019 15:48
SELENIUM	**0.044**		**0.001**	**MG/L**	10	0.00012	4/29/2019 14:42
SODIUM	**890**		**1**	**MG/L**	10	0.022	4/29/2019 15:48
STRONTIUM	**4.6**		**0.001**	**MG/L**	10	0.00013	4/29/2019 14:42
PH			**SM4500-H**		Prep Date: **4/19/2019**		PrepBy: **AEJ**
PH	**7.16**		**0.1**	**pH**	1		4/19/2019
SPECIFIC CONDUCTANCE IN WATER			**SM2510B**		Prep Date: **4/19/2019**		PrepBy: **AEJ**
SPECIFIC CONDUCTIVITY	**6410**		**1**	**umhos/cm**	1		4/19/2019
TOTAL DISSOLVED SOLIDS			**SM2540C**		Prep Date: **4/22/2019**		PrepBy: **AEJ**
TOTAL DISSOLVED SOLIDS	**5200**		**200**	**MG/L**	1		4/23/2019
TOTAL PHOSPHORUS AS P			**EPA365.2**		Prep Date: **5/2/2019**		PrepBy: **AEJ**
TOTAL PHOSPHORUS	ND		0.05	MG/L	1	0.015	5/2/2019

Client: Western Water and Land, Inc. **Date:** *06-May-19*
Project: PA 22-25 BWQ **Work Order:** 1904407
Sample ID: Naugle 67992-F **Lab ID:** 1904407-2
Legal Location: **Matrix:** WATER
Collection Date: 4/18/2019 12:30 **Percent Moisture:**

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	MDL	Date Analyzed
ALKALINITY AS CALCIUM CARBONATE			**SM2320B**		Prep Date: **4/22/2019**		PrepBy: **AEJ**
BICARBONATE AS CaCO3	**450**		**20**	**MG/L**	1		4/22/2019
CARBONATE AS CaCO3	ND		20	MG/L	1		4/22/2019
TOTAL ALKALINITY AS CaCO3	**450**		**20**	**MG/L**	1		4/22/2019
BIOLOGICAL ACTIVITY REACTION TEST			**BART**		Prep Date: **4/23/2019**		PrepBy: **JML**
IRON RELATED BACTERIA	**35000**		**1**	**cfu/ml**	1		5/1/2019
SLIME FORMING BACTERIA	**66500**		**1**	**cfu/ml**	1		5/1/2019
SULFATE REDUCING BACTERIA	**18000**		**1**	**cfu/ml**	1		5/1/2019
DIESEL RANGE ORGANICS			**SW8015M**		Prep Date: **4/23/2019**		PrepBy: **LML**
Diesel Range Organics	ND		0.52	MG/L	1	0.26	4/24/2019 01:16
Surr: O-TERPHENYL	*99*		*63-126*	*%REC*	1		4/24/2019 01:16
DISSOLVED GASSES			**RSK175**		Prep Date: **4/23/2019**		PrepBy: **LML**
METHANE	ND		1	UG/L	1	1	4/23/2019 14:30
ETHANE	ND		2	UG/L	1	2	4/23/2019 14:30
PROPANE	ND		1	UG/L	1	1	4/23/2019 14:30
GC/MS VOLATILES			**SW8260_25**		Prep Date: **4/19/2019**		PrepBy: **JXK**
BENZENE	ND		1	UG/L	1	0.3	4/19/2019 14:46
TOLUENE	ND		1	UG/L	1	0.3	4/19/2019 14:46
ETHYLBENZENE	ND		1	UG/L	1	0.3	4/19/2019 14:46
M+P-XYLENE	ND		1	UG/L	1	0.3	4/19/2019 14:46
O-XYLENE	ND		1	UG/L	1	0.3	4/19/2019 14:46
TOTAL XYLENES	ND		1	UG/L	1		4/19/2019 14:46
Surr: 4-BROMOFLUOROBENZENE	*104*		*85-115*	*%REC*	1		4/19/2019 14:46
Surr: DIBROMOFLUOROMETHANE	*93*		*84-118*	*%REC*	1		4/19/2019 14:46
Surr: TOLUENE-D8	*104*		*85-115*	*%REC*	1		4/19/2019 14:46
GASOLINE RANGE ORGANICS	ND		100	UG/L	1	30	4/19/2019 14:46
ION CHROMATOGRAPHY			**EPA300.0**		Prep Date: **4/19/2019**		PrepBy: **AEJ**
BROMIDE	ND		2	MG/L	10	0.6	4/19/2019 13:40
CHLORIDE	**780**		**20**	**MG/L**	100	6	4/19/2019 13:52
FLUORIDE	ND		1	MG/L	10	0.3	4/19/2019 13:40
NITRATE/NITRITE AS N	**4.1**		**0.1**	**MG/L**	1		4/19/2019 13:40
NITRATE AS N	**4.1**		**2**	**MG/L**	10	0.6	4/19/2019 13:40
NITRITE AS N	ND		1	MG/L	10	0.3	4/19/2019 13:40
SULFATE	**2600**		**100**	**MG/L**	100	30	4/19/2019 13:52
METALS BY 200.8			**EPA200.8**		Prep Date: **4/26/2019**		PrepBy: **JML**
BARIUM	**0.012**		**0.001**	**MG/L**	10	0.000086	4/29/2019 14:45
BORON	**0.14**		**0.05**	**MG/L**	10	0.0007	4/29/2019 15:51
CALCIUM	**490**		**1**	**MG/L**	10	0.087	4/29/2019 14:45
IRON	**0.0058**	J	**0.1**	**MG/L**	10	0.00065	4/29/2019 14:45
MAGNESIUM	**200**		**0.1**	**MG/L**	10	0.014	4/29/2019 14:45
MANGANESE	**0.037**		**0.002**	**MG/L**	10	0.000079	4/29/2019 14:45

