



Saturday, April 28, 2018

Bruce Smith  
Western Water and Land, Inc.  
743 Horizon Ct., Suite 330  
Grand Junction, CO 81506

Re: ALS Workorder: 1804063  
Project Name: TEP GM 245-1 Pad BWQ  
Project Number:

Dear Mr. Smith:

Two surface water samples and one water sample were received from Western Water and Land, Inc., on 4/5/2018. The samples were scheduled for the following analyses:

- GC/MS Volatiles
- Inorganics
- Metals
- Total Extractable Petroleum Hydrocarbons (Diesel)

The results for these analyses are contained in the enclosed reports.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Thank you for your confidence in ALS Environmental. Should you have any questions, please call.

Sincerely,

ALS Environmental  
Katie M. O'Brien  
Project Manager

ALS Environmental – Fort Collins is accredited by the following accreditation bodies for various testing scopes in accordance with requirements of each accreditation body. All testing is performed under the laboratory management system, which is maintained to meet these requirement and regulations. Please contact the laboratory or accreditation body for the current scope testing parameters.

ALS Environmental – Fort Collins	
Accreditation Body	License or Certification Number
Alaska (AK)	UST-086
Alaska (AK)	CO01099
Arizona (AZ)	AZ0742
California (CA)	06251CA
Colorado (CO)	CO01099
Connecticut (CT)	PH-0232
Florida (FL)	E87914
Idaho (ID)	CO01099
Kansas (KS)	E-10381
Kentucky (KY)	90137
L-A-B (DoD ELAP/ISO 170250)	L2257
Louisiana (LA)	05057
Maryland (MD)	285
Missouri (MO)	175
Nebraska(NE)	NE-OS-24-13
Nevada (NV)	CO000782008A
New York (NY)	12036
North Dakota (ND)	R-057
Oklahoma (OK)	1301
Pennsylvania (PA)	68-03116
Tennessee (TN)	2976
Texas (TX)	T104704241
Utah (UT)	CO01099
Washington (WA)	C1280



## 1804063

### 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.

### 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.

### 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 EMSL and Standard Method procedures for the current revisions of the following SOPs and methods:

<u>Analyte</u>	<u>Method</u>	<u>SOP #</u>
Alkalinity	SM2320B	1106
Bicarbonate	SM2320B	1106
Carbonate	SM2320B	1106
pH	SM4500-H <sup>+</sup> B	1126
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

All initial and continuing calibration blanks were below the reporting limit for the requested analytes with the exception of CCB1, CCB3 and CCB6 for bromide and CCB5 for fluoride on 04/05/18. The samples were below the reporting limit for bromide and fluoride was re-analyzed with acceptable CCBs.

All remaining acceptance criteria were met.

ALS -- Fort Collins

SAMPLE SUMMARY REPORT

Client: Western Water and Land, Inc.  
 Project: TEP GM 245-1 Pad BWQ  
 Sample ID: Hayes Gulch DWN  
 Legal Location:  
 Collection Date: 4/4/2018 13:35

