Western Water & Land, Inc.

August 14, 2013

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

RE: SG 31-32 Completions Pit 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) SG 31-32 completions pit in accordance with COGCC Condition of Approval 9 (COA 9).

In accordance with COA 9, the evaluation considered all water sources (domestic wells or springs) within a 1.0-mile radius of the referenced completion pit (oil and gas location). Surface water sources are considered after an evaluation of available groundwater sources. 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 two or less, all of the sources were included in the list of preferred sources. If more than two sources were potentially available, the sources were prioritized based on WWL's hydrologic expertise and in accordance with COA 9.

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

FIELD SAMPLING ACTIVITIES

As described in the Water Source Evaluation for Completion Pit SG 31-32 (5/7/13), two sampling locations were identified for field sampling of water quality consistent with requirements of COA 9 1) "Van Hoose Spring" (Well Permit No. 192819) (sample SG 31-32-192819); and 2) the Colorado River near the Van Hoose's house (sample SG 31-32-CO River). According to state records, Mr. Donald Van Hoose is the applicant of Well Permit No. 192819, in which a variance was granted to convert a hillside spring into a shallow well. The formal name of the spring is Una Ranch Spring, however, the spring has been sampled in the past and is referred to as Van Hoose Spring in the COGCC database. The actual spring emanation point is outside of the 1.0-mile radius, but the water is piped to Mr. Van Hoose's residence, which is located within the 1.0-mile radius (Figure 1). The spring was sampled at a pipe that discharges from a collection box near its emanation point. The spring is located on a parcel belonging to KR Holdings, LLC. The water right is listed as being owned by William Colohan, but was probably transferred to Van Hoose at a later date.

743 Horizon Court Suite 330, Grand Junction, CO 81506
Phone: (970) 242-0170 Fax: (970) 242-0270

Mr. Van Hoose completed the well/spring questionnaire and signed an acceptance letter to have his spring sampled. Both sites were accessed with permission of Mr. Van Hoose who was present during sampling of the spring location. In addition to WWL sampling personnel, Mr. Gary Reed of WPX was present during the sampling event.

At Van Hoose Spring, groundwater was conveyed through a pipe buried about 20 feet horizontally in the hillside and passing through a capped concrete box or cistern; the spring water sample was collected from the cistern outflow pipe. The Colorado River was sampled in a mild riffle section adjacent to a cobble bank on the south bank of the river. The sampling event was conducted on June 3rd, 2013.

COA 9 required that surface flow within Smith Gulch, if present, be sampled upgradient and downgradient of the SG 31-32 pad. No flow was present in Smith Gulch, and therefore, no sampling for this location occurred. See Figure 1 for the sampled locations. Photographs of the sampling sites 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 both of these samples.

Samples were carefully packed in plastic ice chests (coolers) with ice and shipped to the analytical laboratory 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), 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 SG 31-32-192819 (spring site) was conducted at an end-of-pipe location. 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. Sample site SG 31-32-CO River was also sampled in situ by direct filling methods; dissolved gas sampling was done using Method 2 for spring and seep sampling. No field procedure deviations or incidents occurred that were cause for data qualification.

COC

The chain-of-custody form was reviewed for correct and complete sample IDs, requested analysis, and other information. The COC was marked "COGA 609" in the analysis section by field personnel. While this analytical suite was incorrect, the actual analytes requested on the COC matched the requirements of COA 9. "GRO" was incorrectly designated on the COC; TPH is the correct analysis for COA 9. Hydrogen sulfide, a required analysis under COA 9 was tested using a Hach™ field kit (Hach Method 8131).

ALS, the analytical laboratory incorrectly logged in sample SG 31-32-CO River as SG 31-32-LO River, and sample SG 31-32-192819 was logged as SG 31-32-192-819 by field personnel. The lab was contacted and the sample name errors were corrected and new result files were issued. ALS reported that the COC did not designate the presence of a trip blank, however, the COC does show a third sample item marked "TB". The date for the trip blank was not completed by field personnel. No other errors or pertinent information was observed, and no other corrections were needed.

Sample Receipt
The samples were received in a single cooler within the temperature range criteria (4°C ± 2°C). Custody seals were intact. The lab reported on the sample receipt form that the volatile organic analysis (VOA) bottle for sample SG 31-32-192819 contained a small bubble less than (green) pea size. However, the VOC results stated that "all samples were free of headspace prior to analysis". In addition, the receipt form noted the COC did not note the sample ID for the trip blank. No qualifiers were assigned to results based on sample receipt conditions.

Holding Times
All analyses were conducted within recommended holding times.

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.

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; no deviations were observed. ALS reports samples at the detection limit as "undetected" or "U" rather than reporting results as less than the detection limit, e.g. < 0.05ug/L.

Completeness
Data completeness is a measure of requested analysis and received results. The analytical constituents required under COA 9 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 COA 9. 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.

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. No sample results were rejected on the basis of the TDS ratio.

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 with the exception of the following:

- Surrogate recovery for O-terphenyl in the Lab Control Sample (LCS) and Lab Control Sample Duplicate (LCSD) exceeded the upper control limit by 1% and 2%, respectively. Because all spike recoveries were within limits and no diesel range organic compounds were detected in the samples, no further action was taken, and no qualifier was assigned.

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.

ANALYTICAL RESULTS

Laboratory analysis was performed by ALS Environmental (ALS), in Fort Collins, Colorado, in accordance with the analytical schedule described in COA 9. 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.