Client:	Western Water and Land, Inc.	**Date:**	*06-May-19*
Project:	PA 22-25 BWQ	**Work Order:**	1904407
Sample ID:	Naugle 67992-F	**Lab ID:**	1904407-2
Legal Location:		**Matrix:**	WATER
Collection Date:	4/18/2019 12:30	**Percent Moisture:**	

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	MDL	Date Analyzed
POTASSIUM	**9.1**		**1**	**MG/L**	10	0.057	4/29/2019 15:51
SELENIUM	**0.042**		**0.001**	**MG/L**	10	0.00012	4/29/2019 14:45
SODIUM	**870**		**1**	**MG/L**	10	0.022	4/29/2019 15:51
STRONTIUM	**4.6**		**0.001**	**MG/L**	10	0.00013	4/29/2019 14:45
PH			**SM4500-H**		Prep Date: **4/19/2019**		PrepBy: **AEJ**
PH	**7.25**		**0.1**	**pH**	1		4/19/2019
SPECIFIC CONDUCTANCE IN WATER			**SM2510B**		Prep Date: **4/19/2019**		PrepBy: **AEJ**
SPECIFIC CONDUCTIVITY	**6410**		**1**	**umhos/cm**	1		4/19/2019
TOTAL DISSOLVED SOLIDS			**SM2540C**		Prep Date: **4/22/2019**		PrepBy: **AEJ**
TOTAL DISSOLVED SOLIDS	**5300**		**200**	**MG/L**	1		4/23/2019
TOTAL PHOSPHORUS AS P			**EPA365.2**		Prep Date: **5/2/2019**		PrepBy: **AEJ**
TOTAL PHOSPHORUS	**0.038**	J	**0.05**	**MG/L**	1	0.015	5/2/2019

Client:	Western Water and Land, Inc.	**Date:**	*06-May-19*
Project:	PA 22-25 BWQ	**Work Order:**	1904407
Sample ID:	Trip Blank	**Lab ID:**	1904407-3
Legal Location:		**Matrix:**	WATER
Collection Date:	4/18/2019	**Percent Moisture:**	