Date: 25-Apr-18  
 Work Order: 1804063  
 Lab ID: 1804063-1  
 Matrix: SURFACEWAT  
 Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	MDL	Date Analyzed
<b>ALKALINITY AS CALCIUM CARBONATE</b>			<b>SM2320B</b>		Prep Date: 4/17/2018		PrepBy: HMA
BICARBONATE AS CaCO3	280		20	MG/L	1		4/17/2018
CARBONATE AS CaCO3	ND		20	MG/L	1		4/17/2018
TOTAL ALKALINITY AS CaCO3	280		20	MG/L	1		4/17/2018
<b>DIESEL RANGE ORGANICS</b>			<b>SW8015M</b>		Prep Date: 4/6/2018		PrepBy: LML
Diesel Range Organics	ND		0.57	MG/L	1	0.16	4/9/2018 16:35
Surr: O-TERPHENYL	96		63-126	%REC	1		4/9/2018 16:35
<b>GC/MS VOLATILES</b>			<b>SW8260_25</b>		Prep Date: 4/13/2018		PrepBy: CJW
BENZENE	ND		1	UG/L	1	0.32	4/13/2018 13:18
TOLUENE	ND		1	UG/L	1	0.31	4/13/2018 13:18
ETHYLBENZENE	ND		1	UG/L	1	0.31	4/13/2018 13:18
M+P-XYLENE	ND		1	UG/L	1	0.31	4/13/2018 13:18
O-XYLENE	ND		1	UG/L	1	0.31	4/13/2018 13:18
TOTAL XYLENES	ND		1	UG/L	1		4/13/2018 13:18
Surr: 4-BROMOFLUOROBENZENE	103		85-115	%REC	1		4/13/2018 13:18
Surr: DIBROMOFLUOROMETHANE	101		84-118	%REC	1		4/13/2018 13:18
Surr: TOLUENE-D8	96		85-115	%REC	1		4/13/2018 13:18
GASOLINE RANGE ORGANICS	ND		100	UG/L	1	47	4/13/2018 13:18
<b>ION CHROMATOGRAPHY</b>			<b>EPA300.0</b>		Prep Date: 4/5/2018		PrepBy: HMA
BROMIDE	ND		0.2	MG/L	1	0.06	4/6/2018 02:11
CHLORIDE	14		0.2	MG/L	1	0.06	4/6/2018 02:11
FLUORIDE	0.41		0.1	MG/L	1	0.03	4/19/2018 16:45
NITRATE/NITRITE AS N	0.24		0.1	MG/L	1		4/6/2018 02:11
NITRATE AS N	0.24		0.2	MG/L	1	0.06	4/6/2018 02:11
NITRITE AS N	ND		0.1	MG/L	1	0.03	4/6/2018 02:11
SULFATE	190		10	MG/L	10	1.5	4/9/2018 15:40
<b>METALS BY 200.8</b>			<b>EPA200.8</b>		Prep Date: 4/13/2018		PrepBy: JML
BARIUM	0.053		0.001	MG/L	10	0.000086	4/18/2018 13:49
BORON	0.073		0.05	MG/L	10	0.0007	4/18/2018 13:49
CALCIUM	68		1	MG/L	10	0.087	4/18/2018 13:49
IRON	0.18		0.1	MG/L	10	0.00065	4/18/2018 13:49
MAGNESIUM	46		0.1	MG/L	10	0.014	4/18/2018 13:49
MANGANESE	0.002		0.002	MG/L	10	0.000079	4/18/2018 13:49
POTASSIUM	3.9		1	MG/L	10	0.057	4/18/2018 13:49
SELENIUM	0.0027		0.001	MG/L	10	0.00012	4/18/2018 13:49
SODIUM	80		1	MG/L	10	0.022	4/18/2018 13:49
STRONTIUM	1.4		0.001	MG/L	10	0.00013	4/18/2018 13:49
<b>PH</b>			<b>SM4500-H</b>		Prep Date: 4/6/2018		PrepBy: HMA
PH	8.54		0.1	pH	1		4/6/2018
<b>SPECIFIC CONDUCTANCE IN WATER</b>			<b>SM2510B</b>		Prep Date: 4/6/2018		PrepBy: HMA
SPECIFIC CONDUCTIVITY	868		1	umhos/cm	1		4/6/2018

**ALS -- Fort Collins**

**SAMPLE SUMMARY REPORT**

**Client:** Western Water and Land, Inc.  
**Project:** TEP GM 245-1 Pad BWQ  
**Sample ID:** Hayes Gulch DWN  
**Legal Location:**  
**Collection Date:** 4/4/2018 13:35

**Date:** 25-Apr-18  
**Work Order:** 1804063  
**Lab ID:** 1804063-1  
**Matrix:** SURFACEWAT  
**Percent Moisture:**

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	MDL	Date Analyzed
TOTAL DISSOLVED SOLIDS			SM2540C				
TOTAL DISSOLVED SOLIDS	580		20	MG/L	1		

Prep Date: 4/5/2018      PrepBy: HMA  
4/6/2018

ALS -- Fort Collins

SAMPLE SUMMARY REPORT

Client: Western Water and Land, Inc.  
 Project: TEP GM 245-1 Pad BWQ  
 Sample ID: Hayes Gulch UP  
 Legal Location:  
 Collection Date: 4/4/2018 14:05

