# 1902157

**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 sample was prepared and analyzed according to method RSK-175 procedures and the current revision of SOP 449.

All acceptance criteria were met.

**DRO:**
The sample was 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 sample was 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 sample was to be analyzed for dissolved metals. The sample was 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 sample was 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) and matrix spike duplicate (MSD) was prepared and analyzed with the total phosphorus batch, and a matrix spike (MS) was prepared and analyzed with the anion batch. All guidance criteria for precision and accuracy were met with the following exceptions:

| Analyte | Sample ID |
|---|---|
| Nitrite as N | 1902157-1MS |
| Bromide | 1902157-1MS |
| Total phosphorus | 1902157-1MS/MSD |

The native sample results are flagged for total phosphorus, bromide, and nitrite as N. The laboratory control sample indicates that the procedures were in control.

All remaining acceptance criteria were met.

**Client:** Western Water and Land, Inc. **Date:** *27-Feb-19*
**Project:** TEP GV 84-1 BWQ **Work Order:** 1902157
**Sample ID:** Redding Spg **Lab ID:** 1902157-1
**Legal Location:** **Matrix:** SURFACEWAT
**Collection Date:** 2/12/2019 14:00 **Percent Moisture:**

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | MDL | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **ALKALINITY AS CALCIUM CARBONATE** | | | **SM2320B** | | Prep Date: **2/18/2019** | | PrepBy: **AEJ** |
| **BICARBONATE AS CaCO3** | **360** | | **20** | **MG/L** | 1 | | 2/18/2019 |
| CARBONATE AS CaCO3 | ND | | 20 | MG/L | 1 | | 2/18/2019 |
| **TOTAL ALKALINITY AS CaCO3** | **360** | | **20** | **MG/L** | 1 | | 2/18/2019 |
| **BIOLOGICAL ACTIVITY REACTION TEST** | | | **BART** | | Prep Date: **2/19/2019** | | PrepBy: **JML** |
| **IRON RELATED BACTERIA** | **35000** | | **1** | **cfu/ml** | 1 | | 2/27/2019 |
| **SLIME FORMING BACTERIA** | **66500** | | **1** | **cfu/ml** | 1 | | 2/27/2019 |
| **SULFATE REDUCING BACTERIA** | **18000** | | **1** | **cfu/ml** | 1 | | 2/27/2019 |
| **DIESEL RANGE ORGANICS** | | | **SW8015M** | | Prep Date: **2/18/2019** | | PrepBy: **LML** |
| Diesel Range Organics | ND | | 0.52 | MG/L | 1 | 0.26 | 2/18/2019 13:28 |
| *Surr: O-TERPHENYL* | *103* | | *63-126* | *%REC* | 1 | | 2/18/2019 13:28 |
| **DISSOLVED GASSES** | | | **RSK175** | | Prep Date: **2/22/2019** | | PrepBy: **LML** |
| METHANE | ND | | 1 | UG/L | 1 | 1 | 2/22/2019 11:40 |
| ETHANE | ND | | 2 | UG/L | 1 | 2 | 2/22/2019 11:40 |
| PROPANE | ND | | 1 | UG/L | 1 | 1 | 2/22/2019 11:40 |
| **GC/MS VOLATILES** | | | **SW8260_25** | | Prep Date: **2/14/2019** | | PrepBy: **JXK** |
| BENZENE | ND | | 1 | UG/L | 1 | 0.3 | 2/14/2019 14:34 |
| TOLUENE | ND | | 1 | UG/L | 1 | 0.3 | 2/14/2019 14:34 |
| ETHYLBENZENE | ND | | 1 | UG/L | 1 | 0.3 | 2/14/2019 14:34 |
| M+P-XYLENE | ND | | 1 | UG/L | 1 | 0.3 | 2/14/2019 14:34 |
| O-XYLENE | ND | | 1 | UG/L | 1 | 0.3 | 2/14/2019 14:34 |
| TOTAL XYLENES | ND | | 1 | UG/L | 1 | | 2/14/2019 14:34 |
| *Surr: 4-BROMOFLUOROBENZENE* | *102* | | *85-115* | *%REC* | 1 | | 2/14/2019 14:34 |
| *Surr: DIBROMOFLUOROMETHANE* | *106* | | *84-118* | *%REC* | 1 | | 2/14/2019 14:34 |
| *Surr: TOLUENE-D8* | *97* | | *85-115* | *%REC* | 1 | | 2/14/2019 14:34 |
| GASOLINE RANGE ORGANICS | ND | | 100 | UG/L | 1 | 30 | 2/14/2019 14:34 |
| **ION CHROMATOGRAPHY** | | | **EPA300.0** | | Prep Date: **2/13/2019** | | PrepBy: **AEJ** |
| BROMIDE | ND | N | 2 | MG/L | 10 | 0.6 | 2/13/2019 14:46 |
| **CHLORIDE** | **5.1** | | **2** | **MG/L** | 10 | 0.6 | 2/13/2019 14:46 |
| **FLUORIDE** | **0.35** | J | **1** | **MG/L** | 10 | 0.3 | 2/13/2019 14:46 |
| **NITRATE/NITRITE AS N** | **0.21** | | **0.1** | **MG/L** | 1 | | 2/13/2019 14:22 |
| **NITRATE AS N** | **0.21** | | **0.2** | **MG/L** | 1 | 0.06 | 2/13/2019 14:22 |
| NITRITE AS N | ND | N | 0.1 | MG/L | 1 | 0.03 | 2/13/2019 14:22 |
| **SULFATE** | **23** | | **10** | **MG/L** | 10 | 3 | 2/13/2019 14:46 |
| **METALS BY 200.8** | | | **EPA200.8** | | Prep Date: **2/15/2019** | | PrepBy: **JML** |
| **BARIUM** | **0.11** | | **0.001** | **MG/L** | 10 | 0.000086 | 2/19/2019 13:14 |
| **BORON** | **0.063** | | **0.05** | **MG/L** | 10 | 0.0007 | 2/19/2019 13:14 |
| **CALCIUM** | **61** | | **1** | **MG/L** | 10 | 0.087 | 2/19/2019 13:14 |
| **IRON** | **0.0062** | J | **0.1** | **MG/L** | 10 | 0.00065 | 2/19/2019 13:14 |
| **MAGNESIUM** | **26** | | **0.1** | **MG/L** | 10 | 0.014 | 2/19/2019 13:14 |
| **MANGANESE** | **0.00086** | J | **0.002** | **MG/L** | 10 | 0.000079 | 2/19/2019 13:14 |

