



September 30, 2013

Mr. Brandon Danforth
Environmental Specialist
WPX Energy
1058 County Road 215
Parachute, Colorado 81635

RE: RU 42-7 Drill Pad Baseline Results Report, June 2013 Event

Dear Mr. Danforth,

Western Water & Land, Inc. (WWL) has completed the initial baseline water sampling for the WPX Energy Rocky Mountain LLC (WPX) RU 42-7 drill pad in accordance with COGCC Rule 609. The RU 42-7 drill pad is located in SE ¼, NE ¼, Section 7, Township 7 South, Range 93 West, 6th PM.

In accordance with Rule 609, the evaluation considered all water sources (domestic wells or springs) within a 0.5-mile radius of the referenced drill pad (oil and gas location). A preliminary screening of the groundwater sources was completed to identify the sources that are potentially available for sampling pending the consent of the structure owners. Each potentially available water source was then evaluated to identify the preferred sources for the baseline program. If the number of potentially available sources was four or less, all of the sources were included in the list of preferred sources. If more than four sources were potentially available, the sources were prioritized based on WWL's hydrologic expertise and in accordance with Rule 609. A complete description of the water source evaluation process and results are provided in the water source evaluation report (RU 42-7 Drill Pad Baseline Water Quality Evaluation, July 29, 2013).

This report summarizes the field sampling activities, sampling locations, and quality control and water chemistry results.

FIELD SAMPLING ACTIVITIES

As described in the Baseline Water Quality Evaluation for Drill Pad RU 42-7, one sampling location was identified for field sampling of water quality consistent with requirements of Rule 609: "Yellow Jacket Spring" (sample RU 11-7-Yellow Jacket Spg). This sample was originally collected for Rule 609 baseline water quality sampling for Drill Pad RU 11-7. The sample also qualifies for Drill Pad RU 42-7 under the 0.5-mile radius criteria of Rule 609.

Field observations at Yellow Jacket Spring showed that groundwater was conveyed an unknown distance downhill through two one and one-half inch polyethylene pipes. One pipe was plumbed into stock watering tanks and the other was stubbed out of the ground and drained into a small watering trough; the spring water sample was collected directly from the stubbed out pipe. The sampling event was conducted on June 27th, 2013. An additional sample (RU 11-7-Beaver Creek) was also collected

June 27th, 2013 to meet the requirements of COA 9 for completions pit RU 11-7; although the results are included in the laboratory analytical summary, this sample is not relevant regarding Rule 609 requirements for RU 42-7, and will not be discussed.

The sampled location was field-staked using a 4-foot long, green metal stake identified with a metal tag with the sample ID and orange flagging. See Figure 1 for the sample location. Photographs of the sampling site are shown in Attachment A.

All sampling procedures followed the Colorado Oil & Gas Conservation Commission (COGCC) Model Sampling and Analysis Plan (SAP) protocols. Sampling Method 2 for springs and seeps, described in Version 1 of the COGCC Model SAP, was used to collect the sample.

Sample bottles were carefully packed in plastic ice chests (coolers) with ice and shipped to the analytical laboratory (ALS Laboratory, Fort Collins, Colorado) by way of overnight courier (FedEx Ground).

QUALITY CONTROL

Quality control measures consisted of a review of field sampling procedures, and the analytical laboratory quality control data. Laboratory quality control information was reviewed and checked for consistency in the assignment of data qualifiers. In addition, WWL conducted post-analysis evaluations of cation-anion balance (CAB), and total dissolved solids (calculated/measured ratio), and assigned additional qualifiers to analytical results as necessary.

Field Procedures

WWL conducted field sampling procedures in accordance with the COGCC Model SAP. Sampling at RU 11-7-Yellow Jacket Spg (spring site) was conducted at an end-of-pipe location (sampling tubing could not readily be connected to the pipe opening). Dissolved gas bottles were filled directly from the end-of-pipe discharge to reduce potential further degassing caused by turbulence in an open collection container or the existing water trough.

COC

The chain-of-custody form was reviewed for correct and complete sample IDs, requested analysis, and other information. DRO (diesel range organics) and GRO (gasoline range organics) were designated on the COC in place of TPH, a required analysis of Rule 609. ALS reported that the COC did not designate the presence of a trip blank; however, the lab added the trip blank as sample 1306419-3. The sample times were incorrectly logged on the COC; the correct sample time for RU 11-7-Yellow Jacket Spg is 11:00 a.m., and the correct sample time for RU11-7-Beaver Creek is 10:00 a.m. No other errors or pertinent information was observed, and no other corrections were needed.

Sample Receipt

The sample was received in a single cooler within the temperature range criteria ($4^{\circ}\text{C} \pm 2^{\circ}\text{C}$). Custody seals were intact. No qualifiers were assigned to results based on sample receipt conditions.

Holding Times

All analyses were conducted within recommended holding times with the exception of nitrate as N, nitrite as N, and sulfate. Due to a power outage, nitrate and nitrite were analyzed out of hold time. Sulfate was reanalyzed on August 22, 2013 due to a high cation-anion balance; the reanalysis was performed outside of the hold time. ALS reported this information in the narrative section of the results, but did not designate an "H" qualifier in the numerical results section. WWL has designated an H qualifier in the final results for nitrate, nitrite, and sulfate; these results are considered estimated.

Analytical Methods

The analytical methods used by the laboratory were checked for consistency with the analytical schedule in the SAP or other pertinent documents. Analytical methods were found to be consistent with some modifications. Total phosphorous was analyzed using Method 365.2. Gasoline Range Organics (TPH volatiles) were analyzed using Method SW8260_25 Revision C. Diesel Range Organics (TPH extractables) were analyzed according to SW846 8000C and 8015D.

Detection Limits

Detection limits provided with the analytical results were compared to the original quoted detection limits from the analytical laboratory. Detection limits were as quoted with no deviations observed except as applied to increased dilution factors. Chloride and sulfate originally had dilution factors of 5 for sample RU 11-7 Yellow Jacket Spg, and all the analyzed metals had dilution factors of 10. During reanalysis, the dilution factor for sulfate in sample RU 11-7-Yellow Jacket Spg was reduced to a factor of 1. ALS reports samples at the detection limit as “undetected” or “U”. ALS reported a reporting limit for specific conductance of 1 $\mu\text{mohs/cm}$; the lab’s quoted reporting limit is 20 $\mu\text{mohs/cm}$.

Completeness

Data completeness is a measure of requested analysis and received results. The analytical constituents required under Rule 609 were compared to those analyzed in the laboratory reports. Qualified data are included as analyzed data. No data were rejected for field or analytical reasons. WWL separately designated DRO (Diesel Range Organics) and GRO (Gasoline Range Organics) for the TPH analysis required in Rule 609. All requested analytical data matched the laboratory reported data results; data completeness is considered 100 percent.

Cation-Anion Balance

The cation-anion balance (CAB) calculates the total charge of positively charged ions and the total charge of the negatively charged ions. It is a measure of the quality of the analysis; if the charge is not balanced, an error may exist in the analysis. CAB calculations were performed for each sample; if the CAB exceeded 5 percent, i.e. < 95 percent or >105 percent, the analytical results data may be qualified as estimated. In general, WWL will assign a qualifier (estimated result) for a CAB equal to or greater than 10 percent, and may assign a qualifier for CAB percentages between 5 and less than 10 percent. The initial CAB calculation for sample RU 11-7 Yellow Jacket Spg showed a result of 21 percent. Due to the high CAB result, the lab reanalyzed sulfate and adjusted the dilution factor; the resulting CAB was calculated to be 1.05 percent, which is within the acceptable range (see Attachment B, Data Quality Review Sheet). As a result of the sample reanalysis, WWL did not assign any qualifiers due to CAB results.