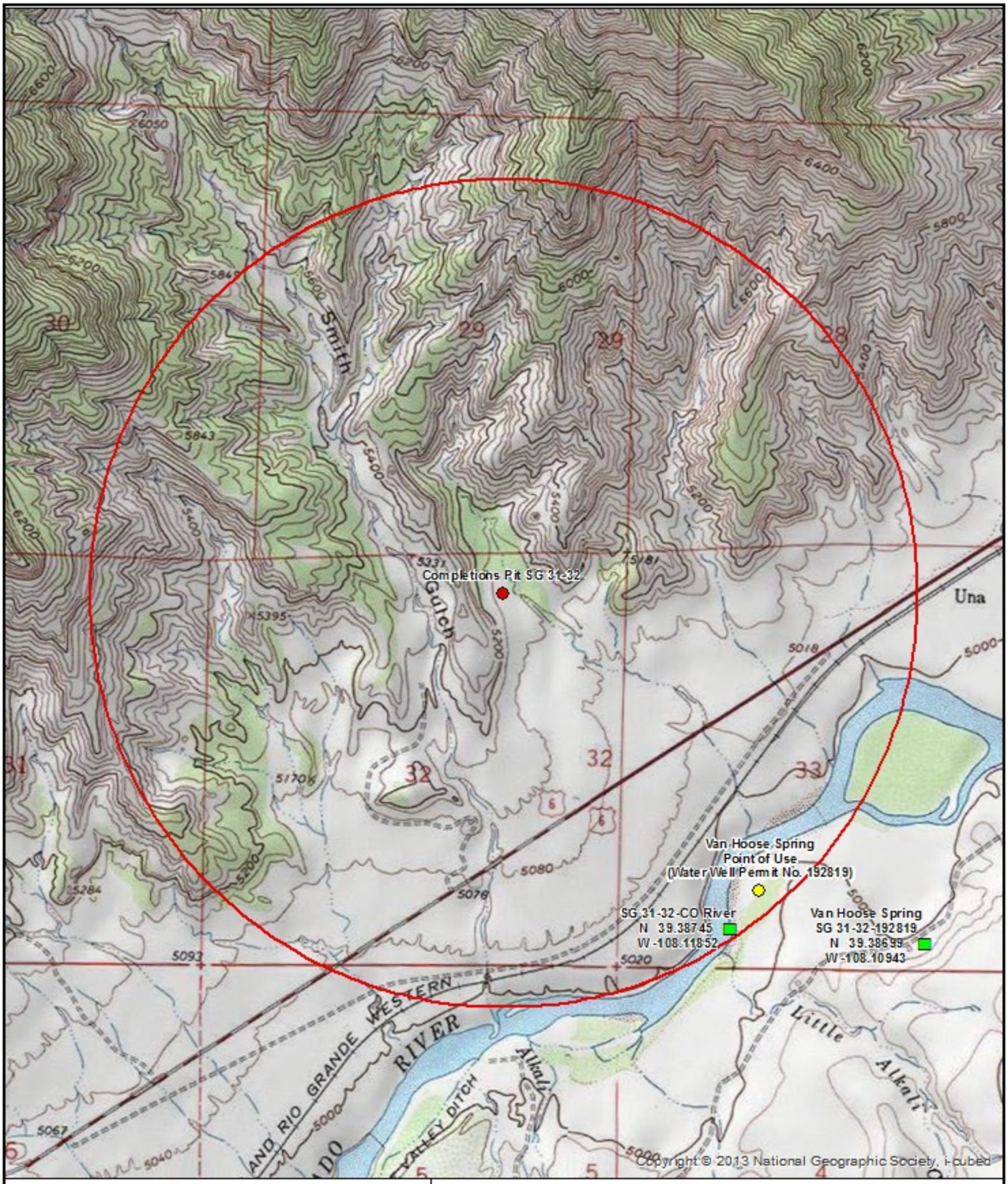
Sincerely,

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 - Analytical Summary



Legend

- Sample Location(s)
- Completions Pit SG 31-32
- Point(s) of Use
- 1-Mile Radius Evaluation Area

N

Feet

1,700 850 0 1,700

1:20,000

Figure 1: SG 31-32 Completions Pit Sample Location Map
One Mile Radius Water Source Evaluation
NW1/4, NE1/4, S32, T7S, R96W, 6PM

WPX Energy Rocky Mtn. LLC

Garfield County, Colorado

Basemap Source: Bing Maps and EsriArcGIS Online

Western Water & Land, Inc.
Application Ready

ATTACHMENT A

Photographs

Photo 1. Well Permit 192819; Vanhoose Spring Cistern

Photo 2. Vanhoose Spring Sampling Location SG 31-32-192819

Photo 3. Colorado River Sampling Location SG 31-32-CO River

Photo 4. Colorado River Sampling Location SG 31-32-CO River

ATTACHMENT B

Data Quality Review Sheets

DATA QUALITY REVIEW SHEET

SG 31-32 BWQ

Facility ID:	752692	Lab Work Order:	130624
Station Name:	VanHoose SESW S33 7S 96W	QA/QC Review Date:	7/24/2013
Sample Date:	6/3/2013	Reviewer:	J. Pahler, B. Smith
Field Sample ID:	SG 31-32-CO River		

Field Sampling Data Review	**Yes**	**No**	**N/A**
1. Well properly purged?	☐	☐	☒
2. Flow rate reduced prior to sampling?	☐	☐	☒
3. Water quality parameters stable prior to sampling?	☒	☐	☐
4. Field instruments calibrated properly?	☒	☐	☐
5. Sampling methods performed according to SAP procedures?	☒	☐	☐
6. Procedures consistent with obtaining a representative sample?	☒	☐	☐
Lab Data Report Review			
7. Proper sample custody maintained until laboratory receipt?	☒	☐	☐
8. Any discrepancies noted on the lab receipt form? *If yes, list in the comments section.*	☒	☐	☐
9. All samples analyzed for the requested analyses?	☒	☐	☐
10. Proper laboratory methods used?	☒	☐	☐
11. All sample holding times met?	☒	☐	☐
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?	☒	☐	☐
13. Lab qualifiers for data (other than non-detect)? *List in comments*.	☐	☒	☐
14. Are corrective actions required? *If yes, please list actions and dates to be completed by:*	☐	☒	☐

Corrective Action	*Date to be completed*
None required	

Calculated Quality Control Parameters	**Calculated Value**	**Lab Value**	**Ratio**	**Acceptable Limit**	**Meets QC Criteria?**
Cation/Anion Balance, % (CAB)	0.2	N/A	N/A	±5%	☒
Total Dissolved Solids, mg/L (TDS)	322	320	1.01	0.9 – 1.1	☒
Specific Conductance, µS/cm (SpC)	478	484	0.99	0.9 – 1.1	☒

Comments:

Trip Blank ID not listed on COC; small headspace noted in one vial but not noted in analysis results. Surrogate recovery for O-terphenyl in the Lab Control Sample (LCS) and Lab Control Sample Duplicate (LCSD) exceeded the upper control limit by 1% and 2%, respectively. Because all spike recoveries were within limits and the samples were non-detect, no further action was taken, and no qualifier was assigned.