| | | | |
|---|---|---|---|
| **Client:** | Western Water and Land, Inc. | **Date:** | *27-Feb-19* |
| **Project:** | TEP GV 84-1 BWQ | **Work Order:** | 1902157 |
| **Sample ID:** | Redding Spg | **Lab ID:** | 1902157-1 |
| **Legal Location:** | | **Matrix:** | SURFACEWAT |
| **Collection Date:** | 2/12/2019 14:00 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | MDL | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **POTASSIUM** | **1.9** | | **1** | **MG/L** | 10 | 0.057 | 2/19/2019 13:14 |
| **SELENIUM** | **0.0014** | | **0.001** | **MG/L** | 10 | 0.00012 | 2/19/2019 13:14 |
| **SODIUM** | **42** | | **1** | **MG/L** | 10 | 0.022 | 2/19/2019 13:14 |
| **STRONTIUM** | **0.54** | | **0.001** | **MG/L** | 10 | 0.00013 | 2/19/2019 13:14 |
| **PH** | | | **SM4500-H** | | Prep Date: **2/15/2019** | | PrepBy: **AEJ** |
| **PH** | **8.27** | | **0.1** | **pH** | 1 | | 2/15/2019 |
| **SPECIFIC CONDUCTANCE IN WATER** | | | **SM2510B** | | Prep Date: **2/15/2019** | | PrepBy: **AEJ** |
| **SPECIFIC CONDUCTIVITY** | **611** | | **1** | **umhos/cm** | 1 | | 2/15/2019 |
| **TOTAL DISSOLVED SOLIDS** | | | **SM2540C** | | Prep Date: **2/18/2019** | | PrepBy: **AEJ** |
| **TOTAL DISSOLVED SOLIDS** | **380** | | **20** | **MG/L** | 1 | | 2/19/2019 |
| **TOTAL PHOSPHORUS AS P** | | | **EPA365.2** | | Prep Date: **2/22/2019** | | PrepBy: **AEJ** |
| **TOTAL PHOSPHORUS** | **0.034** | JN | **0.05** | **MG/L** | 1 | 0.015 | 2/22/2019 |