TDS

The ratio of laboratory-measured TDS versus calculated TDS were computed and ratios greater than 20 percent for a sample was cause for a review of major ion reporting errors. In general, WWL will assign a qualifier (an estimated result) when TDS ratios are 1.5 or greater, and may assign a qualifier for TDS ratios between 1.2 and less than 1.5. The initial TDS calculation for sample RU 11-7 Yellow Jacket Spg showed a ratio of 1.88 percent. Upon reanalysis, the TDS ratio for RU 11-7 Yellow Jacket Spg was revised to 1.45 percent. (see Attachment B, Data Quality Review Sheet). As a result of the sample reanalysis, WWL did not assign any qualifiers due to the TDS calculation.

Field Duplicates

Field duplicates evaluate the precision of analytical results for field samples collected for a specific sampling event. Precision is measured using the calculation of the relative percent difference (RPD) using the analytical results from the original investigative sample and the duplicate sample. The qualification criteria was considered an RPD limit of 35 percent. No field duplicates were collected for this sampling event, therefore no field duplicate RPDs were calculated.

Laboratory Quality Control

The analytical laboratory conducts an extensive quality control program and as part of the overall quality control process, WWL verified that the lab performed and reported quality control data correctly. This included checking laboratory control samples for a laboratory acceptance criteria of ± 20 percent and reviewing percent recoveries of analytical spike and analytical spike duplicates and other control samples. Typical percent recovery acceptance limits are 70 to 130 percent. All sampling event data packages from the lab showed that no laboratory control samples exceeded the 20 percent criteria without data qualification. All laboratory quality control standards were met within the established laboratory acceptance criteria.

Accuracy

Accuracy was evaluated as a percent recovery of an analyte in a reference standard or a spiked sample, e.g. matrix spike and matrix spike duplicate. In cases where percent recoveries exceeded the laboratory acceptance criteria, data would be qualified depending on whether the analyte was detected above the method detection limit or not, if the recovery of the associated control sample was acceptable, or if the analyte concentration in the sample was disproportionate to the spike level and that the recovery of the associated control sample was acceptable. No qualifiers were assigned by the laboratory because of percent recoveries exceeding the laboratory acceptance criteria.

Precision

Precision is the measurement of how closely replicate sample constituents agree and is not related to the true value (concentration). Precision is measured using RPD calculations for laboratory duplicate samples. The RPDs were compared to the laboratory acceptance limit of 20 percent. RPDs were not used when the sample concentration was too low ($< 10X$ MDL) for accurate evaluation. No qualifiers were assigned by the laboratory because of RPD values exceeding the laboratory acceptance criteria.

Data Quality Review Sheets are presented in Attachment B.

Summary

WWL assigned data qualifiers to nitrate, nitrite, and sulfate for sample RU 11-7 Yellow Jacket Spg due to analysis out of holding time; these results are qualified as estimated. Qualifiers for estimated results were originally assigned to cations and anions and pertinent inorganic analysis because of a high calculated CAB and TDS ratio, but these qualifiers were removed after reanalysis of sample RU 11-7 Yellow Jacket Spg. See Attachment C for individual parameters that were qualified.

ANALYTICAL RESULTS

Laboratory analysis was performed by ALS Environmental (ALS), in Fort Collins, Colorado, in accordance with the analytical schedule described in Rule 609. The analytical results are summarized in Attachment C; the data are qualified as indicated.

If you have any questions or concerns, please contact me at (970) 242-0170.

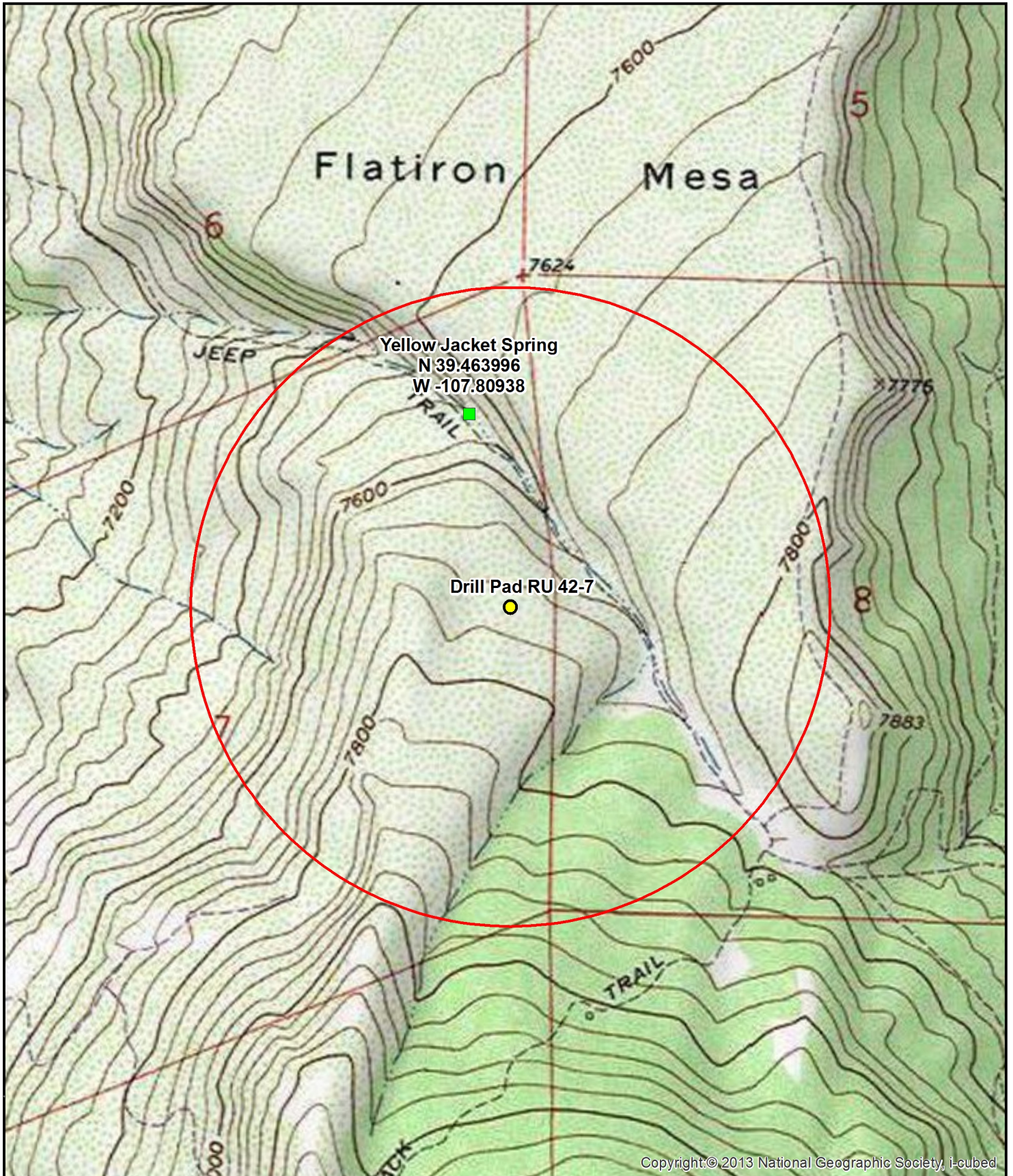
Sincerely,

A handwritten signature in black ink that reads "Bruce D. Smith". The signature is written in a cursive style with a large initial "B" and "S".