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	MDL	Date Analyzed
GC/MS VOLATILES			**SW8260_25**		Prep Date: **4/19/2019**		PrepBy: **JXK**
BENZENE	ND		1	UG/L	1	0.3	4/19/2019 15:07
TOLUENE	ND		1	UG/L	1	0.3	4/19/2019 15:07
ETHYLBENZENE	ND		1	UG/L	1	0.3	4/19/2019 15:07
M+P-XYLENE	ND		1	UG/L	1	0.3	4/19/2019 15:07
O-XYLENE	ND		1	UG/L	1	0.3	4/19/2019 15:07
TOTAL XYLENES	ND		1	UG/L	1		4/19/2019 15:07
Surr: 4-BROMOFLUOROBENZENE	*101*		*85-115*	*%REC*	1		4/19/2019 15:07
Surr: DIBROMOFLUOROMETHANE	*94*		*84-118*	*%REC*	1		4/19/2019 15:07
Surr: TOLUENE-D8	*104*		*85-115*	*%REC*	1		4/19/2019 15:07
GASOLINE RANGE ORGANICS	ND		100	UG/L	1	30	4/19/2019 15:07

Client:	Western Water and Land, Inc.	**Date:**	*06-May-19*
Project:	PA 22-25 BWQ	**Work Order:**	1904407
Sample ID:	Trip Blank	**Lab ID:**	1904407-3
Legal Location:		**Matrix:**	WATER
Collection Date:	4/18/2019	**Percent Moisture:**	

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	MDL	Date Analyzed

Explanation of Qualifiers

Radiochemistry:

- "Report Limit" is the MDC

U or ND - Result is less than the sample specific MDC.

Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.

Y2 - Chemical Yield outside default limits.

W - DER is greater than Warning Limit of 1.42

* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.
# - Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.
G - Sample density differs by more than 15% of LCS density.
D - DER is greater than Control Limit

M - Requested MDC not met.

M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.

L - LCS Recovery below lower control limit.

H - LCS Recovery above upper control limit.

P - LCS, Matrix Spike Recovery within control limits.

N - Matrix Spike Recovery outside control limits

NC - Not Calculated for duplicate results less than 5 times MDC

B - Analyte concentration greater than MDC.

B3 - Analyte concentration greater than MDC but less than Requested MDC.

Inorganics:

B - Result is less than the requested reporting limit but greater than the instrument method detection limit (MDL).

U or ND - Indicates that the compound was analyzed for but not detected.

E - The reported value is estimated because of the presence of interference. An explanatory note may be included in the narrative.

M - Duplicate injection precision was not met.

N - Spiked sample recovery not within control limits. A post spike is analyzed for all ICP analyses when the matrix spike and or spike duplicate fail and the native sample concentration is less than four times the spike added concentration.

Z - Spiked recovery not within control limits. An explanatory note may be included in the narrative.

* - Duplicate analysis (relative percent difference) not within control limits.

S - SAR value is estimated as one or more analytes used in the calculation were not detected above the detection limit.

Organics:

U or ND - Indicates that the compound was analyzed for but not detected.

B - Analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user.

E - Analyte concentration exceeds the upper level of the calibration range.

J - Estimated value. The result is less than the reporting limit but greater than the instrument method detection limit (MDL).

A - A tentatively identified compound is a suspected aldol-condensation product.

X - The analyte was diluted below an accurate quantitation level.

* - The spike recovery is equal to or outside the control criteria used.

+ - The relative percent difference (RPD) equals or exceeds the control criteria.

G - A pattern resembling gasoline was detected in this sample.

D - A pattern resembling diesel was detected in this sample.

M - A pattern resembling motor oil was detected in this sample.

C - A pattern resembling crude oil was detected in this sample.

4 - A pattern resembling JP-4 was detected in this sample.

5 - A pattern resembling JP-5 was detected in this sample.

H - Indicates that the fuel pattern was in the heavier end of the retention time window for the analyte of interest.

L - Indicates that the fuel pattern was in the lighter end of the retention time window for the analyte of interest.