| | | | |
|---|---|---|---|
| **Client:** | Western Water and Land, Inc. | **Date:** | *27-Feb-19* |
| **Project:** | TEP GV 84-1 BWQ | **Work Order:** | 1902157 |
| **Sample ID:** | Trip Blank | **Lab ID:** | 1902157-2 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 2/12/2019 | **Percent Moisture:** | |

| Analyses | Result | Qual | Report Limit | Units | Dilution Factor | MDL | Date Analyzed |
|---|---|---|---|---|---|---|---|
| **GC/MS VOLATILES** | | | **SW8260_25** | | Prep Date: **2/14/2019** | | PrepBy: **JXK** |
| BENZENE | ND | | 1 | UG/L | 1 | 0.3 | 2/14/2019 13:52 |
| TOLUENE | ND | | 1 | UG/L | 1 | 0.3 | 2/14/2019 13:52 |
| ETHYLBENZENE | ND | | 1 | UG/L | 1 | 0.3 | 2/14/2019 13:52 |
| M+P-XYLENE | ND | | 1 | UG/L | 1 | 0.3 | 2/14/2019 13:52 |
| O-XYLENE | ND | | 1 | UG/L | 1 | 0.3 | 2/14/2019 13:52 |
| TOTAL XYLENES | ND | | 1 | UG/L | 1 | | 2/14/2019 13:52 |
| *Surr: 4-BROMOFLUOROBENZENE* | *98* | | *85-115* | *%REC* | 1 | | 2/14/2019 13:52 |
| *Surr: DIBROMOFLUOROMETHANE* | *104* | | *84-118* | *%REC* | 1 | | 2/14/2019 13:52 |
| *Surr: TOLUENE-D8* | *96* | | *85-115* | *%REC* | 1 | | 2/14/2019 13:52 |
| GASOLINE RANGE ORGANICS | ND | | 100 | UG/L | 1 | 30 | 2/14/2019 13:52 |

| | | | |
|---|---|---|---|
| **Client:** | Western Water and Land, Inc. | **Date:** | *27-Feb-19* |
| **Project:** | TEP GV 84-1 BWQ | **Work Order:** | 1902157 |
| **Sample ID:** | Trip Blank | **Lab ID:** | 1902157-2 |
| **Legal Location:** | | **Matrix:** | WATER |
| **Collection Date:** | 2/12/2019 | **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: **HC190218-82-1** Instrument ID **FUELS-1** Method: **SW8015M**

**LCS** Sample ID: **HC190218-82** Units: **MG/L** Analysis Date: **2/18/2019 14:54**

Client ID: Run ID: **HC190218-8A** Prep Date: **2/18/2019** DF: **1**

| Analyte | Result | ReportLimit | SPK Val | SPK Ref Value | %REC | Control Limit | Decision Level | RPD Ref | RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics | 7.84 | 0.497 | 7.76 | | 101 | 36-150 | | | | 20 | |
| Surr: O-TERPHENYL | 1.6 | | 1.55 | | 103 | 63-126 | | | | | |

**MB** Sample ID: **HC190218-82** Units: **MG/L** Analysis Date: **2/18/2019 12:45**

Client ID: Run ID: **HC190218-8A** Prep Date: **2/18/2019** DF: **1**

| Analyte | Result | ReportLimit | MDL | Qual |
|---|---|---|---|---|
| Diesel Range Organics | ND | 0.51 | 0.25 | |
| Surr: O-TERPHENYL | 1.61 | | | |

**MS** Sample ID: **1902157-1** Units: **MG/L** Analysis Date: **2/18/2019 14:11**

Client ID: **Redding Spg** Run ID: **HC190218-8A** Prep Date: **2/18/2019** DF: **1**

| Analyte | Result | ReportLimit | SPK Val | SPK Ref Value | %REC | Control Limit | Decision Level | RPD Ref | RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics | 8.07 | 0.508 | 7.93 | 0.52 | 102 | 36-150 | | | | 20 | |
| Surr: O-TERPHENYL | 1.64 | | 1.59 | | 104 | 63-126 | | | | | |