Date: 25-Apr-18  
 Work Order: 1804063  
 Lab ID: 1804063-2  
 Matrix: SURFACEWAT  
 Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	MDL	Date Analyzed
<b>ALKALINITY AS CALCIUM CARBONATE</b>			<b>SM2320B</b>				
BICARBONATE AS CaCO3	290		20	MG/L	1		4/17/2018
CARBONATE AS CaCO3	ND		20	MG/L	1		4/17/2018
TOTAL ALKALINITY AS CaCO3	290		20	MG/L	1		4/17/2018
<b>DIESEL RANGE ORGANICS</b>			<b>SW8015M</b>				
Diesel Range Organics	ND		0.57	MG/L	1	0.16	4/9/2018 16:56
Surr: O-TERPHENYL	95		63-126	%REC	1		4/9/2018 16:56
<b>GC/MS VOLATILES</b>			<b>SW8260_25</b>				
BENZENE	ND		1	UG/L	1	0.32	4/13/2018 13:41
TOLUENE	ND		1	UG/L	1	0.31	4/13/2018 13:41
ETHYLBENZENE	ND		1	UG/L	1	0.31	4/13/2018 13:41
M+P-XYLENE	ND		1	UG/L	1	0.31	4/13/2018 13:41
O-XYLENE	ND		1	UG/L	1	0.31	4/13/2018 13:41
TOTAL XYLENES	ND		1	UG/L	1		4/13/2018 13:41
Surr: 4-BROMOFLUOROBENZENE	101		85-115	%REC	1		4/13/2018 13:41
Surr: DIBROMOFLUOROMETHANE	102		84-118	%REC	1		4/13/2018 13:41
Surr: TOLUENE-D8	95		85-115	%REC	1		4/13/2018 13:41
GASOLINE RANGE ORGANICS	ND		100	UG/L	1	47	4/13/2018 13:41
<b>ION CHROMATOGRAPHY</b>			<b>EPA300.0</b>				
BROMIDE	ND		0.2	MG/L	1	0.06	4/6/2018 02:26
CHLORIDE	13		0.2	MG/L	1	0.06	4/6/2018 02:26
FLUORIDE	0.44		0.1	MG/L	1	0.03	4/19/2018 17:00
NITRATE/NITRITE AS N	0.17	J	0.1	MG/L	1		4/6/2018 02:26
NITRATE AS N	0.17	J	0.2	MG/L	1	0.06	4/6/2018 02:26
NITRITE AS N	ND		0.1	MG/L	1	0.03	4/6/2018 02:26
SULFATE	190		10	MG/L	10	1.5	4/9/2018 15:55
<b>METALS BY 200.8</b>			<b>EPA200.8</b>				
BARIUM	0.053		0.001	MG/L	10	0.000086	4/18/2018 13:52
BORON	0.072		0.05	MG/L	10	0.0007	4/18/2018 13:52
CALCIUM	70		1	MG/L	10	0.087	4/18/2018 13:52
IRON	0.026	J	0.1	MG/L	10	0.00065	4/18/2018 13:52
MAGNESIUM	44		0.1	MG/L	10	0.014	4/18/2018 13:52
MANGANESE	0.0021		0.002	MG/L	10	0.000079	4/18/2018 13:52
POTASSIUM	3.8		1	MG/L	10	0.057	4/18/2018 13:52
SELENIUM	0.0026		0.001	MG/L	10	0.00012	4/18/2018 13:52
SODIUM	80		1	MG/L	10	0.022	4/18/2018 13:52
STRONTIUM	1.4		0.001	MG/L	10	0.00013	4/18/2018 13:52
<b>PH</b>			<b>SM4500-H</b>				
PH	8.57		0.1	pH	1		4/6/2018
<b>SPECIFIC CONDUCTANCE IN WATER</b>			<b>SM2510B</b>				
SPECIFIC CONDUCTIVITY	882		1	umhos/cm	1		4/6/2018

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**SAMPLE SUMMARY REPORT**

**Client:** Western Water and Land, Inc.  
**Project:** TEP GM 245-1 Pad BWQ  
**Sample ID:** Hayes Gulch UP  
**Legal Location:**  
**Collection Date:** 4/4/2018 14:05

**Date:** 25-Apr-18  
**Work Order:** 1804063  
**Lab ID:** 1804063-2  
**Matrix:** SURFACEWAT  
**Percent Moisture:**

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	MDL	Date Analyzed
<b>TOTAL DISSOLVED SOLIDS</b>			<b>SM2540C</b>		Prep Date: <b>4/5/2018</b>		PrepBy: <b>HMA</b>
TOTAL DISSOLVED SOLIDS	580		20	MG/L	1		4/6/2018