DATA QUALITY REVIEW SHEET

SG 31-32 BWQ

Facility ID:	707963	Lab Work Order:	130624
Station Name:	VanHoose Spring	QA/QC Review Date:	7/24/2013
Sample Date:	6/3/2013	Reviewer:	J. Pahler, B. Smith
Field Sample ID:	SG 31-32-192819		

Field Sampling Data Review	**Yes**	**No**	**N/A**
1. Well properly purged?	☐	☐	☒
2. Flow rate reduced prior to sampling?	☐	☐	☒
3. Water quality parameters stable prior to sampling?	☒	☐	☐
4. Sample was representative?	☒	☐	☐
5. Field instruments calibrated properly?	☒	☐	☐
6. Procedures consistent with obtaining a representative sample?	☒	☐	☐
Lab Data Report Review			
7. Proper sample custody maintained until laboratory receipt?	☒	☐	☐
8. Any discrepancies noted on the lab receipt form? *If yes, list in the comments section.*	☒	☐	☐
9. All samples analyzed for the requested analyses?	☒	☐	☐
10. Proper laboratory methods used?	☒	☐	☐
11. All sample holding times met?	☒	☐	☐
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?	☒	☐	☐
13. Lab qualifiers for data (other than non-detect)? *List in comments*.	☐	☒	☐
14. Are corrective actions required? *If yes, please list actions and dates to be completed by:*	☐	☒	☐

Corrective Action	*Date to be completed*
None required	

Calculated Quality Control Parameters	**Calculated Value**	**Lab Value**	**Ratio**	**Acceptable Limit**	**Meets QC Criteria?**
Cation/Anion Balance, % (CAB)	2.1	N/A	N/A	±5%	☒
Total Dissolved Solids, mg/L (TDS)	800	710	1.1	0.9 – 1.1	☒
Specific Conductance, µS/cm (SpC)	1060	1030	1	0.9 – 1.1	☒

Comments:

Trip Blank ID not listed on COC; small headspace noted in one vial but not noted in analysis results. Surrogate recovery for O-terphenyl in the Lab Control Sample (LCS) and Lab Control Sample Duplicate (LCSD) exceeded the upper control limit by 1% and 2%, respectively. Because all spike recoveries were within limits and the samples were non-detect, no further action was taken, and no qualifier was assigned.

ATTACHMENT C

Laboratory Analytical Results

SG 31-32 BWQ Analytical Results Summary

Station Name			VanHoose SESW S33 7S 96W						VanHoose Spring						Trip Blank					
Facility ID			752692						707963											
Sample Date			6/3/2013						6/3/2013						5/29/2013					
Lab Sample ID			1306024-1						1306024-2						1306024-3					
	Reporting Units	AnalyticMethod	Result	Lab Qual	WWL Qual	RL	MDL	DF	Result	Lab Qual	WWL Qual	RL	MDL	DF	Result	Lab Qual	WWL Qual	RL	MDL	DF
Bacteria																				
Iron Related Bacteria[1]	nu	BART	1					1	1					1						
Slime Forming Bacteria[1]	nu	BART	1					1	1					1						
Sulfate Reducing Bacteria[1]	nu	BART	1					1		U				1						
Dissolved gases																				
Ethane	ug/l	RSK175	2	U		2	2	1	2	U		2	2	1						
Methane	ug/l	RSK175	1.1			1	1	1	1	U		1	1	1						
Propane	ug/l	RSK175	1	U		1	1	1	1	U		1	1	1						
Inorganics																				
Bicarbonate as CaCO3	mg/l	SM2320B	100			5		1	370			20		1						
Bromide	mg/l	EPA300.0	1	U		1	0.3	5	1	U		1	0.3	5						
Carbonate as CaCO3	mg/l	SM2320B	5	U		5	0.3	1	20	U		20	0.3	1						
Chloride	mg/l	EPA300.0	68			1		5	14			1		5						
Fluoride	mg/l	EPA300.0	0.5	U		0.5	0.15	5	0.6			0.5	0.15	5						
Nitrate as N	mg/l	EPA300.0	1	U		1	0.3	5	1.4			1	0.3	5						
Nitrite as N	mg/l	EPA300.0	0.5	U		0.5	0.15	5	0.5	U		0.5	0.15	5						
pH	s.u.	SM4500-H	8.16			0.1		1	7.64			0.1		1						
Specific Conductivity	umhos/cm	SM2510B	484			1		1	1030			1		1						
Sulfate	mg/l	EPA300.0	52			5	1.5	5	200			5	1.5	5						
Total Alkalinity AS CaCO3	mg/l	SM2320B	100			5		1	370			20		1						
Total Dissolved Solids	mg/l	SM2540C	320			20		1	710			20		1						
Total Phosphorous	mg/l	EPA365.2	0.12			0.05	0.015	1	0.05	U		0.05	0.015	1						

SG 31-32 BWQ Analytical Results Summary

Station Name			VanHoose SESW S33 7S 96W						VanHoose Spring						Trip Blank					
Facility ID			752692						707963											
Sample Date			6/3/2013						6/3/2013						5/29/2013					
Lab Sample ID			1306024-1						1306024-2						1306024-3					
	Reporting Units	AnalyticMethod	Result	Lab Qual	WWL Qual	RL	MDL	DF	Result	Lab Qual	WWL Qual	RL	MDL	DF	Result	Lab Qual	WWL Qual	RL	MDL	DF
Metals																				
Barium	ug/l	EPA200.8	43			1	0.3	10	27			1	0.3	10						
Boron	ug/l	EPA200.8	50	U		50	15	10	190			50	15	10						
Calcium	ug/l	EPA200.8	43000			1000	65	10	69000			1000	65	10						
Iron (Ferric)	ug/l	EPA200.8	100	U		100	30	10	100	U		100	30	10						
Magnesium	ug/l	EPA200.8	8500			100	30	10	45000			100	30	10						
Manganese	ug/l	EPA200.8	13			2	0.6	10	2	U		2	0.6	10						
Potassium	ug/l	EPA200.8	1600			1000	300	10	3200			1000	300	10						
Selenium	ug/l	EPA200.8	1	U		1	0.5	10	2.8			1	0.5	10						
Sodium	ug/l	EPA200.8	49000			1000	300	10	98000			1000	300	10						
Strontium	ug/l	EPA200.8	300			1	0.3	10	720			1	0.3	10						
Organics																				
Diesel Range Organics	mg/l	SW8015M	0.5	U		0.5	0.15	1	0.5	U		0.5	0.15	1						
Gasoline Range Organics	ug/l	SW8260_25	100	U		100		1	100	U		100		1						
VOAs																				
Benzene	ug/l	SW8260_25	1	U		1	0.3	1	1	U		1	0.3	1	1	U		1	0.3	1
Ethylbenzene	ug/l	SW8260_25	1	U		1	0.3	1	1	U		1	0.3	1	1	U		1	0.3	1
M+P-Xylene	ug/l	SW8260_25	1	U		1	0.3	1	1	U		1	0.3	1	1	U		1	0.3	1
o-Xylene	ug/l	SW8260_25	1	U		1	0.3	1	1	U		1	0.3	1	1	U		1	0.3	1
Toluene	ug/l	SW8260_25	1	U		1	0.3	1	1	U		1	0.3	1	1	U		1	0.3	1