**MSD** Sample ID: **1902157-1** Units: **MG/L** Analysis Date: **2/18/2019 14:33**

Client ID: **Redding Spg** Run ID: **HC190218-8A** Prep Date: **2/18/2019** DF: **1**

| Analyte | Result | ReportLimit | SPK Val | SPK Ref Value | %REC | Control Limit | Decision Level | RPD Ref | RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics | 8.08 | 0.519 | 8.11 | 0.52 | 100 | 36-150 | | 8.07 | 0 | 20 | |
| Surr: O-TERPHENYL | 1.68 | | 1.62 | | 103 | 63-126 | | | 2 | | |

**The following samples were analyzed in this batch:** 1902157-1

Batch ID: **HC190222-91-2** Instrument ID **MEE-1** Method: **RSK175**

**LCS** Sample ID: **HC190222-91** Units: **UG/L** Analysis Date: **2/22/2019 11:30**

Client ID: Run ID: **HC190222-9A** Prep Date: **2/22/2019** DF: **1**

| Analyte | Result | ReportLimit | SPK Val | SPK Ref Value | %REC | Control Limit | Decision Level | RPD Ref | RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| METHANE | 133 | 1 | 142 | | 93 | 80-120 | | | | 25 | |
| ETHANE | 233 | 2 | 267 | | 88 | 80-120 | | | | 25 | |
| PROPANE | 350 | 1 | 391 | | 89 | 80-120 | | | | 25 | |

**LCSD** Sample ID: **HC190222-91** Units: **UG/L** Analysis Date: **2/22/2019 12:05**

Client ID: Run ID: **HC190222-9A** Prep Date: **2/22/2019** DF: **1**

| Analyte | Result | ReportLimit | SPK Val | SPK Ref Value | %REC | Control Limit | Decision Level | RPD Ref | RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| METHANE | 129 | 1 | 142 | | 90 | 80-120 | | 133 | 3 | 25 | |
| ETHANE | 236 | 2 | 267 | | 88 | 80-120 | | 233 | 1 | 25 | |
| PROPANE | 340 | 1 | 391 | | 87 | 80-120 | | 350 | 3 | 25 | |

**MB** Sample ID: **HC190222-91** Units: **UG/L** Analysis Date: **2/22/2019 11:34**

Client ID: Run ID: **HC190222-9A** Prep Date: **2/22/2019** 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:** 1902157-1

# QC BATCH REPORT

Batch ID: **IP190215-2-12** Instrument ID **ICPMS2** Method: **EPA200.8**

**LCS** Sample ID: **IM190215-2** Units: **MG/L** Analysis Date: **2/19/2019 12:35**

Client ID: Run ID: **IM190219-10A13** Prep Date: **2/15/2019** 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 | 1.05 | 0.05 | 1 | | 105 | 85-115 | | | | 20 | |
| CALCIUM | 10.1 | 1 | 10 | | 101 | 85-115 | | | | 20 | |
| IRON | 4.98 | 0.1 | 5 | | 100 | 85-115 | | | | 20 | |
| MAGNESIUM | 9.95 | 0.1 | 10 | | 99 | 85-115 | | | | 20 | |
| MANGANESE | 0.103 | 0.002 | 0.1 | | 103 | 85-115 | | | | 20 | |
| POTASSIUM | 5.17 | 1 | 5 | | 103 | 85-115 | | | | 20 | |
| SELENIUM | 0.113 | 0.001 | 0.1 | | 113 | 85-115 | | | | 20 | |
| SODIUM | 10.2 | 1 | 10 | | 102 | 85-115 | | | | 20 | |
| STRONTIUM | 0.0979 | 0.001 | 0.1 | | 98 | 85-115 | | | | 20 | |