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**SAMPLE SUMMARY REPORT**

**Client:** Western Water and Land, Inc.  
**Project:** TEP GM 245-1 Pad BWQ  
**Sample ID:** Trip Blank  
**Legal Location:**  
**Collection Date:** 4/4/2018

**Date:** 25-Apr-18  
**Work Order:** 1804063  
**Lab ID:** 1804063-3  
**Matrix:** WATER  
**Percent Moisture:**

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	MDL	Date Analyzed
<b>GC/MS VOLATILES</b>			<b>SW8260_25</b>				Prep Date: <b>4/13/2018</b> PrepBy: <b>CJW</b>
BENZENE	ND		1	UG/L	1	0.32	4/13/2018 14:04
TOLUENE	ND		1	UG/L	1	0.31	4/13/2018 14:04
ETHYLBENZENE	ND		1	UG/L	1	0.31	4/13/2018 14:04
M+P-XYLENE	ND		1	UG/L	1	0.31	4/13/2018 14:04
O-XYLENE	ND		1	UG/L	1	0.31	4/13/2018 14:04
TOTAL XYLENES	ND		1	UG/L	1		4/13/2018 14:04
Surr: 4-BROMOFLUOROBENZENE	103		85-115	%REC	1		4/13/2018 14:04
Surr: DIBROMOFLUOROMETHANE	103		84-118	%REC	1		4/13/2018 14:04
Surr: TOLUENE-D8	94		85-115	%REC	1		4/13/2018 14:04
GASOLINE RANGE ORGANICS	ND		100	UG/L	1	47	4/13/2018 14:04

**Client:** Western Water and Land, Inc.  
**Project:** TEP GM 245-1 Pad BWQ  
**Sample ID:** Trip Blank  
**Legal Location:**  
**Collection Date:** 4/4/2018

**Date:** 25-Apr-18  
**Work Order:** 1804063  
**Lab ID:** 1804063-3  
**Matrix:** WATER  
**Percent Moisture:**

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	MDL	Date Analyzed
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**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.
- LT - Result is less than requested MDC but greater than achieved MDC.
- 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

**ALS -- Fort Collins****SAMPLE SUMMARY REPORT**

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**Client:** Western Water and Land, Inc.**Date:** 25-Apr-18**Project:** TEP GM 245-1 Pad BWQ**Work Order:** 1804063**Sample ID:** Trip Blank**Lab ID:** 1804063-3**Legal Location:****Matrix:** WATER**Collection Date:** 4/4/2018**Percent Moisture:**

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<b>Analyses</b>	<b>Result</b>	<b>Qual</b>	<b>Report Limit</b>	<b>Units</b>	<b>Dilution Factor</b>	<b>MDL</b>	<b>Date Analyzed</b>
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Date: 4/25/2018 12:56

Client: Western Water and Land, Inc.

QC BATCH REPORT

Work Order: 1804063

Project: TEP GM 245-1 Pad BWQ

Batch ID: **HC180406-81-1** Instrument ID **FUELS-1** Method: **SW8015M**

**LCS** Sample ID: **HC180406-81** Units: **MG/L** Analysis Date: **4/9/2018 17:18**

Client ID: Run ID: **HC180409-8A** Prep Date: **4/6/2018** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
Diesel Range Organics	7.67	0.569	7.9		97	36-150				20	
Surr: O-TERPHENYL	1.54		1.58		98	63-126					

**LCSD** Sample ID: **HC180406-81** Units: **MG/L** Analysis Date: **4/9/2018 17:40**

Client ID: Run ID: **HC180409-8A** Prep Date: **4/6/2018** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
Diesel Range Organics	7.64	0.554	7.69		99	36-150		7.67	0	20	
Surr: O-TERPHENYL	1.5		1.54		97	63-126			3		

**MB** Sample ID: **HC180406-81** Units: **MG/L** Analysis Date: **4/9/2018 15:29**

Client ID: Run ID: **HC180409-8A** Prep Date: **4/6/2018** DF: **1**

Analyte	Result	ReportLimit	MDL							Qual
Diesel Range Organics	ND	0.57	0.13							
Surr: O-TERPHENYL	1.52				96	63-126				