SG 31-32 BWQ Analytical Results Summary

Station Name			VanHoose SESW S33 7S 96W						VanHoose Spring						Trip Blank					
Facility ID			752692						707963											
Sample Date			6/3/2013						6/3/2013						5/29/2013					
Lab Sample ID			1306024-1						1306024-2						1306024-3					
	Reporting Units	AnalyticMethod	Result	Lab Qual	WWL Qual	RL	MDL	DF	Result	Lab Qual	WWL Qual	RL	MDL	DF	Result	Lab Qual	WWL Qual	RL	MDL	DF
Field Parameters																				
pH	s.u.	YSI Pro	8.13						7.36											
Specific Conductivity	uS/cm	YSI Pro	522.3						1066											
Conductivity	uS/cm	YSI Pro	425.7						771											
DO	%	YSI Pro	87						61.5											
DO	mg/L	YSI Pro	8.68						6.84											
ORP	mv	YSI Pro	156.7						164.9											
Turbidity	NTU	MicroTP	28.46						0.07											
Discharge	gpm	Field	NM						60		J									
H2S	mg/L	Colorimeter	0.05						0.01											
Color	nu	Observation	clear						clear											
Odor	nu	Observation	none						none											
Effervescence	nu	Observation	NM						NM											

Notes:

U = not detected at the reporting limit

NM = not measured

J = estimated

[1] A result of 1 indicates the presence of bacteria

1306024

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 surrogate recoveries were within acceptable limits with the following exceptions:

Surrogate	Sample	Direction
O-terphenyl	LCS and LCSD	High

All spike recoveries are within limits and the samples were non-detect. No further action was taken.

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:

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
Sulfate	300.0 Revision 2.1	1113

All acceptance criteria were met.

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1306024
Client Name: Western Water and Land, Inc.
Client Project Name: WPX Baseline Water Quality
Client Project Number: 30000.01.16
Client PO Number:

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
SG31-32-LO River	1306024-1		WATER	03-Jun-13	13:55
SG31-32-192-819	1306024-2		WATER	03-Jun-13	12:45
Trip Blank	1306024-3		WATER	29-May-13	

ALS Laboratory Group

225 Commerce Drive, Fort Collins, Colorado 80524
TF: (800) 443-1511 PH: (970) 490-1511 FX: (970) 490-1522

Chain-of-Custody

Form 202r8

WORKORDER # 1306024

PAGE 1 of 1

DISPOSAL: By Lab or Return to Client

PROJECT NAME	WPX Baseline Water Quality	SAMPLER	Anthony Farinacci
PROJECT No.	30000.01.16	SITE ID	SG 31-32.
		EDD FORMAT	Contact Bruce Smith.
		PURCHASE ORDER	
COMPANY NAME	Western Water & Land, Inc	BILL TO COMPANY	WPX.
SEND REPORT TO	Bruce Smith	INVOICE ATTN TO	
ADDRESS	743 Horizon Ct. Suite 330	ADDRESS	
CITY / STATE / ZIP	Grand Junction, CO 81506	CITY / STATE / ZIP	
PHONE	970-242-0170	PHONE	
FAX		FAX	
E-MAIL	bsmith@westernwaterandland.com	E-MAIL	

DATE: 6-3-13

TURNAROUND: Standard.

LOGA-609

Lab ID	Field ID	Matrix	Sample Date	Sample Time	# Bottles	Pres.	QC	NG/BART	BTEX	GLO	diss. Gross MEP	DRO	diss. Metals (lab filter)	anions, alk, tds, pH cond.	total phosphorus
1	SG 31-32-LO River	W	6-3-13	1355	15			✓	✓	✓	✓	✓	✓	✓	✓
2	SG 31-32-192-819	W	6-3-13	1245	15			✓	✓	✓	✓	✓	✓	✓	✓
3 TB															

*Time Zone (Circle): EST CST MST PST Matrix: O = oil S = soil NS = non-soil solid W = water L = liquid E = extract F = filter

For metals or anions, please detail analytes below.

Comments: Dissolved Metal need to be laboratory filtered

4 of 23

QC PACKAGE (check below)

	LEVEL II (Standard QC)
	LEVEL III (Std QC + forms)
✓	LEVEL IV (Std QC + forms + raw data)

Preservative Key: 1-HCl 2-HNO3 3-H2SO4 4-NaOH 5-NaHSO4 7-Other 8-4 degrees C 9-5035

	SIGNATURE	PRINTED NAME	DATE	TIME
RELINQUISHED BY		Nick Solgwetz	6-3-13	1645
RECEIVED BY		Lauren Schmitt	6/4/13	1145
RELINQUISHED BY				
RECEIVED BY				
RELINQUISHED BY				
RECEIVED BY				

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: Western Water Workorder No: 1306024

Project Manager: ARW Initials: LAS Date: 6/4/13

1. Does this project require any special handling in addition to standard ALS procedures?		YES	(NO)
2. Are custody seals on shipping containers intact?	NONE	(YES)	NO
3. Are Custody seals on sample containers intact?	(NONE)	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		(YES)	NO
5. Are the COC and bottle labels complete and legible?		YES	(NO) *
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		YES	(NO)
7. Were airbills / shipping documents present and/or removable?	DROP OFF	(YES)	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A	(YES)	NO
9. Are all aqueous non-preserved samples pH 4-9?	N/A	(YES)	NO
10. Is there sufficient sample for the requested analyses?		(YES)	NO
11. Were all samples placed in the proper containers for the requested analyses?		(YES)	NO
12. Are all samples within holding times for the requested analyses?		(YES)	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		(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	YES	(NO) *
15. Do any water samples contain sediment? Amount Amount of sediment: ___ dusting ___ moderate ___ heavy	N/A	YES	(NO)
16. Were the samples shipped on ice?		(YES)	NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: (#2) #4	RAD ONLY	(YES)	NO

Cooler #:	1							
Temperature (°C):	2.4							
No. of custody seals on cooler:	2							
DOT Survey/ Acceptance Information — External µR/hr reading:	14							
Background µR/hr reading:	13							

Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? (YES) / NO / NA (If no, see Form 008.)

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

(*5/6) Trip Blank arrived in cooler and not listed on COC. Date on label = 5/29/13. Added as 1306024-3.

(*12) 1306024-2-3(SG31-32-192-819) arrived with headspace ≤ pea-size.