**MB** Sample ID: **FP190214-2** Units: **MG/L** Analysis Date: **2/19/2019 16:28**

Client ID: Run ID: **IM190219-10A13** Prep Date: **2/15/2019** DF: **10**

| Analyte | Result | ReportLimit | MDL | Qual |
|---|---|---|---|---|
| BARIUM | ND | 0.001 | 0.000086 | |
| BORON | ND | 0.05 | 0.0007 | |
| CALCIUM | ND | 1 | 0.087 | |
| IRON | -0.00071 | 0.1 | 0.00065 | J |
| MAGNESIUM | ND | 0.1 | 0.014 | |
| MANGANESE | ND | 0.002 | 0.000079 | |
| POTASSIUM | ND | 1 | 0.057 | |
| SELENIUM | 0.00032 | 0.001 | 0.00012 | J |
| SODIUM | 0.052 | 1 | 0.022 | J |
| STRONTIUM | ND | 0.001 | 0.00013 | |

**The following samples were analyzed in this batch:** 1902157-1

**Client:** Western Water and Land, Inc.
**Work Order:** 1902157
**Project:** TEP GV 84-1 BWQ

# QC BATCH REPORT

Batch ID: **VL190214-3-1** Instrument ID **HPV1** Method: **SW8260_25**

**LCS** Sample ID: **VL190214-6** Units: **UG/L** Analysis Date: **2/14/2019 12:26**
Client ID: Run ID: **VL190214-3A** Prep Date: **2/14/2019** DF: **1**

| Analyte | Result | ReportLimit | SPK Val | SPK Ref Value | %REC | Control Limit | Decision Level | RPD Ref | RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| GASOLINE RANGE ORGANICS | 894 | 100 | 1000 | | 89 | 80-120 | | | | 20 | |

**LCSD** Sample ID: **VL190214-6** Units: **UG/L** Analysis Date: **2/14/2019 12:47**
Client ID: Run ID: **VL190214-3A** Prep Date: **2/14/2019** DF: **1**

| Analyte | Result | ReportLimit | SPK Val | SPK Ref Value | %REC | Control Limit | Decision Level | RPD Ref | RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| GASOLINE RANGE ORGANICS | 846 | 100 | 1000 | | 85 | 80-120 | | 894 | 6 | 20 | |

**MB** Sample ID: **VL190214-3** Units: **UG/L** Analysis Date: **2/14/2019 13:30**
Client ID: Run ID: **VL190214-3A** Prep Date: **2/14/2019** DF: **1**

| Analyte | Result | ReportLimit | MDL | Qual |
|---|---|---|---|---|
| GASOLINE RANGE ORGANICS | ND | 100 | 30 | |

**The following samples were analyzed in this batch:** 1902157-1 1902157-2

# QC BATCH REPORT

Batch ID: **VL190214-3-2** Instrument ID **HPV1** Method: **SW8260_25**

**LCS** Sample ID: **VL190214-3** Units: **%REC** Analysis Date: **2/14/2019 10:58**

Client ID: Run ID: **VL190214-3A** Prep Date: **2/14/2019** DF: **1**

| Analyte | Result | ReportLimit | SPK Val | SPK Ref Value | %REC | Control Limit | Decision Level | RPD Ref | RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Surr: 4-BROMOFLUOROBENZENE | 25 | | 25 | | 100 | 85-115 | | | | | |
| Surr: DIBROMOFLUOROMETHANE | 26.7 | | 25 | | 107 | 84-118 | | | | | |
| Surr: TOLUENE-D8 | 25.2 | | 25 | | 101 | 85-115 | | | | | |
| BENZENE | 10.6 | 1 | 10 | | 106 | 83-117 | | | | 20 | |
| TOLUENE | 9.64 | 1 | 10 | | 96 | 82-113 | | | | 20 | |
| ETHYLBENZENE | 10.1 | 1 | 10 | | 101 | 81-113 | | | | 20 | |
| M+P-XYLENE | 18.7 | 1 | 20 | | 94 | 82-115 | | | | 20 | |
| O-XYLENE | 9.13 | 1 | 10 | | 91 | 81-115 | | | | 20 | |