The following samples were analyzed in this batch:

Client: Western Water and Land, Inc.  
 Work Order: 1804063  
 Project: TEP GM 245-1 Pad BWQ

# QC BATCH REPORT

Batch ID: **IP180413-4-2** Instrument ID **ICPMS2** Method: **EPA200.8**

LCS		Sample ID: <b>IM180413-4</b>			Units: <b>MG/L</b>		Analysis Date: <b>4/18/2018 13:43</b>				
Client ID:		Run ID: <b>IM180418-10A4</b>			Prep Date: <b>4/13/2018</b>		DF: <b>10</b>				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
BARIUM	0.1	0.001	0.1		100	85-115				20	
BORON	1.02	0.05	1		102	85-115				20	
CALCIUM	11.4	1	10		114	85-115				20	
IRON	5.24	0.1	5		105	85-115				20	
MAGNESIUM	10.1	0.1	10		101	85-115				20	
MANGANESE	0.0987	0.002	0.1		99	85-115				20	
POTASSIUM	5.06	1	5		101	85-115				20	
SELENIUM	0.102	0.001	0.1		102	85-115				20	
SODIUM	9.98	1	10		100	85-115				20	
STRONTIUM	0.0948	0.001	0.1		95	85-115				20	

MB		Sample ID: <b>FP180406-4</b>			Units: <b>MG/L</b>		Analysis Date: <b>4/18/2018 13:37</b>				
Client ID:		Run ID: <b>IM180418-10A4</b>			Prep Date: <b>4/13/2018</b>		DF: <b>10</b>				
Analyte	Result	ReportLimit	MDL								Qual
BARIUM	ND	0.001	0.000086								
BORON	ND	0.05	0.0007								
CALCIUM	ND	1	0.087								
IRON	-0.0098	0.1	0.00065								J
MAGNESIUM	ND	0.1	0.014								
MANGANESE	-0.00021	0.002	0.000079								J
POTASSIUM	ND	1	0.057								
SELENIUM	ND	0.001	0.00012								
SODIUM	ND	1	0.022								
STRONTIUM	ND	0.001	0.00013								

The following samples were analyzed in this batch:

1804063-1	1804063-2
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Client: Western Water and Land, Inc.  
 Work Order: 1804063  
 Project: TEP GM 245-1 Pad BWQ

# QC BATCH REPORT

Batch ID: VL180413-4-3 Instrument ID: HPV4 Method: SW8260\_25

LCS		Sample ID: VL180413-4			Units: %REC		Analysis Date: 4/13/2018 10:36				
Client ID:		Run ID: VL180413-4A			Prep Date: 4/13/2018		DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
Surr: 4-BROMOFLUOROBENZENE	24.6		25		99	85-115					
Surr: DIBROMOFLUOROMETHANE	25.4		25		102	84-118					
Surr: TOLUENE-D8	24.2		25		97	85-115					
BENZENE	10.8	1	10		108	83-117				20	
TOLUENE	9.8	1	10		98	82-113				20	
ETHYLBENZENE	9.82	1	10		98	81-113				20	
M+P-XYLENE	18.7	1	20		93	82-115				20	
O-XYLENE	9.3	1	10		93	81-115				20	

LCSD		Sample ID: VL180413-4			Units: %REC		Analysis Date: 4/13/2018 10:59				
Client ID:		Run ID: VL180413-4A			Prep Date: 4/13/2018		DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
Surr: 4-BROMOFLUOROBENZENE	25		25		100	85-115			1		
Surr: DIBROMOFLUOROMETHANE	25.4		25		102	84-118			0		
Surr: TOLUENE-D8	24		25		96	85-115			1		
BENZENE	10.8	1	10		108	83-117		10.8	1	20	
TOLUENE	9.51	1	10		95	82-113		9.8	3	20	
ETHYLBENZENE	9.6	1	10		96	81-113		9.82	2	20	
M+P-XYLENE	18.6	1	20		93	82-115		18.7	0	20	
O-XYLENE	9.18	1	10		92	81-115		9.3	1	20	