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

Project Manager Signature / Date: [signature] 6/5/13

*IR Gun #2: Oakton, SN 29922500201-0066
*IR Gun #4: Oakton, SN 2372220101-0002

Form 201r24.xls (06/04/2012)

Client: Western Water and Land, Inc. **Date:** *02-Aug-13*
Project: 30000.01.16 WPX Baseline Water Quality **Work Order:** 1306024
Sample ID: SG31-32-LO River **Lab ID:** 1306024-1
Legal Location: **Matrix:** WATER
Collection Date: 6/3/2013 13:55 **Percent Moisture:**

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
ALKALINITY AS CALCIUM CARBONATE			**SM2320B**		Prep Date: **6/10/2013**	PrepBy: **AJD**
BICARBONATE AS CaCO3	**100**		**5**	**MG/L**	1	6/10/2013
CARBONATE AS CaCO3	ND		5	MG/L	1	6/10/2013
TOTAL ALKALINITY AS CaCO3	**100**		**5**	**MG/L**	1	6/10/2013
BIOLOGICAL ACTIVITY REACTION TEST			**BART**		Prep Date: **6/10/2013**	PrepBy: **BAS**
IRON RELATED BACTERIA	**1**			**NU**	1	6/20/2013
SLIME FORMING BACTERIA	**1**			**NU**	1	6/20/2013
SULFATE REDUCING BACTERIA	**1**			**NU**	1	6/20/2013
DIESEL RANGE ORGANICS			**SW8015M**		Prep Date: **6/5/2013**	PrepBy: **JAC**
Diesel Range Organics	ND		0.5	MG/L	1	6/6/2013 16:50
Surr: O-TERPHENYL	*96*		*51-97*	*%REC*	1	6/6/2013 16:50
DISSOLVED GASSES			**RSK175**		Prep Date: **6/10/2013**	PrepBy: **JFN**
METHANE	**1.1**		**1**	**UG/L**	1	6/10/2013 13:27
ETHANE	ND		2	UG/L	1	6/10/2013 13:27
PROPANE	ND		1	UG/L	1	6/10/2013 13:27
GC/MS VOLATILES			**SW8260_25**		Prep Date: **6/9/2013**	PrepBy: **SDW**
BENZENE	ND		1	UG/L	1	6/9/2013 17:42
TOLUENE	ND		1	UG/L	1	6/9/2013 17:42
ETHYLBENZENE	ND		1	UG/L	1	6/9/2013 17:42
M+P-XYLENE	ND		1	UG/L	1	6/9/2013 17:42
O-XYLENE	ND		1	UG/L	1	6/9/2013 17:42
GASOLINE RANGE ORGANICS	ND		100	UG/L	1	6/9/2013 17:42
Surr: DIBROMOFLUOROMETHANE	*102*		*84-118*	*%REC*	1	6/9/2013 17:42
Surr: TOLUENE-D8	*98*		*85-115*	*%REC*	1	6/9/2013 17:42
Surr: 4-BROMOFLUOROBENZENE	*98*		*85-115*	*%REC*	1	6/9/2013 17:42
ION CHROMATOGRAPHY			**EPA300.0**		Prep Date: **6/4/2013**	PrepBy: **JFN**
BROMIDE	ND		1	MG/L	5	6/4/2013 19:12
CHLORIDE	**68**		**1**	**MG/L**	5	6/4/2013 19:12
FLUORIDE	ND		0.5	MG/L	5	6/4/2013 19:12
NITRATE AS N	ND		1	MG/L	5	6/4/2013 19:12
NITRITE AS N	ND		0.5	MG/L	5	6/4/2013 19:12
SULFATE	**52**		**5**	**MG/L**	5	6/4/2013 19:12
METALS BY 200.8			**EPA200.8**		Prep Date: **6/10/2013**	PrepBy: **BAS**
BORON	ND		50	UG/L	10	6/10/2013 17:08
BARIUM	**43**		**1**	**UG/L**	10	6/10/2013 17:08
CALCIUM	**43000**		**1000**	**UG/L**	10	6/10/2013 17:08
IRON	ND		100	UG/L	10	6/10/2013 17:08
POTASSIUM	**1600**		**1000**	**UG/L**	10	6/10/2013 17:08
MAGNESIUM	**8500**		**100**	**UG/L**	10	6/10/2013 17:08
MANGANESE	**13**		**2**	**UG/L**	10	6/10/2013 17:08
SODIUM	**49000**		**1000**	**UG/L**	10	6/10/2013 17:08

Client:	Western Water and Land, Inc.	**Date:**	*02-Aug-13*
Project:	30000.01.16 WPX Baseline Water Quality	**Work Order:**	1306024
Sample ID:	SG31-32-LO River	**Lab ID:**	1306024-1
Legal Location:		**Matrix:**	WATER
Collection Date:	6/3/2013 13:55	**Percent Moisture:**	

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
SELENIUM	ND		1	UG/L	10	6/10/2013 17:08
STRONTIUM	**300**		**1**	**UG/L**	10	6/10/2013 17:08
PH			**SM4500-H**		Prep Date: **6/6/2013**	PrepBy: **AJD**
PH	**8.16**		**0.1**	**pH**	1	6/6/2013
SPECIFIC CONDUCTANCE IN WATER			**SM2510B**		Prep Date: **6/6/2013**	PrepBy: **AJD**
SPECIFIC CONDUCTIVITY	**484**		**1**	**umhos/cm**	1	6/6/2013
TOTAL DISSOLVED SOLIDS			**SM2540C**		Prep Date: **6/7/2013**	PrepBy: **AJD**
TOTAL DISSOLVED SOLIDS	**320**		**20**	**MG/L**	1	6/10/2013
TOTAL PHOSPHORUS AS P			**EPA365.2**		Prep Date: **6/11/2013**	PrepBy: **TWK**
TOTAL PHOSPHORUS	**0.12**		**0.05**	**MG/L**	1	6/11/2013

Client:	Western Water and Land, Inc.	**Date:**	*02-Aug-13*
Project:	30000.01.16 WPX Baseline Water Quality	**Work Order:**	1306024
Sample ID:	SG31-32-192-819	**Lab ID:**	1306024-2
Legal Location:		**Matrix:**	WATER
Collection Date:	6/3/2013 12:45	**Percent Moisture:**	