Bruce D. Smith
Principal Hydrogeologist
WESTERN WATER & LAND, INC.

Attachments

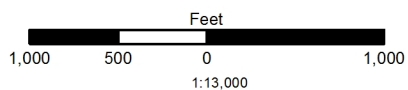
- Figure 1- Sampling Location Map
- Attachment A - Photographs
- Attachment B - Data Quality Review Sheets
- Attachment C - Summary of Analytical Results
- Attachment D - Field Monitoring Forms
- Attachment E - Laboratory Analytical Summary Report



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Legend

- Sample Location(s)
- Drill Pad RU 42-7
- 0.5-Mile Radius Evaluation Area



**Figure 1: RU 42-7 Drill Pad Location Map
Half Mile Radius Water Source Evaluation
SE1/4, NE1/4, S7, T7S, R93W, 6PM**

WPX Energy Rocky Mtn. LLC
Garfield County, Colorado



Western Water & Land, Inc.
Applications in Earth Science

Basemap Source: Bing Maps and Esri ArcGIS Online

ATTACHMENT A

Photographs



Photo 1. Yellow Jacket Spring Sampling Location (RU 11-7-Yellow Jacket Spg)



Photo 2. Yellow Jacket Spring; Second Pipe Plumbing to Stock Watering Tanks



Photo 3. Yellow Jacket Spring; Second Pipe Plumbing to Stock Watering Tanks

ATTACHMENT B

Data Quality Review Sheets

DATA QUALITY REVIEW SHEET

Facility ID:	752709	Project:	RU 11-7 BWQ
Station Name:	Federal 5595	Lab Work Order:	1306419
Sample Date:	6/27/2013	QA/QC Review Date:	09/04/2013
Field Sample ID:	RU 11-7-Yellow Jacket Spg	Reviewer:	J. Pahler, B. Smith

Field Sampling Data Review	Yes	No	N/A
1. Well properly purged?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Flow rate reduced prior to sampling?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Water quality parameters stable prior to sampling?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Field instruments calibrated properly?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Sampling methods performed according to SAP procedures?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Procedures consistent with obtaining a representative sample?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lab Data Report Review			
7. Proper sample custody maintained until laboratory receipt?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Any discrepancies noted on the lab receipt form? <i>If yes, list in the comments section.</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
9. All samples analyzed for the requested analyses?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Proper laboratory methods used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. All sample holding times met?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
12. Lab QA samples (e.g., matrix spikes and matrix spike duplicates) collected and analyzed according to lab method and results within method acceptance limits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Lab qualifiers for data (other than non-detect)? <i>List in comments.</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Are corrective actions required? <i>If yes, please list actions and dates to be completed by:</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<i>Corrective Action</i>	<i>Date to be completed</i>		
ALS Laboratory notified of high CAB and TDS ratio; sulfate reanalyzed 8/22/13 and dilution factor adjusted. CAB within acceptable range.	Complete		
Sampling team to review analytical schedule for each sampling event.	Each sampling event		

Calculated Parameters	Calculated Value	Lab Value	Ratio/Percent Difference	Acceptable Limit	Meets QC Criteria?
Cation/Anion Balance, % (CAB)	1.05	N/A	N/A	±5%	<input checked="" type="checkbox"/>
Total Dissolved Solids, mg/L (TDS)	493	340	1.45	0.9 – 1.1	<input type="checkbox"/>
Specific Conductance, µS/cm (SpC)	507	640	0.79	0.9 – 1.1	<input type="checkbox"/>

Comments:

Some analytical methods slightly modified from SAP.
 "H" qualified for out of holding time (nitrate, nitrite, sulfate).

ATTACHMENT C

Summary of Analytical Results

RU 42-7 BWQ Analytical Results Summary															
Station Name			Federal 5595						Trip Blank						
Facility ID			752709						6/27/2013						
Sample Date			6/27/2013						6/27/2013						
Field Sample ID			RU 11-7-Yellow Jacket Spg						Trip Blank						
Lab Sample ID			1306419-1						1306419-3						
	Reporting Units	Analytic Method	Result	Lab Qual	WWL Qual	RL	MDL	DF	Result	Lab Qual	WWL Qual	RL	MDL	DF	
Bacteria¹															
Iron Related Bacteria	nu	BART	1					1							
Slime Forming Bacteria	nu	BART	1					1							
Sulfate Reducing Bacteria	nu	BART	1					1							
Dissolved gases															
Ethane	ug/l	RSK175	2	U		2	2	1							
Methane	ug/l	RSK175	93			1	1	1							
Propane	ug/l	RSK175	1	U		1	1	1							
Inorganics															
Bicarbonate as CaCO3	mg/l	SM2320B	330			20		1							
Bromide	mg/l	EPA300.0	0.22			0.2	0.06	1							
Carbonate as CaCO3	mg/l	SM2320B	20	U		20		1							
Chloride	mg/l	EPA300.0	9.1			1	0.3	5							
Fluoride	mg/l	EPA300.0	0.33			0.1	0.03	1							
Nitrate as N	mg/l	EPA300.0	0.21		H	0.2	0.06	1							
Nitrite as N	mg/l	EPA300.0	0.1	U	H	0.1	0.03	1							
pH	s.u.	SM4500-H	7.42			0.1		1							
Specific Conductivity	umhos/cm	SM2510B	640			1		1							
Sulfate ²	mg/l	EPA300.0	11		H	1	0.03	1							
Total Alkalinity AS CaCO3	mg/l	SM2320B	330			20		1							
Total Dissolved Solids	mg/l	SM2540C	340			20		1							
Total Phosphorous	mg/l	EPA365.2	0.25			0.05	0.015	1							
Metals															
Barium	ug/l	EPA200.8	120			1	0.3	10							
Boron	ug/l	EPA200.8	50	U		50	15	10							
Calcium	ug/l	EPA200.8	94000			1000	65	10							
Iron (Ferric)	ug/l	EPA200.8	180			100	30	10							
Magnesium	ug/l	EPA200.8	17000			100	30	10							
Manganese	ug/l	EPA200.8	770			2	0.6	10							
Potassium	ug/l	EPA200.8	2400			1000	300	10							
Selenium	ug/l	EPA200.8	1	U		1	0.5	10							
Sodium	ug/l	EPA200.8	14000			1000	300	10							
Strontium	ug/l	EPA200.8	450			1	0.3	10							
Organics															
Diesel Range Organics	mg/l	SW8015M	0.5	U		0.5	0.15	1							
Gasoline Range Organics	ug/l	SW8260_25	100	U		100	30	1							
VOAs															
Benzene	ug/l	SW8260_25	1	U		1	0.3	1	1			1	0.3	1	
Ethylbenzene	ug/l	SW8260_25	1	U		1	0.3	1	1			1	0.3	1	
m+p-Xylene	ug/l	SW8260_25	1	U		1	0.3	1	1			1	0.3	1	
o-Xylene	ug/l	SW8260_25	1	U		1	0.3	1	1			1	0.3	1	
Toluene	ug/l	SW8260_25	0.41	J		1	0.3	1	1			1	0.3	1	
Field Parameters															
Color	None	Field	Clear												
Conductivity, Field	um/cm	Field	530												
Discharge, measured	gpm	Field	0.17												
Dissolved Oxygen, Field	mg/l	Field	1.96												
Dissolved Oxygen, Field,%	%	Field	20.3												
Effervescence	None	Field	None												
Odor	None	Field	None												
ORP, field	mv	Field	-25.3												
pH, Field	s.u.	Field	7.15												
Specific Conductivity, Field	um/cm	Field	633												
Turbidity, field	NTUs	Field	0.65												