MB		Sample ID: VL180413-4			Units: %REC		Analysis Date: 4/13/2018 12:55				
Client ID:		Run ID: VL180413-4A			Prep Date: 4/13/2018		DF: 1				
Analyte	Result	ReportLimit	MDL								Qual
Surr: 4-BROMOFLUOROBENZENE	25.5				102	85-115					
Surr: DIBROMOFLUOROMETHANE	25.9				104	84-118					
Surr: TOLUENE-D8	24.2				97	85-115					
BENZENE	ND	1	0.32								
TOLUENE	ND	1	0.31								
ETHYLBENZENE	ND	1	0.31								
M+P-XYLENE	ND	1	0.31								
O-XYLENE	ND	1	0.31								
TOTAL XYLENES	ND	1									

The following samples were analyzed in this batch: 1804063-1      1804063-2      1804063-3

Client: Western Water and Land, Inc.  
 Work Order: 1804063  
 Project: TEP GM 245-1 Pad BWQ

# QC BATCH REPORT

Batch ID: **VL180413-4-5** Instrument ID **HPV4** Method: **SW8260\_25**

LCS		Sample ID: <b>VL180413-8</b>			Units: <b>UG/L</b>		Analysis Date: <b>4/13/2018 11:47</b>				
Client ID:		Run ID: <b>VL180413-4A</b>			Prep Date: <b>4/13/2018</b>		DF: <b>1</b>				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
GASOLINE RANGE ORGANICS	1190	100	1000		119	80-120				20	

LCSD		Sample ID: <b>VL180413-8</b>			Units: <b>UG/L</b>		Analysis Date: <b>4/13/2018 12:10</b>				
Client ID:		Run ID: <b>VL180413-4A</b>			Prep Date: <b>4/13/2018</b>		DF: <b>1</b>				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
GASOLINE RANGE ORGANICS	1200	100	1000		120	80-120		1190	1	20	

MB		Sample ID: <b>VL180413-4</b>			Units: <b>UG/L</b>		Analysis Date: <b>4/13/2018 12:55</b>				
Client ID:		Run ID: <b>VL180413-4A</b>			Prep Date: <b>4/13/2018</b>		DF: <b>1</b>				
Analyte	Result	ReportLimit	MDL								
GASOLINE RANGE ORGANICS	ND	100	47								

The following samples were analyzed in this batch: 

1804063-1	1804063-2	1804063-3
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Client: Western Water and Land, Inc.  
 Work Order: 1804063  
 Project: TEP GM 245-1 Pad BWQ

## QC BATCH REPORT

Batch ID: **AK180417-1-1** Instrument ID **NONE** Method: **SM2320B**

**DUP** Sample ID: **1804063-1** Units: **MG/L** Analysis Date: **4/17/2018**  
 Client ID: **Hayes Gulch DWN** Run ID: **AK180417-1A1** Prep Date: **4/17/2018** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
BICARBONATE AS CaCO3	285	20						280	2	15	
CARBONATE AS CaCO3	ND	20						20		15	
TOTAL ALKALINITY AS CaCO3	285	20						280	2	15	

**LCS** Sample ID: **AK180417-1** Units: **MG/L** Analysis Date: **4/17/2018**  
 Client ID: Run ID: **AK180417-1A1** Prep Date: **4/17/2018** 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	100	5	100		100	85-115				15	

**MB** Sample ID: **AK180417-1** Units: **MG/L** Analysis Date: **4/17/2018**  
 Client ID: Run ID: **AK180417-1A1** Prep Date: **4/17/2018** 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:

1804063-1	1804063-2
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Client: Western Water and Land, Inc.  
 Work Order: 1804063  
 Project: TEP GM 245-1 Pad BWQ

# QC BATCH REPORT

Batch ID: **IC180405-1-2** Instrument ID **IC3** Method: **EPA300.0**

LCS		Sample ID: <b>IC180405-1</b>			Units: <b>MG/L</b>		Analysis Date: <b>4/5/2018 13:01</b>				
Client ID:		Run ID: <b>IC180405-1A4</b>			Prep Date: <b>4/5/2018</b>		DF: <b>1</b>				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
BROMIDE	9.54	0.2	10		95	90-110				15	
CHLORIDE	9.83	0.2	10		98	90-110				15	
FLUORIDE	4.78	0.1	5		96	90-110				15	
NITRATE AS N	9.89	0.2	10		99	90-110				15	
NITRITE AS N	4.8	0.1	5		96	90-110				15	
SULFATE	49.3	1	50		99	90-110				15	