**LCSD** Sample ID: **VL190214-3** Units: **%REC** Analysis Date: **2/14/2019 11:19**

Client ID: Run ID: **VL190214-3A** Prep Date: **2/14/2019** DF: **1**

| Analyte | Result | ReportLimit | SPK Val | SPK Ref Value | %REC | Control Limit | Decision Level | RPD Ref | RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Surr: 4-BROMOFLUOROBENZENE | 24.6 | | 25 | | 98 | 85-115 | | | 2 | | |
| Surr: DIBROMOFLUOROMETHANE | 27.1 | | 25 | | 108 | 84-118 | | | 2 | | |
| Surr: TOLUENE-D8 | 24.5 | | 25 | | 98 | 85-115 | | | 3 | | |
| BENZENE | 10.9 | 1 | 10 | | 109 | 83-117 | | 10.6 | 3 | 20 | |
| TOLUENE | 9.95 | 1 | 10 | | 100 | 82-113 | | 9.64 | 3 | 20 | |
| ETHYLBENZENE | 10.1 | 1 | 10 | | 101 | 81-113 | | 10.1 | 1 | 20 | |
| M+P-XYLENE | 18.9 | 1 | 20 | | 94 | 82-115 | | 18.7 | 1 | 20 | |
| O-XYLENE | 9.7 | 1 | 10 | | 97 | 81-115 | | 9.13 | 6 | 20 | |

**MB** Sample ID: **VL190214-3** Units: **%REC** Analysis Date: **2/14/2019 13:30**

Client ID: Run ID: **VL190214-3A** Prep Date: **2/14/2019** DF: **1**

| Analyte | Result | ReportLimit | MDL | | | | Qual |
|---|---|---|---|---|---|---|---|
| Surr: 4-BROMOFLUOROBENZENE | 25.1 | | | 101 | 85-115 | | |
| Surr: DIBROMOFLUOROMETHANE | 26.2 | | | 105 | 84-118 | | |
| Surr: TOLUENE-D8 | 24.5 | | | 98 | 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:** 1902157-1 1902157-2

# QC BATCH REPORT

Batch ID: **AK190218-1-2** Instrument ID **NONE** Method: **SM2320B**

**LCS** Sample ID: **AK190218-1** Units: **MG/L** Analysis Date: **2/18/2019**

Client ID: Run ID: **AK190218-1A1** Prep Date: **2/18/2019** 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 | 105 | 5 | 100 | | 105 | 85-115 | | | | 15 | |

**MB** Sample ID: **AK190218-1** Units: **MG/L** Analysis Date: **2/18/2019**

Client ID: Run ID: **AK190218-1A1** Prep Date: **2/18/2019** 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:** 1902157-1

# QC BATCH REPORT

Batch ID: **IC190213-1-2** Instrument ID **IC3** Method: **EPA300.0**

**LCS** Sample ID: **IC190213-1** Units: **MG/L** Analysis Date: **2/13/2019 13:45**
Client ID: Run ID: **IC190213-1A3** Prep Date: **2/13/2019** DF: **1**

| Analyte | Result | ReportLimit | SPK Val | SPK Ref Value | %REC | Control Limit | Decision Level | RPD Ref | RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BROMIDE | 9.51 | 0.2 | 10 | | 95 | 90-110 | | | | 15 | |
| CHLORIDE | 10.3 | 0.2 | 10 | | 103 | 90-110 | | | | 15 | |
| FLUORIDE | 5.27 | 0.1 | 5 | | 105 | 90-110 | | | | 15 | |
| NITRATE AS N | 10.3 | 0.2 | 10 | | 103 | 90-110 | | | | 15 | |
| NITRITE AS N | 5.16 | 0.1 | 5 | | 103 | 90-110 | | | | 15 | |
| SULFATE | 51.7 | 1 | 50 | | 103 | 90-110 | | | | 15 | |

**LCSD** Sample ID: **IC190213-1** Units: **MG/L** Analysis Date: **2/13/2019 16:12**
Client ID: Run ID: **IC190213-1A3** Prep Date: **2/13/2019** DF: **1**

| Analyte | Result | ReportLimit | SPK Val | SPK Ref Value | %REC | Control Limit | Decision Level | RPD Ref | RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BROMIDE | 9.42 | 0.2 | 10 | | 94 | 90-110 | | 9.51 | 1 | 15 | |
| CHLORIDE | 10.3 | 0.2 | 10 | | 103 | 90-110 | | 10.3 | 0 | 15 | |
| FLUORIDE | 5.23 | 0.1 | 5 | | 105 | 90-110 | | 5.27 | 1 | 15 | |
| NITRATE AS N | 10.3 | 0.2 | 10 | | 103 | 90-110 | | 10.3 | 0 | 15 | |
| NITRITE AS N | 5.17 | 0.1 | 5 | | 103 | 90-110 | | 5.16 | 0 | 15 | |
| SULFATE | 51.3 | 1 | 50 | | 103 | 90-110 | | 51.7 | 1 | 15 | |