Notes:

H = analyzed out of holding time, concentration is estimated

E = concentration estimated

U = not detected at the reporting limit

J = estimated, result between Method Detection Limit and Reporting Limit

¹ A result of 1 indicates the presence of bacteria

² Reanalyzed by lab 8/22/13 due to error in initial analysis, dilution factor adjusted

ATTACHMENT D

Field Monitoring Forms

Surface-Water Monitoring Form

Site/Facility ID: <u>R0-11-7</u>	Date: <u>6-27-13</u>	Observer: <u>Shelby</u>
Station ID: <u>R0-11-7 - yellow jacket spring</u>	Start Time: <u>1100</u>	Sampling
Location: _____	End Time: <u>1130</u>	Team: <u>NWS, SLA</u>
Site Description: <u>pipe discharging spring water slowly buried into hillside</u>	Instruments: <u>ysi</u>	Lead Signature: <u>[Signature]</u>
Project: <u>WPX BWQ</u>	Date: <u>7/31/13</u> <u>Sample Time 1100</u>	

Sampling Information

Surface-water Type: stream / lake / pond / spring / seep / mine drainage / NPDES outfall / other: _____

Sampling Location: bank / wading / boat / bridge / other: pipe, end of

Sampling Site: pool / riffle / eddy / backwater / open / channel / braided / other: ↑

Stream/Channel/Pool Width: — ft/m Mean Depth: — ft/m

Water Color: clear / brown / green / blue / grey / other: _____

Weather: SKY- clear / scattered / broken / cloudy / overcast. PRECIP- none / light / mod. / heavy / snow / rain

WIND- calm / breeze / gusty / moderate / strong / est. wind speed/direction: _____ / _____

TEMP- cold / cool / mild / warm / hot / est. air temperature: _____ Comments: _____

Field Measurements

Parameter	Units	Reading	Time	Instrument	Comments
Air Temp	°C	<u>80° F</u>	<u>1140</u>	<u>truck</u>	
Water Temp	°C	<u>16.4</u>	<u>1122</u>	<u>ysi</u>	<u>[scribble]</u>
pH	s.u.	<u>7.15</u>	<u>1122</u>	<u>ysi</u>	
Sp. Conductivity	<u>µS/cm; mS/cm</u>	<u>633</u>	<u>1122</u>	<u>ysi</u>	
Conductivity	<u>µS/cm; mS/cm</u>	<u>530</u>	<u>1122</u>	<u>ysi</u>	
DO	mg/L	<u>1.96</u>	<u>1122</u>	<u>ysi</u>	<u>586.0 mmHg</u>
DO %	%	<u>20.3</u>	<u>1122</u>	<u>ysi</u>	
ORP	RmV	<u>-25.3</u>	<u>1122</u>	<u>ysi</u>	
Turbidity	n.t.u.	<u>0.65</u>	<u>1121</u>	<u>turbidimeter</u>	<u>0.78, 0.52</u>
Discharge	ft ³ /s, gpm, <u>L/s</u>	<u>0.0107</u>			measured/visual est.
Stage ht.	ft, m				
Sample Observations	Odor: <u>None</u> /Low/Mod/High		Bubbles: <u>None</u> /Low/Mod/High		
	Sediment: <u>None</u> /Low/Mod/High		Effervescence: <u>None</u> /Low/Mod/High		
	VOA Headspace: <u>None</u> /Low/Mod/High		Other: _____		
GPS Coordinates	<u>135 0258309, 4372042 ± 9 ft.</u>				<u>elev. 7540 ft</u>
Measurement: In situ or <u>container</u> .	<u>parameters in container, sampling in situ</u>				
Number and types of filters used:	_____				

Surface-Water Monitoring Form

Calibration info on RU 11-7- Beaver Creek

Calibration Information

Parameter	Date: <u>6-27</u>	Temperature Calibration Standard	Calibration Standard Value	Instrument Reading of Standard	Adjusted Reading	Other Information
	Time					
pH (s. u.)						
pH (s. u.)						
pH (s. u.)						
Sp Cond. (µmhos/cm; mS/cm)						(@ 25 °C) =
Conductivity (µmhos/cm; mS/cm)						(@ 25 °C) =
ORP (rmmV)						
ORP (rmmV)						
DO (mg/L, %)						
DO (mg/l; %)						
Turbidity (n.t.u)						

Laboratory Information

Samples collected for laboratory analysis: yes / no Time Collected: _____

Ship Date/Time: _____ Receiving Laboratory: _____

Comments: _____

Constituents to be Analyzed (√)

Inorganics	Inorganics	Organics	Organics	Other
Common ions <input type="checkbox"/>		TPH <input type="checkbox"/>	VOCs <input type="checkbox"/>	TDS <input type="checkbox"/>
Alkalinity <input type="checkbox"/>		BTEX <input type="checkbox"/>	SVOCs <input type="checkbox"/>	TSS <input type="checkbox"/>
Hardness <input type="checkbox"/>		Oil & Grease <input type="checkbox"/>		T. Coli. Bact. <input type="checkbox"/>
Chloride <input type="checkbox"/>		TOC <input type="checkbox"/>		Fecal Coli. Bact. <input type="checkbox"/>
Fluoride <input type="checkbox"/>		DOC <input type="checkbox"/>		Phos/Ni Pest. <input type="checkbox"/>
Phosphorus <input type="checkbox"/>		TIC <input type="checkbox"/>		
Sulfate <input type="checkbox"/>		DRO <input type="checkbox"/>		
Nitrate (as N) <input type="checkbox"/>		GRO <input type="checkbox"/>		
Nitrite (as N) <input type="checkbox"/>		Methane <input type="checkbox"/>		DW <input type="checkbox"/>
Nitrogen (total) <input type="checkbox"/>				NPDES <input type="checkbox"/>

Metals (total/dissolved): Sb, Al, As, Ba, Be, B, Cd, Ca, Cr, Cu, Fe, Pb, Li, Mg, Mn, Hg, Mo, Ni, K, Se, Si, Sr, Ag, Na, Tl, U, Va, Zn.

Field Notes:

Discharge ⁷⁷⁵ 825 mL - $\frac{1L}{1000 mL} = \frac{0.825 L}{775} = 0.0107$
~~825 mL~~ ~~S~~ L/S
 1:16.5

ATTACHMENT E

Laboratory Analytical Summary Report



1306419

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 and a "U" flag. If the target analyte is detected (present), then the sample will be reported with a "1" for a result without a flag.

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, 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 ⁺ 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
Sulfate	300.0 Revision 2.1	1113

The samples were prepared and analyzed within the established hold time for each analysis with the exception of nitrate as N and nitrite as N. Due to a power outage that occurred on the evening of 06/28/13 that disrupted laboratory operations the samples were analyzed on 06/29/13, out of hold. (See NCR #13940).

All remaining acceptance criteria were met.

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Sample Number(s) Cross-Reference Table

OrderNum: 1306419

Client Name: Western Water and Land, Inc.