MB		Sample ID: <b>IC180405-1</b>			Units: <b>MG/L</b>		Analysis Date: <b>4/5/2018 13:16</b>				
Client ID:		Run ID: <b>IC180405-1A4</b>			Prep Date: <b>4/5/2018</b>		DF: <b>1</b>				
Analyte	Result	ReportLimit	MDL								Qual
BROMIDE	1.5	0.2	0.06								
CHLORIDE	ND	0.2	0.06								
FLUORIDE	ND	0.1	0.03								
NITRATE AS N	ND	0.2	0.06								
NITRITE AS N	ND	0.1	0.03								
SULFATE	0.25	1	0.15								J

The following samples were analyzed in this batch:

1804063-1	1804063-2
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Client: Western Water and Land, Inc.  
 Work Order: 1804063  
 Project: TEP GM 245-1 Pad BWQ

# QC BATCH REPORT

Batch ID: **PH180406-1-1** Instrument ID **pH-1** Method: **SM4500-H**

CCV		Sample ID: <b>CCV</b>			Units: <b>pH</b>		Analysis Date: <b>4/6/2018</b>				
Client ID:		Run ID: <b>PH180406-1A1</b>			Prep Date: <b>4/6/2018</b>		DF: <b>1</b>				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
PH	6.99	0.1	7			6.9-7.1					

DUP		Sample ID: <b>1804063-1</b>			Units: <b>pH</b>		Analysis Date: <b>4/6/2018</b>				
Client ID: <b>Hayes Gulch DWN</b>		Run ID: <b>PH180406-1A1</b>			Prep Date: <b>4/6/2018</b>		DF: <b>1</b>				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
PH	8.55	0.1							8.54		

ICV		Sample ID: <b>ICV</b>			Units: <b>pH</b>		Analysis Date: <b>4/6/2018</b>				
Client ID:		Run ID: <b>PH180406-1A1</b>			Prep Date: <b>4/6/2018</b>		DF: <b>1</b>				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
PH	6.96	0.1	7			6.95-7.05					

The following samples were analyzed in this batch:

1804063-1	1804063-2
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Client: Western Water and Land, Inc.  
 Work Order: 1804063  
 Project: TEP GM 245-1 Pad BWQ

# QC BATCH REPORT

Batch ID: **SC180406-1-1** Instrument ID **pH-1** Method: **SM2510B**

CCV	Sample ID: <b>CCV</b>					Units: <b>umhos/cm</b>	Analysis Date: <b>4/6/2018</b>				
Client ID:		Run ID: <b>SC180406-1A1</b>					Prep Date: <b>4/6/2018</b>			DF: <b>1</b>	
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
SPECIFIC CONDUCTIVITY	1390	1	1410		99	71.7-1554					

DUP	Sample ID: <b>1804063-1</b>					Units: <b>umhos/cm</b>	Analysis Date: <b>4/6/2018</b>				
Client ID: <b>Hayes Gulch DWN</b>		Run ID: <b>SC180406-1A1</b>					Prep Date: <b>4/6/2018</b>			DF: <b>1</b>	
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
SPECIFIC CONDUCTIVITY	839	1						868		10	3

ICV	Sample ID: <b>ICV</b>					Units: <b>umhos/cm</b>	Analysis Date: <b>4/6/2018</b>				
Client ID:		Run ID: <b>SC180406-1A1</b>					Prep Date: <b>4/6/2018</b>			DF: <b>1</b>	
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
SPECIFIC CONDUCTIVITY	692	1	718		96	46.2-789.7					

The following samples were analyzed in this batch:

1804063-1	1804063-2
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**Client:** Western Water and Land, Inc.  
**Work Order:** 1804063  
**Project:** TEP GM 245-1 Pad BWQ

## QC BATCH REPORT

Batch ID: **TD180405-1-1**      Instrument ID **Balance**      Method: **SM2540C**

**LCS**      Sample ID: **TD180405-1**      Units: **MG/L**      Analysis Date: **4/6/2018**  
 Client ID:      Run ID: **TD180406-1A1**      Prep Date: **4/5/2018**      DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
TOTAL DISSOLVED SOLIDS	406	20	400		102	85-115				5	