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
ALKALINITY AS CALCIUM CARBONATE			**SM2320B**		Prep Date: **6/10/2013**	PrepBy: **AJD**
BICARBONATE AS CaCO3	**370**		**20**	**MG/L**	1	6/10/2013
CARBONATE AS CaCO3	ND		20	MG/L	1	6/10/2013
TOTAL ALKALINITY AS CaCO3	**370**		**20**	**MG/L**	1	6/10/2013
BIOLOGICAL ACTIVITY REACTION TEST			**BART**		Prep Date: **6/10/2013**	PrepBy: **BAS**
IRON RELATED BACTERIA	**1**			**NU**	1	6/20/2013
SLIME FORMING BACTERIA	**1**			**NU**	1	6/20/2013
SULFATE REDUCING BACTERIA	ND			NU	1	6/20/2013
DIESEL RANGE ORGANICS			**SW8015M**		Prep Date: **6/5/2013**	PrepBy: **JAC**
Diesel Range Organics	ND		0.5	MG/L	1	6/6/2013 17:20
Surr: O-TERPHENYL	*84*		*51-97*	*%REC*	1	6/6/2013 17:20
DISSOLVED GASSES			**RSK175**		Prep Date: **6/10/2013**	PrepBy: **JFN**
METHANE	ND		1	UG/L	1	6/10/2013 13:35
ETHANE	ND		2	UG/L	1	6/10/2013 13:35
PROPANE	ND		1	UG/L	1	6/10/2013 13:35
GC/MS VOLATILES			**SW8260_25**		Prep Date: **6/9/2013**	PrepBy: **SDW**
BENZENE	ND		1	UG/L	1	6/9/2013 18:04
TOLUENE	ND		1	UG/L	1	6/9/2013 18:04
ETHYLBENZENE	ND		1	UG/L	1	6/9/2013 18:04
M+P-XYLENE	ND		1	UG/L	1	6/9/2013 18:04
O-XYLENE	ND		1	UG/L	1	6/9/2013 18:04
GASOLINE RANGE ORGANICS	ND		100	UG/L	1	6/9/2013 18:04
Surr: DIBROMOFLUOROMETHANE	*102*		*84-118*	*%REC*	1	6/9/2013 18:04
Surr: TOLUENE-D8	*99*		*85-115*	*%REC*	1	6/9/2013 18:04
Surr: 4-BROMOFLUOROBENZENE	*98*		*85-115*	*%REC*	1	6/9/2013 18:04
ION CHROMATOGRAPHY			**EPA300.0**		Prep Date: **6/4/2013**	PrepBy: **JFN**
BROMIDE	ND		1	MG/L	5	6/4/2013 19:26
CHLORIDE	**14**		**1**	**MG/L**	5	6/4/2013 19:26
FLUORIDE	**0.6**		**0.5**	**MG/L**	5	6/4/2013 19:26
NITRATE AS N	**1.4**		**1**	**MG/L**	5	6/4/2013 19:26
NITRITE AS N	ND		0.5	MG/L	5	6/4/2013 19:26
SULFATE	**200**		**5**	**MG/L**	5	6/4/2013 19:26
METALS BY 200.8			**EPA200.8**		Prep Date: **6/10/2013**	PrepBy: **BAS**
BORON	**190**		**50**	**UG/L**	10	6/10/2013 17:12
BARIUM	**27**		**1**	**UG/L**	10	6/10/2013 17:12
CALCIUM	**69000**		**1000**	**UG/L**	10	6/10/2013 17:12
IRON	ND		100	UG/L	10	6/10/2013 17:12
POTASSIUM	**3200**		**1000**	**UG/L**	10	6/10/2013 17:12
MAGNESIUM	**45000**		**100**	**UG/L**	10	6/10/2013 17:12
MANGANESE	ND		2	UG/L	10	6/10/2013 17:12
SODIUM	**98000**		**1000**	**UG/L**	10	6/10/2013 17:12

Client:	Western Water and Land, Inc.	**Date:**	*02-Aug-13*
Project:	30000.01.16 WPX Baseline Water Quality	**Work Order:**	1306024
Sample ID:	SG31-32-192-819	**Lab ID:**	1306024-2
Legal Location:		**Matrix:**	WATER
Collection Date:	6/3/2013 12:45	**Percent Moisture:**	

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
SELENIUM	**2.8**		**1**	**UG/L**	10	6/10/2013 17:12
STRONTIUM	**720**		**1**	**UG/L**	10	6/10/2013 17:12
PH			**SM4500-H**		Prep Date: **6/6/2013**	PrepBy: **AJD**
PH	**7.64**		**0.1**	**pH**	1	6/6/2013
SPECIFIC CONDUCTANCE IN WATER			**SM2510B**		Prep Date: **6/6/2013**	PrepBy: **AJD**
SPECIFIC CONDUCTIVITY	**1030**		**1**	**umhos/cm**	1	6/6/2013
TOTAL DISSOLVED SOLIDS			**SM2540C**		Prep Date: **6/7/2013**	PrepBy: **AJD**
TOTAL DISSOLVED SOLIDS	**710**		**20**	**MG/L**	1	6/10/2013
TOTAL PHOSPHORUS AS P			**EPA365.2**		Prep Date: **6/11/2013**	PrepBy: **TWK**
TOTAL PHOSPHORUS	ND		0.05	MG/L	1	6/11/2013

Client:	Western Water and Land, Inc.	**Date:**	*02-Aug-13*
Project:	30000.01.16 WPX Baseline Water Quality	**Work Order:**	1306024
Sample ID:	Trip Blank	**Lab ID:**	1306024-3
Legal Location:		**Matrix:**	WATER
Collection Date:	5/29/2013	**Percent Moisture:**	

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GC/MS VOLATILES			**SW8260_25**		Prep Date: **6/9/2013**	PrepBy: **SDW**
BENZENE	ND		1	UG/L	1	6/9/2013 18:26
TOLUENE	ND		1	UG/L	1	6/9/2013 18:26
ETHYLBENZENE	ND		1	UG/L	1	6/9/2013 18:26
M+P-XYLENE	ND		1	UG/L	1	6/9/2013 18:26
O-XYLENE	ND		1	UG/L	1	6/9/2013 18:26
GASOLINE RANGE ORGANICS	ND		100	UG/L	1	6/9/2013 18:26
Surr: DIBROMOFLUOROMETHANE	*100*		*84-118*	*%REC*	1	6/9/2013 18:26
Surr: TOLUENE-D8	*99*		*85-115*	*%REC*	1	6/9/2013 18:26
Surr: 4-BROMOFLUOROBENZENE	*100*		*85-115*	*%REC*	1	6/9/2013 18:26

Client:	Western Water and Land, Inc.	**Date:**	*02-Aug-13*
Project:	30000.01.16 WPX Baseline Water Quality	**Work Order:**	1306024
Sample ID:	Trip Blank	**Lab ID:**	1306024-3
Legal Location:		**Matrix:**	WATER
Collection Date:	5/29/2013	**Percent Moisture:**	

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed

Explanation of Qualifiers

Radiochemistry:

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.