Client Project Name: WPX Baseline Water Quality

Client Project Number: RU 11-7

Client PO Number:

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
RU-11-7-Yellow Jacket Spg	1306419-1		WATER	27-Jun-13	10:00
RU-11-7-Beaver Creek	1306419-2		WATER	27-Jun-13	11:00
Trip Blank	1306419-3		WATER	27-Jun-13	



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: Western Water

Workorder No: 1306419

Project Manager: ARW

Initials: LAS

Date: 6/28/13

1. Does this project require any special handling in addition to standard ALS procedures?		YES	<input checked="" type="radio"/> NO
2. Are custody seals on shipping containers intact?	NONE	<input checked="" type="radio"/> YES	NO
3. Are Custody seals on sample containers intact?	<input checked="" type="radio"/> NONE	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		<input checked="" type="radio"/> YES	NO
5. Are the COC and bottle labels complete and legible?		<input checked="" type="radio"/> YES	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		<input checked="" type="radio"/> YES	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	<input checked="" type="radio"/> YES	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A	<input checked="" type="radio"/> YES	NO
9. Are all aqueous non-preserved samples pH 4-9?	N/A	<input checked="" type="radio"/> YES	NO
10. Is there sufficient sample for the requested analyses?		<input checked="" type="radio"/> YES	NO
11. Were all samples placed in the proper containers for the requested analyses?		<input checked="" type="radio"/> YES	NO
12. Are all samples within holding times for the requested analyses?		<input checked="" type="radio"/> YES	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		<input checked="" type="radio"/> YES	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ___ < green pea ___ > green pea	N/A	<input checked="" type="radio"/> YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ___ dusting ___ moderate ___ heavy	N/A	YES	<input checked="" type="radio"/> NO
16. Were the samples shipped on ice?		<input checked="" type="radio"/> YES	NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: <input checked="" type="radio"/> #2 #4 RAD ONLY		<input checked="" type="radio"/> YES	NO
Cooler #:	<u>1</u>		
Temperature (°C):	<u>4.4</u>		
No. of custody seals on cooler:	<u>2</u>		
External µR/hr reading:	<u>11</u>		
Background µR/hr reading:	<u>10</u>		
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? <input checked="" type="radio"/> YES / <input type="radio"/> NO / <input type="radio"/> NA (If no, see Form 008.)			

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

* Trip Blank not listed on client COC.
Added as sample 1306419-3

If applicable, was the client contacted? YES / NO / NA Contact: _____ Date/Time: _____

Project Manager Signature / Date: [Signature] 6/29/13

FROM: (970) 242-0170
WESTERN WATER & LAND INC
743 HORIZON CT. STE 330
GRAND JUNCTION CO 81506
US

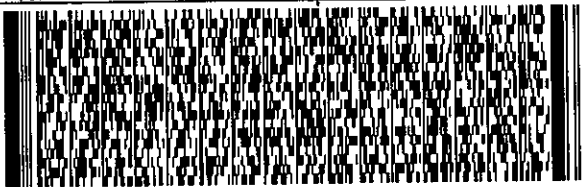
SHIP DATE: 27JUN13
ACT WT: 49.7 LB
CAD: 9622/OFFC1400
DIMMED: 25 X 13 X 13 IN
BILL 3rd PARTY

TO amy wolf
ALS ENVIRONMENTAL
225 COMMERCE DR

1306419
[Handwritten signature]

FORT COLLINS CO 80524 (US)

(970) 490-1511 REF: INU1 DEPT: P01



FedEx
Ground



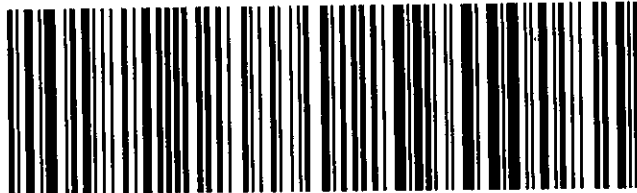
J13111302120126

1 of 2
TRK# 7957 9379 8725
MASTER

4.4

80524

9622 0417 3 (000 733 7652) 4 00 7957 9379 8725



Client: Western Water and Land, Inc.
Project: RU 11-7 WPX Baseline Water Quality
Sample ID: RU-11-7-Yellow Jacket Spg
Legal Location:
Collection Date: 6/27/2013 10:00

Date: 28-Aug-13
Work Order: 1306419
Lab ID: 1306419-1
Matrix: WATER

Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
ALKALINITY AS CALCIUM CARBONATE			SM2320B		Prep Date: 7/2/2013	PrepBy: AJD
BICARBONATE AS CaCO3	330		20	MG/L	1	7/2/2013
CARBONATE AS CaCO3	ND		20	MG/L	1	7/2/2013
TOTAL ALKALINITY AS CaCO3	330		20	MG/L	1	7/2/2013
BIOLOGICAL ACTIVITY REACTION TEST			BART		Prep Date: 7/2/2013	PrepBy: BAS
IRON RELATED BACTERIA	1			NU	1	7/10/2013
SLIME FORMING BACTERIA	1			NU	1	7/10/2013
SULFATE REDUCING BACTERIA	1			NU	1	7/10/2013
DIESEL RANGE ORGANICS			SW8015M		Prep Date: 7/2/2013	PrepBy: JAC
Diesel Range Organics	ND		0.5	MG/L	1	7/3/2013 22:08
Surr: O-TERPHENYL	76		51-97	%REC	1	7/3/2013 22:08
DISSOLVED GASSES			RSK175		Prep Date: 7/1/2013	PrepBy: JFN
METHANE	93		1	UG/L	1	7/1/2013 12:36
ETHANE	ND		2	UG/L	1	7/1/2013 12:36
PROPANE	ND		1	UG/L	1	7/1/2013 12:36
GC/MS VOLATILES			SW8260_25		Prep Date: 7/2/2013	PrepBy: SDW
BENZENE	ND		1	UG/L	1	7/2/2013 16:59
TOLUENE	0.41	J	1	UG/L	1	7/2/2013 16:59
ETHYLBENZENE	ND		1	UG/L	1	7/2/2013 16:59
M+P-XYLENE	ND		1	UG/L	1	7/2/2013 16:59
O-XYLENE	ND		1	UG/L	1	7/2/2013 16:59
GASOLINE RANGE ORGANICS	ND		100	UG/L	1	7/2/2013 16:59
Surr: DIBROMOFLUOROMETHANE	103		84-118	%REC	1	7/2/2013 16:59
Surr: TOLUENE-D8	99		85-115	%REC	1	7/2/2013 16:59
Surr: 4-BROMOFLUOROBENZENE	97		85-115	%REC	1	7/2/2013 16:59
ION CHROMATOGRAPHY			EPA300.0		Prep Date: 6/28/2013	PrepBy: AJD
BROMIDE	0.22		0.2	MG/L	1	6/30/2013 04:14
CHLORIDE	9.1		1	MG/L	5	7/3/2013 17:16
FLUORIDE	0.33		0.1	MG/L	1	6/30/2013 04:14
NITRATE AS N	0.21		0.2	MG/L	1	6/30/2013 04:14
NITRITE AS N	ND		0.1	MG/L	1	6/30/2013 04:14
SULFATE	11		1	MG/L	1	8/22/2013 23:04
METALS BY 200.8			EPA200.8		Prep Date: 7/9/2013	PrepBy: BAS
BORON	ND		50	UG/L	10	7/10/2013 12:17
BARIUM	120		1	UG/L	10	7/10/2013 12:17
CALCIUM	94000		1000	UG/L	10	7/10/2013 12:17
IRON	180		100	UG/L	10	7/10/2013 12:17
POTASSIUM	2400		1000	UG/L	10	7/10/2013 12:17
MAGNESIUM	17000		100	UG/L	10	7/10/2013 12:17
MANGANESE	770		2	UG/L	10	7/10/2013 12:17
SODIUM	14000		1000	UG/L	10	7/10/2013 12:17