**MB** Sample ID: **IC190213-1** Units: **MG/L** Analysis Date: **2/13/2019 13:57**
Client ID: Run ID: **IC190213-1A3** Prep Date: **2/13/2019** 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 | ND | 0.1 | | |
| NITRATE AS N | ND | 0.2 | 0.06 | |
| NITRITE AS N | ND | 0.1 | 0.03 | |
| SULFATE | ND | 1 | 0.3 | |

# QC BATCH REPORT

Batch ID: **IC190213-1-2** Instrument ID **IC3** Method: **EPA300.0**

**MS** Sample ID: **1902157-1** Units: **MG/L** Analysis Date: **2/13/2019 14:34**

Client ID: **Redding Spg** Run ID: **IC190213-1A3** Prep Date: **2/13/2019** DF: **1**

| Analyte | Result | ReportLimit | SPK Val | SPK Ref Value | %REC | Control Limit | Decision Level | RPD Ref | RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| BROMIDE | 4.02 | 0.2 | 5 | 2 | 80 | 85-115 | | | | 15 | N |
| CHLORIDE | 10.3 | 0.2 | 5 | 5.1 | 104 | 85-115 | | | | 15 | |
| FLUORIDE | 2.36 | 0.1 | 2 | 0.35 | 100 | 85-115 | | | | 15 | |
| NITRATE AS N | 5.29 | 0.2 | 5 | 0.21 | 102 | 85-115 | | | | 15 | |
| NITRITE AS N | 1.68 | 0.1 | 2 | 0.1 | 84 | 85-115 | | | | 15 | N |
| SULFATE | 44.2 | 1 | 20 | 23 | 107 | 85-115 | | | | 15 | |

**The following samples were analyzed in this batch:** 1902157-1

# QC BATCH REPORT

Batch ID: **PH190215-1-1** Instrument ID **pH-1** Method: **SM4500-H**

**CCV** Sample ID: **CCV** Units: **pH** Analysis Date: **2/15/2019**
Client ID: Run ID: **PH190215-1a1** Prep Date: **2/15/2019** 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: **1902157-1** Units: **pH** Analysis Date: **2/15/2019**
Client ID: **Redding Spg** Run ID: **PH190215-1a1** Prep Date: **2/15/2019** DF: **1**

| Analyte | Result | ReportLimit | SPK Val | SPK Ref Value | %REC | Control Limit | Decision Level | RPD Ref | RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PH | 8.25 | 0.1 | | | | | | 8.27 | | | |

**ICV** Sample ID: **ICV** Units: **pH** Analysis Date: **2/15/2019**
Client ID: Run ID: **PH190215-1a1** Prep Date: **2/15/2019** DF: **1**

| Analyte | Result | ReportLimit | SPK Val | SPK Ref Value | %REC | Control Limit | Decision Level | RPD Ref | RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PH | 7.05 | 0.1 | 7 | | | 6.9-7.1 | | | | | |

**The following samples were analyzed in this batch:** 1902157-1

# QC BATCH REPORT

Batch ID: **SC190215-1-1** Instrument ID **pH-1** Method: **SM2510B**

**CCV** Sample ID: **CCV** Units: **umhos/cm** Analysis Date: **2/15/2019**
Client ID: Run ID: **SC190215-1a1** Prep Date: **2/15/2019** DF: **1**

| Analyte | Result | ReportLimit | SPK Val | SPK Ref Value | %REC | Control Limit | Decision Level | RPD Ref | RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SPECIFIC CONDUCTIVITY | 1410 | 1 | 1410 | | 100 | ?71.7-1554 | | | | | |