Z - This flag indicates that a significant fraction of the reported result did not resemble the patterns of any of the following petroleum hydrocarbon products:
- gasoline
- JP-8
- diesel
- mineral spirits
- motor oil
- Stoddard solvent
- bunker C

Batch ID: **HC190423-82-1** Instrument ID **FUELS-1** Method: **SW8015M**

LCS Sample ID: **HC190423-82** Units: **MG/L** Analysis Date: **4/24/2019 02:20**

Client ID: Run ID: **HC190423-8A** Prep Date: **4/23/2019** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
Diesel Range Organics	8.13	0.533	8.33		98	36-150				20	
Surr: O-TERPHENYL	1.65		1.67		99	63-126					

LCSD Sample ID: **HC190423-82** Units: **MG/L** Analysis Date: **4/24/2019 02:42**

Client ID: Run ID: **HC190423-8A** Prep Date: **4/23/2019** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
Diesel Range Organics	8.01	0.533	8.33		96	36-150		8.13	1	20	
Surr: O-TERPHENYL	1.65		1.67		99	63-126			0		

MB Sample ID: **HC190423-82** Units: **MG/L** Analysis Date: **4/23/2019 18:23**

Client ID: Run ID: **HC190423-8A** Prep Date: **4/23/2019** DF: **1**

Analyte	Result	ReportLimit	MDL								Qual
Diesel Range Organics	ND	0.53	0.27								
Surr: O-TERPHENYL	1.66				100	63-126					

The following samples were analyzed in this batch: 1904407-1 1904407-2

Batch ID: **HC190423-91-2** Instrument ID **MEE-1** Method: **RSK175**

LCS Sample ID: **HC190423-91** Units: **UG/L** Analysis Date: **4/23/2019 13:41**

Client ID: Run ID: **HC190423-9A** Prep Date: **4/23/2019** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
METHANE	131	1	142		92	80-120				25	
ETHANE	235	2	267		88	80-120				25	
PROPANE	342	1	391		87	80-120				25	

LCSD Sample ID: **HC190423-91** Units: **UG/L** Analysis Date: **4/23/2019 14:17**

Client ID: Run ID: **HC190423-9A** Prep Date: **4/23/2019** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
METHANE	134	1	142		94	80-120		131	2	25	
ETHANE	237	2	267		89	80-120		235	1	25	
PROPANE	348	1	391		89	80-120		342	2	25	

MB Sample ID: **HC190423-91** Units: **UG/L** Analysis Date: **4/23/2019 13:43**

Client ID: Run ID: **HC190423-9A** Prep Date: **4/23/2019** DF: **1**

Analyte	Result	ReportLimit	MDL	Qual
METHANE	ND	1	1	
ETHANE	ND	2	2	
PROPANE	ND	1	1	

The following samples were analyzed in this batch: 1904407-1 1904407-2

QC BATCH REPORT

Batch ID: **IP190426-1-1** Instrument ID **ICPMS2** Method: **EPA200.8**

LCS Sample ID: **IM190426-1** Units: **MG/L** Analysis Date: **4/29/2019 14:36**

Client ID: Run ID: **IM190429-11A4** Prep Date: **4/26/2019** DF: **10**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
BARIUM	0.104	0.001	0.1		104	85-115				20	
BORON	0.977	0.05	1		98	85-115				20	
CALCIUM	9.62	1	10		96	85-115				20	
IRON	4.9	0.1	5		98	85-115				20	
MAGNESIUM	9.71	0.1	10		97	85-115				20	
MANGANESE	0.102	0.002	0.1		102	85-115				20	
POTASSIUM	4.94	1	5		99	85-115				20	
SELENIUM	0.112	0.001	0.1		112	85-115				20	
SODIUM	9.82	1	10		98	85-115				20	
STRONTIUM	0.0984	0.001	0.1		98	85-115				20	