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SAMPLE SUMMARY REPORT

Client: Western Water and Land, Inc.
Project: RU 11-7 WPX Baseline Water Quality
Sample ID: RU-11-7-Yellow Jacket Spg
Legal Location:
Collection Date: 6/27/2013 10:00

Date: 28-Aug-13
Work Order: 1306419
Lab ID: 1306419-1
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
SELENIUM	ND		1	UG/L	10	7/10/2013 12:17
STRONTIUM	450		1	UG/L	10	7/10/2013 12:17
PH			SM4500-H		Prep Date: 7/1/2013	PrepBy: AJD
PH	7.42		0.1	pH	1	7/1/2013
SPECIFIC CONDUCTANCE IN WATER			SM2510B		Prep Date: 7/1/2013	PrepBy: AJD
SPECIFIC CONDUCTIVITY	640		1	umhos/cm	1	7/1/2013
TOTAL DISSOLVED SOLIDS			SM2540C		Prep Date: 7/2/2013	PrepBy: AJD
TOTAL DISSOLVED SOLIDS	340		20	MG/L	1	7/3/2013
TOTAL PHOSPHORUS AS P			EPA365.2		Prep Date: 7/5/2013	PrepBy: TWK
TOTAL PHOSPHORUS	0.25		0.05	MG/L	1	7/5/2013

Client: Western Water and Land, Inc.
Project: RU 11-7 WPX Baseline Water Quality
Sample ID: RU-11-7-Beaver Creek
Legal Location:
Collection Date: 6/27/2013 11:00

Date: 28-Aug-13
Work Order: 1306419
Lab ID: 1306419-2
Matrix: WATER

Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
ALKALINITY AS CALCIUM CARBONATE			SM2320B		Prep Date: 7/2/2013	PrepBy: AJD
BICARBONATE AS CaCO3	120		20	MG/L	1	7/2/2013
CARBONATE AS CaCO3	ND		20	MG/L	1	7/2/2013
TOTAL ALKALINITY AS CaCO3	120		20	MG/L	1	7/2/2013
BIOLOGICAL ACTIVITY REACTION TEST			BART		Prep Date: 7/2/2013	PrepBy: BAS
IRON RELATED BACTERIA	1			NU	1	7/10/2013
SLIME FORMING BACTERIA	ND			NU	1	7/10/2013
SULFATE REDUCING BACTERIA	1			NU	1	7/10/2013
DIESEL RANGE ORGANICS			SW8015M		Prep Date: 7/2/2013	PrepBy: JAC
Diesel Range Organics	ND		0.5	MG/L	1	7/3/2013 22:39
Surr: O-TERPHENYL	76		51-97	%REC	1	7/3/2013 22:39
DISSOLVED GASSES			RSK175		Prep Date: 7/1/2013	PrepBy: JFN
METHANE	ND		1	UG/L	1	7/1/2013 12:39
ETHANE	ND		2	UG/L	1	7/1/2013 12:39
PROPANE	ND		1	UG/L	1	7/1/2013 12:39
GC/MS VOLATILES			SW8260_25		Prep Date: 7/2/2013	PrepBy: SDW
BENZENE	ND		1	UG/L	1	7/2/2013 17:23
TOLUENE	ND		1	UG/L	1	7/2/2013 17:23
ETHYLBENZENE	ND		1	UG/L	1	7/2/2013 17:23
M+P-XYLENE	ND		1	UG/L	1	7/2/2013 17:23
O-XYLENE	ND		1	UG/L	1	7/2/2013 17:23
GASOLINE RANGE ORGANICS	ND		100	UG/L	1	7/2/2013 17:23
Surr: DIBROMOFLUOROMETHANE	101		84-118	%REC	1	7/2/2013 17:23
Surr: TOLUENE-D8	101		85-115	%REC	1	7/2/2013 17:23
Surr: 4-BROMOFLUOROBENZENE	99		85-115	%REC	1	7/2/2013 17:23
ION CHROMATOGRAPHY			EPA300.0		Prep Date: 6/28/2013	PrepBy: AJD
BROMIDE	ND		0.2	MG/L	1	6/30/2013 04:28
CHLORIDE	0.8		0.2	MG/L	1	7/3/2013 17:30
FLUORIDE	0.16		0.1	MG/L	1	6/30/2013 04:28
NITRATE AS N	0.23		0.2	MG/L	1	6/30/2013 04:28
NITRITE AS N	ND		0.1	MG/L	1	6/30/2013 04:28
SULFATE	12		1	MG/L	1	6/30/2013 04:28
METALS BY 200.8			EPA200.8		Prep Date: 7/9/2013	PrepBy: BAS
BORON	ND		50	UG/L	10	7/10/2013 12:20
BARIUM	37		1	UG/L	10	7/10/2013 12:20
CALCIUM	31000		1000	UG/L	10	7/10/2013 12:20
IRON	ND		100	UG/L	10	7/10/2013 12:20
POTASSIUM	ND		1000	UG/L	10	7/10/2013 12:20
MAGNESIUM	5600		100	UG/L	10	7/10/2013 12:20
MANGANESE	ND		2	UG/L	10	7/10/2013 12:20
SODIUM	11000		1000	UG/L	10	7/10/2013 12:20

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SAMPLE SUMMARY REPORT

Client: Western Water and Land, Inc.
Project: RU 11-7 WPX Baseline Water Quality
Sample ID: RU-11-7-Beaver Creek
Legal Location:
Collection Date: 6/27/2013 11:00

Date: 28-Aug-13
Work Order: 1306419
Lab ID: 1306419-2
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
SELENIUM	ND		1	UG/L	10	7/10/2013 12:20
STRONTIUM	190		1	UG/L	10	7/10/2013 12:20
PH			SM4500-H		Prep Date: 7/1/2013	PrepBy: AJD
PH	8.37		0.1	pH	1	7/1/2013
SPECIFIC CONDUCTANCE IN WATER			SM2510B		Prep Date: 7/1/2013	PrepBy: AJD
SPECIFIC CONDUCTIVITY	247		1	umhos/cm	1	7/1/2013
TOTAL DISSOLVED SOLIDS			SM2540C		Prep Date: 7/2/2013	PrepBy: AJD
TOTAL DISSOLVED SOLIDS	150		20	MG/L	1	7/3/2013
TOTAL PHOSPHORUS AS P			EPA365.2		Prep Date: 7/5/2013	PrepBy: TWK
TOTAL PHOSPHORUS	ND		0.05	MG/L	1	7/5/2013

Client: Western Water and Land, Inc.
Project: RU 11-7 WPX Baseline Water Quality
Sample ID: Trip Blank
Legal Location:
Collection Date: 6/27/2013

Date: 28-Aug-13
Work Order: 1306419
Lab ID: 1306419-3
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GC/MS VOLATILES			SW8260_25		Prep Date: 7/2/2013	PrepBy: SDW
BENZENE	ND		1	UG/L	1	7/2/2013 17:46
TOLUENE	ND		1	UG/L	1	7/2/2013 17:46
ETHYLBENZENE	ND		1	UG/L	1	7/2/2013 17:46
M+P-XYLENE	ND		1	UG/L	1	7/2/2013 17:46
O-XYLENE	ND		1	UG/L	1	7/2/2013 17:46
GASOLINE RANGE ORGANICS	ND		100	UG/L	1	7/2/2013 17:46
Surr: DIBROMOFLUOROMETHANE	104		84-118	%REC	1	7/2/2013 17:46
Surr: TOLUENE-D8	102		85-115	%REC	1	7/2/2013 17:46
Surr: 4-BROMOFLUOROBENZENE	99		85-115	%REC	1	7/2/2013 17:46

Client: Western Water and Land, Inc.
Project: RU 11-7 WPX Baseline Water Quality
Sample ID: Trip Blank
Legal Location:
Collection Date: 6/27/2013

Date: 28-Aug-13
Work Order: 1306419
Lab ID: 1306419-3
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
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Explanation of Qualifiers

Radiochemistry:

U or ND - Result is less than the sample specific MDC.	M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.	L - LCS Recovery below lower control limit.
Y2 - Chemical Yield outside default limits.	H - LCS Recovery above upper control limit.
W - DER is greater than Warning Limit of 1.42	P - LCS, Matrix Spike Recovery within control limits.
* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.	N - Matrix Spike Recovery outside control limits
# - Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.	NC - Not Calculated for duplicate results less than 5 times MDC
G - Sample density differs by more than 15% of LCS density.	B - Analyte concentration greater than MDC.
D - DER is greater than Control Limit	B3 - Analyte concentration greater than MDC but less than Requested MDC.
M - Requested MDC not met.	
LT - Result is less than requested MDC but greater than achieved 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.