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.	**Date:**	*02-Aug-13*
Project:	30000.01.16 WPX Baseline Water Quality	**Work Order:**	1306024
Sample ID:	Trip Blank	**Lab ID:**	1306024-3
Legal Location:		**Matrix:**	WATER
Collection Date:	5/29/2013	**Percent Moisture:**	

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed

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: **HC130610-9-1** Instrument ID **MEE-1** Method: **RSK175**

LCS Sample ID: **HC130610-9** Units: **UG/L** Analysis Date: **6/10/2013 13:18**

Client ID: Run ID: **HC130610-9A** Prep Date: **6/10/2013** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
METHANE	133	1	142		93	80-120			25	
ETHANE	254	2	267		95	80-120			25	
PROPANE	366	1	391		94	80-120			25	

LCSD Sample ID: **HC130610-9** Units: **UG/L** Analysis Date: **6/10/2013 13:46**

Client ID: Run ID: **HC130610-9A** Prep Date: **6/10/2013** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
METHANE	130	1	142		91	80-120	133	2	25	
ETHANE	247	2	267		93	80-120	254	3	25	
PROPANE	355	1	391		91	80-120	366	3	25	

MB Sample ID: **HC130610-9** Units: **UG/L** Analysis Date: **6/10/2013 13:21**

Client ID: Run ID: **HC130610-9A** Prep Date: **6/10/2013** 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								

MS Sample ID: **1306024-1** Units: **UG/L** Analysis Date: **6/10/2013 13:30**

Client ID: **SG31-32-LO River** Run ID: **HC130610-9A** Prep Date: **6/10/2013** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
METHANE	103	1	142	1.1	72	70-130			25	
ETHANE	196	2	267	2	73	70-130			25	
PROPANE	281	1	391	1	72	70-130			25	

MSD Sample ID: **1306024-1** Units: **UG/L** Analysis Date: **6/10/2013 13:33**

Client ID: **SG31-32-LO River** Run ID: **HC130610-9A** Prep Date: **6/10/2013** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
METHANE	110	1	142	1.1	76	70-130	103	6	25	
ETHANE	209	2	267	2	78	70-130	196	6	25	
PROPANE	300	1	391	1	77	70-130	281	6	25	

The following samples were analyzed in this batch: 1306024-1 1306024-2

QC BATCH REPORT

Batch ID: **EX130605-1-1** Instrument ID **FUELS-1** Method: **SW8015M**

LCS Sample ID: **EX130605-1** Units: **MG/L** Analysis Date: **6/6/2013 15:18**
Client ID: Run ID: **HCD130606-3A** Prep Date: **6/5/2013** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
Diesel Range Organics	10.3	0.5	10		103	36-150			20	
Surr: O-TERPHENYL	1.24		1.25		99	51-97				*

LCSD Sample ID: **EX130605-1** Units: **MG/L** Analysis Date: **6/6/2013 15:48**
Client ID: Run ID: **HCD130606-3A** Prep Date: **6/5/2013** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
Diesel Range Organics	10.2	0.5	10		102	36-150	10.3	1	20	
Surr: O-TERPHENYL	1.23		1.25		98	51-97		1		*

MB Sample ID: **EX130605-1** Units: **MG/L** Analysis Date: **6/6/2013 14:47**
Client ID: Run ID: **HCD130606-3A** Prep Date: **6/5/2013** 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	1.2		1.25		96	51-97				

MS Sample ID: **1306024-2** Units: **MG/L** Analysis Date: **6/6/2013 17:51**
Client ID: **SG31-32-192-819** Run ID: **HCD130606-3A** Prep Date: **6/5/2013** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
Diesel Range Organics	10	0.5	10	0.5	100	36-150			20	
Surr: O-TERPHENYL	1.21		1.25		97	51-97				

MSD Sample ID: **1306024-2** Units: **MG/L** Analysis Date: **6/6/2013 18:22**
Client ID: **SG31-32-192-819** Run ID: **HCD130606-3A** Prep Date: **6/5/2013** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
Diesel Range Organics	10	0.5	10	0.5	100	36-150	10	0	20	
Surr: O-TERPHENYL	1.13		1.25		90	51-97		7		

The following samples were analyzed in this batch: 1306024-1 1306024-2

QC BATCH REPORT

Batch ID: **IP130610-4-5** Instrument ID **ICPMS2** Method: **EPA200.8**

LCS Sample ID: **FM130605-1** Units: **UG/L** Analysis Date: **6/10/2013 17:02**

Client ID: Run ID: **IM130610-10A5** Prep Date: **6/10/2013** DF: **10**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
BARIUM	99	1	100		99	85-115			20	
BORON	953	50	1000		95	85-115			20	
CALCIUM	10600	1000	10000		106	85-115			20	
IRON	5370	100	5000		107	85-115			20	
MAGNESIUM	9630	100	10000		96	85-115			20	
MANGANESE	202	2	200		101	85-115			20	
POTASSIUM	5100	1000	5000		102	85-115			20	
SELENIUM	107	1	100		107	85-115			20	
SODIUM	10600	1000	10000		106	85-115			20	
STRONTIUM	102	1	100		102	85-115			20	

MB Sample ID: **F130605-1** Units: **UG/L** Analysis Date: **6/10/2013 16:58**

Client ID: Run ID: **IM130610-10A5** Prep Date: **6/10/2013** 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: 1306024-1 1306024-2

Batch ID: **VL130609-3-3** Instrument ID **HPV1** Method: **SW8260_25**

LCS Sample ID: **VL130609-3** Units: **UG/L** Analysis Date: **6/9/2013 16:37**

Client ID: Run ID: **VL130609-3A** Prep Date: **6/9/2013** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
BENZENE	10.6	1	10		106	83-117			20	
TOLUENE	10.3	1	10		103	82-113			20	
ETHYLBENZENE	10.4	1	10		104	81-113			20	
M+P-XYLENE	20.3	1	20		101	82-115			20	
O-XYLENE	10.4	1	10		104	81-115			20	
GASOLINE RANGE ORGANICS	446	100	500		89.232	80-120			20	
Surr: DIBROMOFLUOROMETHA	26		25		104	84-118				
Surr: TOLUENE-D8	24.7		25		99	85-115				
Surr: 4-BROMOFLUOROBENZE	24.1		25		97	85-115				