MB Sample ID: **FP190423-1** Units: **MG/L** Analysis Date: **4/29/2019 14:30**

Client ID: Run ID: **IM190429-11A4** Prep Date: **4/26/2019** DF: **10**

Analyte	Result	ReportLimit	MDL	Qual
BARIUM	ND	0.001	0.000086	
BORON	0.038	0.05	0.0007	J
CALCIUM	ND	1	0.087	
IRON	0.0056	0.1	0.00065	J
MAGNESIUM	ND	0.1	0.014	
MANGANESE	0.00061	0.002	0.000079	J
POTASSIUM	ND	1	0.057	
SELENIUM	0.00023	0.001	0.00012	J
SODIUM	0.17	1	0.022	J
STRONTIUM	ND	0.001	0.00013	

The following samples were analyzed in this batch: 1904407-1 1904407-2

Batch ID: **VL190419-4-1** Instrument ID **HPV4** Method: **SW8260_25**

LCS Sample ID: **VL190419-4** Units: **%REC** Analysis Date: **4/19/2019 10:54**

Client ID: Run ID: **VL190419-4A** Prep Date: **4/19/2019** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
Surr: 4-BROMOFLUOROBENZENE	24.4		25		98	85-115					
Surr: DIBROMOFLUOROMETHANE	24.1		25		97	84-118					
Surr: TOLUENE-D8	26.1		25		104	85-115					
BENZENE	10.7	1	10		107	83-117				20	
TOLUENE	11.1	1	10		111	82-113				20	
ETHYLBENZENE	11.3	1	10		113	81-113				20	
M+P-XYLENE	21.7	1	20		108	82-115				20	
O-XYLENE	10.7	1	10		107	81-115				20	

LCSD Sample ID: **VL190419-4** Units: **%REC** Analysis Date: **4/19/2019 11:15**

Client ID: Run ID: **VL190419-4A** Prep Date: **4/19/2019** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
Surr: 4-BROMOFLUOROBENZENE	24.5		25		98	85-115			0		
Surr: DIBROMOFLUOROMETHANE	24.5		25		98	84-118			2		
Surr: TOLUENE-D8	26		25		104	85-115			0		
BENZENE	10.8	1	10		108	83-117		10.7	1	20	
TOLUENE	10.9	1	10		109	82-113		11.1	2	20	
ETHYLBENZENE	11.3	1	10		113	81-113		11.3	0	20	
M+P-XYLENE	21.7	1	20		108	82-115		21.7	0	20	
O-XYLENE	10.7	1	10		107	81-115		10.7	0	20	

MB Sample ID: **VL190419-4** Units: **%REC** Analysis Date: **4/19/2019 13:02**

Client ID: Run ID: **VL190419-4A** Prep Date: **4/19/2019** DF: **1**

Analyte	Result	ReportLimit	MDL				Qual
Surr: 4-BROMOFLUOROBENZENE	26			104	85-115		
Surr: DIBROMOFLUOROMETHANE	23.4			94	84-118		
Surr: TOLUENE-D8	26.5			106	85-115		
BENZENE	ND	1	0.3				
TOLUENE	ND	1	0.3				
ETHYLBENZENE	ND	1	0.3				
M+P-XYLENE	ND	1	0.3				
O-XYLENE	ND	1	0.3				
TOTAL XYLENES	ND	1					

The following samples were analyzed in this batch: 1904407-1 1904407-2 1904407-3

QC BATCH REPORT

Batch ID: **VL190419-4-2** Instrument ID **HPV4** Method: **SW8260_25**

LCS Sample ID: **VL190419-8** Units: **UG/L** Analysis Date: **4/19/2019 11:59**
Client ID: Run ID: **VL190419-4A** Prep Date: **4/19/2019** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
GASOLINE RANGE ORGANICS	1040	100	1000		104	80-120				20	

LCSD Sample ID: **VL190419-8** Units: **UG/L** Analysis Date: **4/19/2019 12:20**
Client ID: Run ID: **VL190419-4A** Prep Date: **4/19/2019** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
GASOLINE RANGE ORGANICS	1010	100	1000		101	80-120		1040	3	20	