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.

Diesel Range Organics:

Client: Western Water and Land, Inc.
Project: RU 11-7 WPX Baseline Water Quality
Sample ID: Trip Blank
Legal Location:
Collection Date: 6/27/2013

Date: 28-Aug-13
Work Order: 1306419
Lab ID: 1306419-3
Matrix: WATER
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<p>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</p>						

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Date: 8/28/2013 9:09:

Client: Western Water and Land, Inc.

QC BATCH REPORT

Work Order: 1306419

Project: RU 11-7 WPX Baseline Water Quality

Batch ID: HC130701-9-1

Instrument ID: MEE-1

Method: RSK175

DUP Sample ID: 1306419-2 Units: UG/L Analysis Date: 7/1/2013 12:44

Client ID: RU-11-7-Beaver Creek Run ID: HC130701-9A Prep Date: 7/1/2013 DF: 1

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
METHANE	ND	1					1		25	
ETHANE	ND	2					2		25	
PROPANE	ND	1					1		25	

LCS Sample ID: HC130701-9 Units: UG/L Analysis Date: 7/1/2013 12:00

Client ID: Run ID: HC130701-9A Prep Date: 7/1/2013 DF: 1

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
METHANE	129	1	142		91	80-120			25	
ETHANE	247	2	267		93	80-120			25	
PROPANE	356	1	391		91	80-120			25	

LCSD Sample ID: HC130701-9 Units: UG/L Analysis Date: 7/1/2013 12:54

Client ID: Run ID: HC130701-9A Prep Date: 7/1/2013 DF: 1

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
METHANE	143	1	142		101	80-120	129	10	25	
ETHANE	272	2	267		102	80-120	247	10	25	
PROPANE	392	1	391		100	80-120	356	9	25	

MB Sample ID: HC130701-9 Units: UG/L Analysis Date: 7/1/2013 12:04

Client ID: Run ID: HC130701-9A Prep Date: 7/1/2013 DF: 1

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
METHANE	ND	1								
ETHANE	ND	2								
PROPANE	ND	1								

The following samples were analyzed in this batch:

1306419-1	1306419-2
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Client: Western Water and Land, Inc.
 Work Order: 1306419
 Project: RU 11-7 WPX Baseline Water Quality

QC BATCH REPORT

Batch ID: **EX130702-1-1** Instrument ID: **FUELS-1** Method: **SW8015M**

LCS		Sample ID: EX130702-1					Units: MG/L	Analysis Date: 7/3/2013 20:35			
Client ID:		Run ID: HCD130703-3A				Prep Date: 7/2/2013		DF: 1			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual	
Diesel Range Organics	10.4	0.5	10		104	36-150			20		
Surr: O-TERPHENYL	1.14		1.25		91	51-97					

LCSD		Sample ID: EX130702-1					Units: MG/L	Analysis Date: 7/3/2013 21:06			
Client ID:		Run ID: HCD130703-3A				Prep Date: 7/2/2013		DF: 1			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual	
Diesel Range Organics	10.5	0.5	10		105	36-150	10.4	1	20		
Surr: O-TERPHENYL	1.17		1.25		94	51-97		2			

MB		Sample ID: EX130702-1					Units: MG/L	Analysis Date: 7/3/2013 20:04			
Client ID:		Run ID: HCD130703-3A				Prep Date: 7/2/2013		DF: 1			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual	
Diesel Range Organics	ND	0.5									
Surr: O-TERPHENYL	0.898		1.25		72	51-97					

The following samples were analyzed in this batch: 1306419-1 1306419-2

Client: Western Water and Land, Inc.
 Work Order: 1306419
 Project: RU 11-7 WPX Baseline Water Quality

QC BATCH REPORT

Batch ID: **IP130709-1-2** Instrument ID: **ICPMS2** Method: **EPA200.8**

LCS		Sample ID: FM130708-1			Units: UG/L		Analysis Date: 7/10/2013 12:30				
Client ID:		Run ID: IM130710-10A2			Prep Date: 7/9/2013		DF: 10				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual	
BARIUM	95.9	1	100		96	85-115			20		
BORON	857	50	1000		86	85-115			20		
CALCIUM	9140	1000	10000		91	85-115			20		
IRON	5080	100	5000		102	85-115			20		
MAGNESIUM	9180	100	10000		92	85-115			20		
MANGANESE	192	2	200		96	85-115			20		
POTASSIUM	5340	1000	5000		107	85-115			20		
SELENIUM	99.5	1	100		99	85-115			20		
SODIUM	10200	1000	10000		102	85-115			20		
STRONTIUM	93.9	1	100		94	85-115			20		

MB		Sample ID: F130708-1			Units: UG/L		Analysis Date: 7/10/2013 12:14				
Client ID:		Run ID: IM130710-10A2			Prep Date: 7/9/2013		DF: 10				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual	
BARIUM	ND	1									
BORON	ND	50									
CALCIUM	ND	1000									
IRON	ND	100									
MAGNESIUM	ND	100									
MANGANESE	ND	2									
POTASSIUM	ND	1000									
SELENIUM	ND	1									
SODIUM	ND	1000									
STRONTIUM	ND	1									

The following samples were analyzed in this batch: 1306419-1 1306419-2

Client: Western Water and Land, Inc.
 Work Order: 1306419
 Project: RU 11-7 WPX Baseline Water Quality

QC BATCH REPORT

Batch ID: **VL130702-4-1** Instrument ID: **HPV1** Method: **SW8260_25**

LCS		Sample ID: VL130702-4			Units: UG/L			Analysis Date: 7/2/2013 12:43			
Client ID:		Run ID: VL130702-4A			Prep Date: 7/2/2013			DF: 1			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual	
BENZENE	10.8	1	10		108	83-117			20		
TOLUENE	10.7	1	10		107	82-113			20		
ETHYLBENZENE	10.7	1	10		107	81-113			20		
M+P-XYLENE	22.5	1	20		113	82-115			20		
O-XYLENE	11.1	1	10		111	81-115			20		
GASOLINE RANGE ORGANICS	504	100	500		100.72	80-120			20		
Surr: DIBROMOFLUOROMETHA	25.5		25		102	84-118					
Surr: TOLUENE-D8	25		25		100	85-115					
Surr: 4-BROMOFLUOROBENZE	25.1		25		101	85-115					