**DUP** Sample ID: **1902157-1** Units: **umhos/cm** Analysis Date: **2/15/2019**
Client ID: **Redding Spg** Run ID: **SC190215-1a1** Prep Date: **2/15/2019** DF: **1**

| Analyte | Result | ReportLimit | SPK Val | SPK Ref Value | %REC | Control Limit | Decision Level | RPD Ref | RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SPECIFIC CONDUCTIVITY | 620 | 1 | | | | | | 611 | 1 | 10 | |

**ICV** Sample ID: **ICV** Units: **umhos/cm** Analysis Date: **2/15/2019**
Client ID: Run ID: **SC190215-1a1** Prep Date: **2/15/2019** DF: **1**

| Analyte | Result | ReportLimit | SPK Val | SPK Ref Value | %REC | Control Limit | Decision Level | RPD Ref | RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| SPECIFIC CONDUCTIVITY | 705 | 1 | 718 | | 98 | 646.2-789.7 | | | | | |

**The following samples were analyzed in this batch:** 1902157-1

# QC BATCH REPORT

Batch ID: **TD190218-1-2** Instrument ID **Balance** Method: **SM2540C**

**LCS** Sample ID: **TD190218-1** Units: **MG/L** Analysis Date: **2/19/2019**
Client ID: Run ID: **TD190219-1A1** Prep Date: **2/18/2019** DF: **1**

| Analyte | Result | ReportLimit | SPK Val | SPK Ref Value | %REC | Control Limit | Decision Level | RPD Ref | RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL DISSOLVED SOLIDS | 410 | 20 | 400 | | 103 | 85-115 | | | | 5 | |

**MB** Sample ID: **TD190218-1** Units: **MG/L** Analysis Date: **2/19/2019**
Client ID: Run ID: **TD190219-1A1** Prep Date: **2/18/2019** DF: **1**

| Analyte | Result | ReportLimit | MDL | Qual |
|---|---|---|---|---|
| TOTAL DISSOLVED SOLIDS | ND | 20 | | |

**The following samples were analyzed in this batch:** 1902157-1

**Client:** Western Water and Land, Inc.
**Work Order:** 1902157
**Project:** TEP GV 84-1 BWQ

# QC BATCH REPORT

Batch ID: **TP190222-1-1** Instrument ID **Spec** Method: **EPA365.2**

**LCS** Sample ID: **TP190222-1** Units: **MG/L** Analysis Date: **2/22/2019**
Client ID: Run ID: **TP190222-1A2** Prep Date: **2/22/2019** DF: **1**

| Analyte | Result | ReportLimit | SPK Val | SPK Ref Value | %REC | Control Limit | Decision Level | RPD Ref | RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL PHOSPHORUS | 0.526 | 0.05 | 0.5 | | 105 | 80-120 | | | | 20 | |

**MB** Sample ID: **TP190222-1** Units: **MG/L** Analysis Date: **2/22/2019**
Client ID: Run ID: **TP190222-1A2** Prep Date: **2/22/2019** DF: **1**

| Analyte | Result | ReportLimit | MDL | Qual |
|---|---|---|---|---|
| TOTAL PHOSPHORUS | ND | 0.05 | 0.015 | |

**MS** Sample ID: **1902157-1** Units: **MG/L** Analysis Date: **2/22/2019**
Client ID: **Redding Spg** Run ID: **TP190222-1A2** Prep Date: **2/22/2019** DF: **1**

| Analyte | Result | ReportLimit | SPK Val | SPK Ref Value | %REC | Control Limit | Decision Level | RPD Ref | RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL PHOSPHORUS | 0.187 | 0.05 | 0.25 | 0.034 | 61 | 80-120 | | | | 20 | N |

**MSD** Sample ID: **1902157-1** Units: **MG/L** Analysis Date: **2/22/2019**
Client ID: **Redding Spg** Run ID: **TP190222-1A2** Prep Date: **2/22/2019** DF: **1**

| Analyte | Result | ReportLimit | SPK Val | SPK Ref Value | %REC | Control Limit | Decision Level | RPD Ref | RPD | RPD Limit | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|
| TOTAL PHOSPHORUS | 0.187 | 0.05 | 0.25 | 0.034 | 61 | 80-120 | | 0.187 | 0 | 20 | N |

**The following samples were analyzed in this batch:** 1902157-1