LCSD Sample ID: **VL130609-3** Units: **UG/L** Analysis Date: **6/9/2013 16:59**

Client ID: Run ID: **VL130609-3A** Prep Date: **6/9/2013** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
BENZENE	10.6	1	10		106	83-117	10.6	0	20	
TOLUENE	10.1	1	10		101	82-113	10.3	1	20	
ETHYLBENZENE	10.1	1	10		101	81-113	10.4	3	20	
M+P-XYLENE	20	1	20		100	82-115	20.3	1	20	
O-XYLENE	10.2	1	10		102	81-115	10.4	3	20	
GASOLINE RANGE ORGANICS	435	100	500		86.97	80-120	446		20	
Surr: DIBROMOFLUOROMETHA	26		25		104	84-118		0		
Surr: TOLUENE-D8	24.9		25		99	85-115		1		
Surr: 4-BROMOFLUOROBENZE	24.3		25		97	85-115		1		

MB Sample ID: **VL130609-3** Units: **UG/L** Analysis Date: **6/9/2013 17:20**

Client ID: Run ID: **VL130609-3A** Prep Date: **6/9/2013** 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	25.2		25		101	84-118				
Surr: TOLUENE-D8	24.8		25		99	85-115				
Surr: 4-BROMOFLUOROBENZE	24.4		25		98	85-115				

The following samples were analyzed in this batch: 1306024-1 1306024-2 1306024-3

QC BATCH REPORT

Batch ID: **AK130610-2-1** Instrument ID **NONE** Method: **SM2320B**

LCS Sample ID: **AK130610-2** Units: **MG/L** Analysis Date: **6/10/2013**
Client ID: Run ID: **ak130610-2a** Prep Date: **6/10/2013** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
TOTAL ALKALINITY AS CaCO3	101	5	100		101	85-115			15	

MB Sample ID: **AK130610-2** Units: **MG/L** Analysis Date: **6/10/2013**
Client ID: Run ID: **ak130610-2a** Prep Date: **6/10/2013** 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: 1306024-1 1306024-2

QC BATCH REPORT

Batch ID: **IC130604-1-1** Instrument ID **IC** Method: **EPA300.0**

LCS Sample ID: **IC130604-1** Units: **MG/L** Analysis Date: **6/4/2013 18:01**

Client ID: Run ID: **IC130604-1A** Prep Date: **6/4/2013** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
FLUORIDE	1.95	0.1	2		97	90-110			15	
CHLORIDE	5.17	0.2	5		103	90-110			15	
NITRITE AS N	2.05	0.1	2		102	90-110			15	
BROMIDE	5.38	0.2	5		108	90-110			15	
NITRATE AS N	5.17	0.2	5		103	90-110			15	
SULFATE	19.4	1	20		97	90-110			15	

MB Sample ID: **IC130604-1** Units: **MG/L** Analysis Date: **6/4/2013 18:15**

Client ID: Run ID: **IC130604-1A** Prep Date: **6/4/2013** 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								

MS Sample ID: **1306024-2** Units: **MG/L** Analysis Date: **6/4/2013 19:40**

Client ID: **SG31-32-192-819** Run ID: **IC130604-1A** Prep Date: **6/4/2013** DF: **5**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
FLUORIDE	10.2	0.5	10	0.6	96	85-115			15	
CHLORIDE	39.5	1	25	14	102	85-115			15	
NITRITE AS N	10.1	0.5	10	0.5	101	85-115			15	
BROMIDE	26.7	1	25	1	107	85-115			15	
NITRATE AS N	26.4	1	25	1.4	100	85-115			15	
SULFATE	301	5	100	200	99	85-115			15	

MSD Sample ID: **1306024-2** Units: **MG/L** Analysis Date: **6/4/2013 19:54**

Client ID: **SG31-32-192-819** Run ID: **IC130604-1A** Prep Date: **6/4/2013** DF: **5**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
FLUORIDE	10.2	0.5	10	0.6	96	85-115	10.2	0	15	
CHLORIDE	39.2	1	25	14	101	85-115	39.5	1	15	
NITRITE AS N	10	0.5	10	0.5	100	85-115	10.1	1	15	
BROMIDE	26.5	1	25	1	106	85-115	26.7	1	15	
NITRATE AS N	26.3	1	25	1.4	100	85-115	26.4	0	15	
SULFATE	299	5	100	200	97	85-115	301	1	15	

The following samples were analyzed in this batch:	1306024-1	1306024-2

QC BATCH REPORT

Batch ID: **PH130606-1-1** Instrument ID **pH-1** Method: **SM4500-H**

DUP Sample ID: **1306024-1** Units: **pH** Analysis Date: **6/6/2013**

Client ID: **SG31-32-LO River** Run ID: **pH130606-1A** Prep Date: **6/6/2013** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
PH	8.15	0.1					8.16		0.2	

The following samples were analyzed in this batch: 1306024-1 1306024-2

QC BATCH REPORT

Batch ID: **TP130611-1-1** Instrument ID **Spec** Method: **EPA365.2**

LCS Sample ID: **TP130611-1** Units: **MG/L** Analysis Date: **6/11/2013**
Client ID: Run ID: **PO130611-1A** Prep Date: **6/11/2013** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
TOTAL PHOSPHORUS	0.514	0.05	0.5		103	80-120			20	

MB Sample ID: **TP130611-1** Units: **MG/L** Analysis Date: **6/11/2013**
Client ID: Run ID: **PO130611-1A** Prep Date: **6/11/2013** 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: 1306024-1 1306024-2

QC BATCH REPORT

Batch ID: **SC130606-1-1** Instrument ID **pH-1** Method: **SM2510B**

DUP Sample ID: **1306024-2** Units: **umhos/cm** Analysis Date: **6/6/2013**

Client ID: **SG31-32-192-819** Run ID: **sc130606-1a** Prep Date: **6/6/2013** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
SPECIFIC CONDUCTIVITY	1020	1					1030	1	10	

The following samples were analyzed in this batch: 1306024-1 1306024-2

Client: Western Water and Land, Inc.
Work Order: 1306024
Project: 30000.01.16 WPX Baseline Water Quality

QC BATCH REPORT

Batch ID: **TD130607-1-2** Instrument ID **Balance** Method: **SM2540C**

DUP Sample ID: **1306024-1** Units: **MG/L** Analysis Date: **6/10/2013**
Client ID: **SG31-32-LO River** Run ID: **TD130610-1A** Prep Date: **6/7/2013** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
TOTAL DISSOLVED SOLIDS	323	20					320	3	5	

LCS Sample ID: **TD130607-1** Units: **MG/L** Analysis Date: **6/10/2013**
Client ID: Run ID: **TD130610-1A** Prep Date: **6/7/2013** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
TOTAL DISSOLVED SOLIDS	411	20	400		103	85-115			5	

MB Sample ID: **TD130607-1** Units: **MG/L** Analysis Date: **6/10/2013**
Client ID: Run ID: **TD130610-1A** Prep Date: **6/7/2013** 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: 1306024-1 1306024-2