LCSD		Sample ID: VL130702-4			Units: UG/L			Analysis Date: 7/2/2013 13:06			
Client ID:		Run ID: VL130702-4A			Prep Date: 7/2/2013			DF: 1			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual	
BENZENE	10.4	1	10		104	83-117	10.8	4	20		
TOLUENE	10.5	1	10		105	82-113	10.7	1	20		
ETHYLBENZENE	10.4	1	10		104	81-113	10.7	3	20		
M+P-XYLENE	21.5	1	20		108	82-115	22.5	5	20		
O-XYLENE	10.5	1	10		105	81-115	11.1	6	20		
GASOLINE RANGE ORGANICS	499	100	500		99.956	80-120	504		20		
Surr: DIBROMOFLUOROMETHA	25.7		25		103	84-118		1			
Surr: TOLUENE-D8	25		25		100	85-115		0			
Surr: 4-BROMOFLUOROBENZE	25.5		25		102	85-115		1			

MB		Sample ID: VL130702-4			Units: UG/L			Analysis Date: 7/2/2013 13:30			
Client ID:		Run ID: VL130702-4A			Prep Date: 7/2/2013			DF: 1			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual	
BENZENE	ND	1									
TOLUENE	ND	1									
ETHYLBENZENE	ND	1									
M+P-XYLENE	ND	1									
O-XYLENE	ND	1									
GASOLINE RANGE ORGANICS	ND	100									
Surr: DIBROMOFLUOROMETHA	25.3		25		101	84-118					
Surr: TOLUENE-D8	25.4		25		101	85-115					
Surr: 4-BROMOFLUOROBENZE	24.2		25		97	85-115					

The following samples were analyzed in this batch:

1306419-1	1306419-2	1306419-3
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Client: Western Water and Land, Inc.
 Work Order: 1306419
 Project: RU 11-7 WPX Baseline Water Quality

QC BATCH REPORT

Batch ID: **ak130702-1-1** Instrument ID: **NONE** Method: **SM2320B**

LCS		Sample ID: ak130702-1			Units: MG/L			Analysis Date: 7/2/2013		
Client ID:		Run ID: ak130702-1a			Prep Date: 7/2/2013			DF: 1		
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
TOTAL ALKALINITY AS CaCO3	98.7	5	100		99	85-115			15	

MB		Sample ID: ak130702-1			Units: MG/L			Analysis Date: 7/2/2013		
Client ID:		Run ID: ak130702-1a			Prep Date: 7/2/2013			DF: 1		
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	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: 1306419-1 1306419-2

Client: Western Water and Land, Inc.
Work Order: 1306419
Project: RU 11-7 WPX Baseline Water Quality

QC BATCH REPORT

Batch ID: **IC130628-1-1** Instrument ID: **IC** Method: **EPA300.0**

LCS		Sample ID: IC130628-1			Units: MG/L		Analysis Date: 6/28/2013 14:29			
Client ID:		Run ID: IC130628-1A1			Prep Date: 6/28/2013		DF: 1			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
FLUORIDE	2.03	0.1	2		102	90-110			15	
CHLORIDE	5.21	0.2	5		104	90-110			15	
NITRITE AS N	2.03	0.1	2		102	90-110			15	
BROMIDE	5.43	0.2	5		109	90-110			15	
NITRATE AS N	5.31	0.2	5		106	90-110			15	
SULFATE	20	1	20		100	90-110			15	

MB		Sample ID: IC130628-1			Units: MG/L		Analysis Date: 6/28/2013 14:43			
Client ID:		Run ID: IC130628-1A1			Prep Date: 6/28/2013		DF: 1			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
FLUORIDE	ND	0.1								
CHLORIDE	ND	0.2								
NITRITE AS N	ND	0.1								
BROMIDE	ND	0.2								
NITRATE AS N	ND	0.2								
SULFATE	ND	1								

The following samples were analyzed in this batch:

Client: Western Water and Land, Inc.
Work Order: 1306419
Project: RU 11-7 WPX Baseline Water Quality

QC BATCH REPORT

Batch ID: **IC130822-1-1** Instrument ID: **IC** Method: **EPA300.0**

LCS	Sample ID: IC130822-1		Units: MG/L		Analysis Date: 8/22/2013 15:20					
Client ID:	Run ID: IC130822-1A1			Prep Date: 8/22/2013			DF: 1			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
SULFATE	19.2	1	20		96	90-110			15	

MB	Sample ID: IC130822-1		Units: MG/L		Analysis Date: 8/22/2013 15:34					
Client ID:	Run ID: IC130822-1A1			Prep Date: 8/22/2013			DF: 1			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
SULFATE	ND	1								

The following samples were analyzed in this batch: 1306419-1

Client: Western Water and Land, Inc.
Work Order: 1306419
Project: RU 11-7 WPX Baseline Water Quality

QC BATCH REPORT

Batch ID: **ph130701-1-1** Instrument ID: **pH-1** Method: **SM4500-H**

DUP Sample ID: **1306419-1** Units: **pH** Analysis Date: **7/1/2013**
 Client ID: **RU-11-7-Yellow Jacket Spg** Run ID: **pH130701-1A** Prep Date: **7/1/2013** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
PH	7.43	0.1					7.42		0.2	

The following samples were analyzed in this batch:

1306419-1	1306419-2
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Client: Western Water and Land, Inc.
Work Order: 1306419
Project: RU 11-7 WPX Baseline Water Quality

QC BATCH REPORT

Batch ID: **SC130701-1-1** Instrument ID: **pH-1** Method: **SM2510B**

DUP Sample ID: **1306419-1** Units: **umhos/cm** Analysis Date: **7/1/2013**
 Client ID: **RU-11-7-Yellow Jacket Spg** Run ID: **SC130701-1A** Prep Date: **7/1/2013** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
SPECIFIC CONDUCTIVITY	639	1					640	0	10	

The following samples were analyzed in this batch:

1306419-1	1306419-2
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Client: Western Water and Land, Inc.
Work Order: 1306419
Project: RU 11-7 WPX Baseline Water Quality

QC BATCH REPORT

Batch ID: **TD130702-1-1** Instrument ID: **Balance** Method: **SM2540C**

LCS	Sample ID: TD130702-1			Units: MG/L			Analysis Date: 7/3/2013			
Client ID:	Run ID: TD130703-1A			Prep Date: 7/2/2013			DF: 1			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
TOTAL DISSOLVED SOLIDS	390	20	400		98	85-115			5	

MB	Sample ID: TD130702-1			Units: MG/L			Analysis Date: 7/3/2013			
Client ID:	Run ID: TD130703-1A			Prep Date: 7/2/2013			DF: 1			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
TOTAL DISSOLVED SOLIDS	ND	20								

The following samples were analyzed in this batch:
1306419-1
1306419-2

Client: Western Water and Land, Inc.
Work Order: 1306419
Project: RU 11-7 WPX Baseline Water Quality

QC BATCH REPORT

Batch ID: **TP130705-1-1** Instrument ID: **Spec** Method: **EPA365.2**

LCS	Sample ID: TP130705-1						Units: MG/L	Analysis Date: 7/5/2013			
Client ID:		Run ID: TP130705-1A						Prep Date: 7/5/2013		DF: 1	
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual	
TOTAL PHOSPHORUS	0.523	0.05	0.5		105	80-120			20		

MB	Sample ID: TP130705-1						Units: MG/L	Analysis Date: 7/5/2013			
Client ID:		Run ID: TP130705-1A						Prep Date: 7/5/2013		DF: 1	
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual	
TOTAL PHOSPHORUS	ND	0.05									

The following samples were analyzed in this batch:
1306419-1
1306419-2