MB Sample ID: **VL190419-4** Units: **UG/L** Analysis Date: **4/19/2019 13:02**
Client ID: Run ID: **VL190419-4A** Prep Date: **4/19/2019** DF: **1**

Analyte	Result	ReportLimit	MDL	Qual
GASOLINE RANGE ORGANICS	ND	100	30	

The following samples were analyzed in this batch: 1904407-1 1904407-2 1904407-3

QC BATCH REPORT

Batch ID: **AK190422-1-1** Instrument ID **NONE** Method: **SM2320B**

LCS Sample ID: **AK190422-1** Units: **MG/L** Analysis Date: **4/22/2019**
Client ID: Run ID: **AK190422-1A1** Prep Date: **4/22/2019** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
TOTAL ALKALINITY AS CaCO3	107	5	100		107	85-115				15	

MB Sample ID: **AK190422-1** Units: **MG/L** Analysis Date: **4/22/2019**
Client ID: Run ID: **AK190422-1A1** Prep Date: **4/22/2019** DF: **1**

Analyte	Result	ReportLimit	MDL	Qual
BICARBONATE AS CaCO3	ND	5		
CARBONATE AS CaCO3	ND	5		
TOTAL ALKALINITY AS CaCO3	ND	5		

The following samples were analyzed in this batch: 1904407-1 1904407-2

Batch ID: **IC190419-1-2** Instrument ID **IC3** Method: **EPA300.0**

LCS Sample ID: **IC190419-1** Units: **MG/L** Analysis Date: **4/19/2019 12:02**

Client ID: Run ID: **IC190419-1A3** Prep Date: **4/19/2019** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
BROMIDE	10.1	0.2	10		101	90-110				15	
CHLORIDE	9.84	0.2	10		98	90-110				15	
FLUORIDE	4.91	0.1	5		98	90-110				15	
NITRATE AS N	9.8	0.2	10		98	90-110				15	
NITRITE AS N	5.11	0.1	5		102	90-110				15	
SULFATE	50.5	1	50		101	90-110				15	

LCSD Sample ID: **IC190419-1** Units: **MG/L** Analysis Date: **4/19/2019 14:28**

Client ID: Run ID: **IC190419-1A3** Prep Date: **4/19/2019** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
BROMIDE	10.2	0.2	10		102	90-110		10.1	1	15	
CHLORIDE	9.9	0.2	10		99	90-110		9.84	1	15	
FLUORIDE	5.05	0.1	5		101	90-110		4.91	3	15	
NITRATE AS N	9.85	0.2	10		99	90-110		9.8	0	15	
NITRITE AS N	5.15	0.1	5		103	90-110		5.11	1	15	
SULFATE	51.1	1	50		102	90-110		50.5	1	15	

MB Sample ID: **IC190419-1** Units: **MG/L** Analysis Date: **4/19/2019 12:14**

Client ID: Run ID: **IC190419-1A3** Prep Date: **4/19/2019** DF: **1**

Analyte	Result	ReportLimit	MDL	Qual
BROMIDE	ND	0.2	0.06	
CHLORIDE	ND	0.2	0.06	
FLUORIDE	ND	0.1	0.03	
NITRATE/NITRITE AS N	0.067	0.1		J
NITRATE AS N	0.067	0.2	0.06	J
NITRITE AS N	ND	0.1	0.03	
SULFATE	ND	1	0.3	

MS Sample ID: **1904407-1** Units: **MG/L** Analysis Date: **4/19/2019 13:15**

Client ID: **Naugle Well** Run ID: **IC190419-1A3** Prep Date: **4/19/2019** DF: **10**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
BROMIDE	41.1	2	50	2	82	85-115				15	N
FLUORIDE	20.1	1	20	1	101	85-115				15	
NITRATE AS N	52.3	2	50	4.1	96	85-115				15	
NITRITE AS N	18.5	1	20	1	92	85-115				15	