**MB**      Sample ID: **TD180405-1**      Units: **MG/L**      Analysis Date: **4/6/2018**  
 Client ID:      Run ID: **TD180406-1A1**      Prep Date: **4/5/2018**      DF: **1**

Analyte	Result	ReportLimit	MDL	Qual
TOTAL DISSOLVED SOLIDS	ND	20		

The following samples were analyzed in this batch:

1804063-1	1804063-2
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# ALS -- Fort Collins

Date: 28-Apr-18

Client: Western Water and Land, Inc.  
 Project: TEP GM 245-1 Pad BWQ  
 Work Order: 1804063

## Field Parameter Report

Client Sample ID	Matrix	Field Parameter:	Value:	Units:
Hayes Gulch DWN	SurfaceWat	Turbidity	127.9	NTU
		Temperature	10.2	C
		Specific Conductance	893	uS/cm
		pH	7.23	
		Oxidation Reduction Potential	234.5	mv
		Dissolved Oxygen	8.61	mg/l
		Dissolved Oxygen Saturation	77.2	%
		Discharge rate	0.25	CFS
		Hayes Gulch UP	SurfaceWat	Turbidity
Temperature	10.1			C
Specific Conductance	898			uS/cm
pH	8.02			
Oxidation Reduction Potential	217.0			mv
Dissolved Oxygen	8.80			mg/l
Dissolved Oxygen Saturation	78.6			%

# Anion / Cation Summary Report

Lab ID: **1804063-1**      QC Type: SMP  
 Field ID Hayes Gulch DWN

Analyte	Final Result	Report Units	mEq
BICARBONATE AS CaCO3	280.5246	MG/L	5.61
CARBONATE AS CaCO3	20	MG/L	0.00
CHLORIDE	13.54022	MG/L	0.38
FLUORIDE	0.4084952	MG/L	0.02
NITRATE AS N	0.2394077	MG/L	0.02
NITRITE AS N	0.1	MG/L	0.00
SULFATE	191.3202	MG/L	3.98
<b>Anion Result Sum</b>		<b>506.13</b>	

Analyte	Final Result	Report Units	mEq
CALCIUM	68.32643	MG/L	3.41
IRON	0.18061	MG/L	0.01
MAGNESIUM	45.58526	MG/L	3.75
MANGANESE	0.00203	MG/L	0.00
POTASSIUM	3.92828	MG/L	0.10
SODIUM	80.22218	MG/L	3.49
<b>Cation Result Sum</b>		<b>198.24</b>	

Total Result: **704.38** MG/L  
 TDS Result: **581** MG/L  
 RPD: 19.20%

Anion mEq Sum: **10.01**  
 Cation mEq Sum: **10.76**  
 RPD: 7.22%

Lab ID: **1804063-2**      QC Type: SMP  
 Field ID Hayes Gulch UP

Analyte	Final Result	Report Units	mEq
BICARBONATE AS CaCO3	287.3568	MG/L	5.74
CARBONATE AS CaCO3	20	MG/L	0.00
CHLORIDE	13.41501	MG/L	0.38
FLUORIDE	0.4375803	MG/L	0.02
NITRATE AS N	0.1650355	MG/L	0.01
NITRITE AS N	0.1	MG/L	0.00
SULFATE	191.6415	MG/L	3.99
<b>Anion Result Sum</b>		<b>513.12</b>	

Analyte	Final Result	Report Units	mEq
CALCIUM	69.54243	MG/L	3.47
IRON	0.02598	MG/L	0.00
MAGNESIUM	44.1994	MG/L	3.64
MANGANESE	0.00213	MG/L	0.00
POTASSIUM	3.82096	MG/L	0.10
SODIUM	79.69079	MG/L	3.47
<b>Cation Result Sum</b>		<b>197.28</b>	

Total Result: **710.40** MG/L  
 TDS Result: **584** MG/L  
 RPD: 19.53%

Anion mEq Sum: **10.15**  
 Cation mEq Sum: **10.67**  
 RPD: 5.05%

**Below is a list of Lab IDs for this Order Number that were logged in for metals analyses. Note: if this area is empty then either no metals analyses were requested or the cations of interest were not requested.**

1804063-1    1804063-2