QC BATCH REPORT

Batch ID: **pH190419-1-1** Instrument ID **pH-1** Method: **SM4500-H**

CCV Sample ID: **CCV1** Units: **pH** Analysis Date: **4/19/2019**
Client ID: Run ID: **Ph190419-1a1** Prep Date: **4/19/2019** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
PH	7.03	0.1	7			6.9-7.1					

CCV Sample ID: **CCV2** Units: **pH** Analysis Date: **4/19/2019**
Client ID: Run ID: **Ph190419-1a1** Prep Date: **4/19/2019** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
PH	7.09	0.1	7			6.9-7.1					

DUP Sample ID: **1904407-1** Units: **pH** Analysis Date: **4/19/2019**
Client ID: **Naugle Well** Run ID: **Ph190419-1a1** Prep Date: **4/19/2019** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
PH	7.16	0.1						7.16			

ICV Sample ID: **ICV** Units: **pH** Analysis Date: **4/19/2019**
Client ID: Run ID: **Ph190419-1a1** Prep Date: **4/19/2019** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
PH	7	0.1	7			6.9-7.1					

The following samples were analyzed in this batch: 1904407-1 1904407-2

QC BATCH REPORT

Batch ID: **SC190419-1-1** Instrument ID **pH-1** Method: **SM2510B**

CCV Sample ID: **CCV1** Units: **umhos/cm** Analysis Date: **4/19/2019**
Client ID: Run ID: **SC190419-1A1** Prep Date: **4/19/2019** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
SPECIFIC CONDUCTIVITY	1430	1	1410		101	?71.7-1554					

CCV Sample ID: **CCV2** Units: **umhos/cm** Analysis Date: **4/19/2019**
Client ID: Run ID: **SC190419-1A1** Prep Date: **4/19/2019** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
SPECIFIC CONDUCTIVITY	1400	1	1410		99	?71.7-1554					

DUP Sample ID: **1904407-1** Units: **umhos/cm** Analysis Date: **4/19/2019**
Client ID: **Naugle Well** Run ID: **SC190419-1A1** Prep Date: **4/19/2019** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
SPECIFIC CONDUCTIVITY	6280	1						6410	2	10	

ICV Sample ID: **ICV** Units: **umhos/cm** Analysis Date: **4/19/2019**
Client ID: Run ID: **SC190419-1A1** Prep Date: **4/19/2019** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
SPECIFIC CONDUCTIVITY	704	1	718		98	646.2-789.7					

The following samples were analyzed in this batch: 1904407-1 1904407-2

QC BATCH REPORT

Batch ID: **TD190422-1-1** Instrument ID **Balance** Method: **SM2540C**

LCS Sample ID: **TD190422-1** Units: **MG/L** Analysis Date: **4/23/2019**
Client ID: Run ID: **TD190423-1A1** Prep Date: **4/22/2019** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
TOTAL DISSOLVED SOLIDS	418	20	400		105	85-115				5	

MB Sample ID: **TD190422-1** Units: **MG/L** Analysis Date: **4/23/2019**
Client ID: Run ID: **TD190423-1A1** Prep Date: **4/22/2019** DF: **1**

Analyte	Result	ReportLimit	MDL	Qual
TOTAL DISSOLVED SOLIDS	ND	20		

The following samples were analyzed in this batch: 1904407-1 1904407-2

QC BATCH REPORT

Batch ID: **TP190502-1-1** Instrument ID **Spec** Method: **EPA365.2**

LCS Sample ID: **TP190502-1** Units: **MG/L** Analysis Date: **5/2/2019**
Client ID: Run ID: **TP190502-1A2** Prep Date: **5/2/2019** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
TOTAL PHOSPHORUS	0.481	0.05	0.5		96	80-120				20	

MB Sample ID: **TP190502-1** Units: **MG/L** Analysis Date: **5/2/2019**
Client ID: Run ID: **TP190502-1A2** Prep Date: **5/2/2019** DF: **1**

Analyte	Result	ReportLimit	MDL	Qual
TOTAL PHOSPHORUS	ND	0.05	0.015	

The following samples were analyzed in this batch: 1904407-1 1904407-2