Western Water & Land, Inc.

October 10, 2013

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

RE: RMV 108-4 Drill Pad Baseline Results Report, July 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) RMV 108-4 drill pad in accordance with Colorado Oil and Gas Conservation Commission (COGCC) Rule 609. The RMV 108-4 drill pad is located in NW ¼, NE ¼, Section 4, Township 7 South, Range 94 West, 6th PM.

In accordance with Rule 609, the baseline water quality 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 (RMV 108-4 Drill Pad Baseline Water Quality Evaluation, May 23, 2013).

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

FIELD SAMPLING ACTIVITIES

As described in the RMV 108-4 Drill Pad Baseline Water Quality Evaluation, May 23, 2013, fifteen potential sampling locations were identified for field sampling of water quality consistent with requirements of Rule 609. According to state records, the landowners, water well permit holders or water right holders were mailed access request letters by way of certified U.S. Postal Service mail. Three wells and a spring were identified as preferred sampling locations:

- Water Well Permit No. 147106,
- Water Well Permit No. 154862,
- Water Well Permit No. 49368-F, and

- Hillside Spring

Access was not granted for Water Well Permit No. 147106 or Water Well Permit No. 154862 within the 30-day response period required by Rule 609. WPX was granted permission to sample two alternative water sources: Garden Spring and Gardner Spring.

Four samples were collected for the RMV 108-4 Drill Pad. Sample RMV 108-4-49368F was collected from Water Well Permit No. 49368-F, sample RMV 108-4-Gardner Spg was collected from Gardner Spring, sample RMV 108-4-Garden Spg was collected from Garden Spring, and sample RMV 108-4-Hillside Spg was collected from Hillside Spring. Sampling of these water sources was initiated on July 11th, 2013. WWL personnel located a sampling site for Water Well Permit No. 49368-F, which is located on property owned by Mr. Raymond Stoakes. No residents were present during sampling. Upon arrival at the Mackley property, Mr. Arnold Mackley explained how his springs are plumbed and showed WWL where they could be sampled (Hillside Spring, Garden Spring, and Gardner Spring). See Figure 1 for the sampled locations. Photographs of the sampling sites are shown in Attachment A. Field monitoring forms are shown in Attachment B.

All sampling procedures followed the COGCC Model Sampling and Analysis Plan (SAP) protocols. Sampling Method 1 for wells with pumps and effervescent samples, described in Version 1 of the COGCC Model SAP, was used to collect these samples.

Samples 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 quality control 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. All samples were collected by direct filling methods; dissolved gas sampling was done using Method 1 for wells with pumps and effervescent samples or Method 1 for springs and seeps. No field procedure deviations occurred that were cause for data qualification. However, the water quality instrumentation was suspected of malfunctioning as the pH probe indicated unusually low readings for the sources sampled. The recorded pH readings were qualified as "R" and rejected as valid results.

COC

The chain-of-custody form was reviewed for correct and complete sample IDs, requested analysis, and other information. The analytes requested on the COC matched the requirements of Rule 609. DRO (diesel range organics) and GRO (gasoline range organics) were designated on the COC in place of TPH, a required analysis for Rule 609. No other errors or pertinent information was observed, and no corrections were needed.

Sample Receipt

The samples were received in two coolers within the temperature range criteria (4°C $\pm$ 2°C). Custody seals were intact. The sample receipt form noted that headspace $\leq$ pea-size was present in two vials from sample RMV 108-4-Garden Spg, all vials from sample RMV 108-4-Hillside Spg, two vials from

sample RMV 108-4-49368F, and one vial from sample RMV 108-4-Gardner Spg. Because headspace was not observed when collecting samples (except a small bubble in Garden Spg sample) and the headspace that developed prior to sample receipt was small, no qualifiers were assigned to results based on sample receipt conditions.

Holding Times
All analyses were conducted within recommended holding times. No qualifiers were assigned to results based on analyses 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 the following 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. All analyzed metals had dilution factors of 10. All other analytes had a dilution factor of 1. ALS reports samples at the detection limit as "undetected" or "U" rather than reporting results as less than the detection reporting limit, e.g. < 0.05ug/L.

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 CAB calculations for the samples are as follows:

- RMV 108-4-49368F: 1.37 %
- RMV 108-4-Gardner Spg: 0.76 %
- RMV 108-4-Hillside Spg: 0.68 %
- RMV 108-4-Garden Spg: 1.61 %

The analytical results for cations and anions for the samples were not qualified on the basis of the CAB. See Attachment D, Data Quality Review Sheets.

TDS
The ratio of laboratory-measured TDS versus calculated TDS were computed and ratios greater than 1.20 for a sample are cause for a review of major ion reporting errors. No sample results were rejected on the basis of the TDS ratio.

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 TDS calculations for samples are as follows:

- RMV 108-4-49368F: 1.23
- RMV 108-4-Gardner Spg: 1.23
- RMV 108-4-Hillside Spg: 1.20
- RMV 108-4-Garden Spg: 1.18

No qualifiers were assigned on the basis of the TDS acceptance criteria.

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 were 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 $\pm$ 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
ALS Laboratories assigned analytical results that were undetected with a "U" qualifier. No other quality control qualifiers were assigned to the analytical results by ALS Laboratories and WWL. 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. The full laboratory analytical report is presented in Attachment E. A geochemical interpretation of the analytical results can be provided upon request.

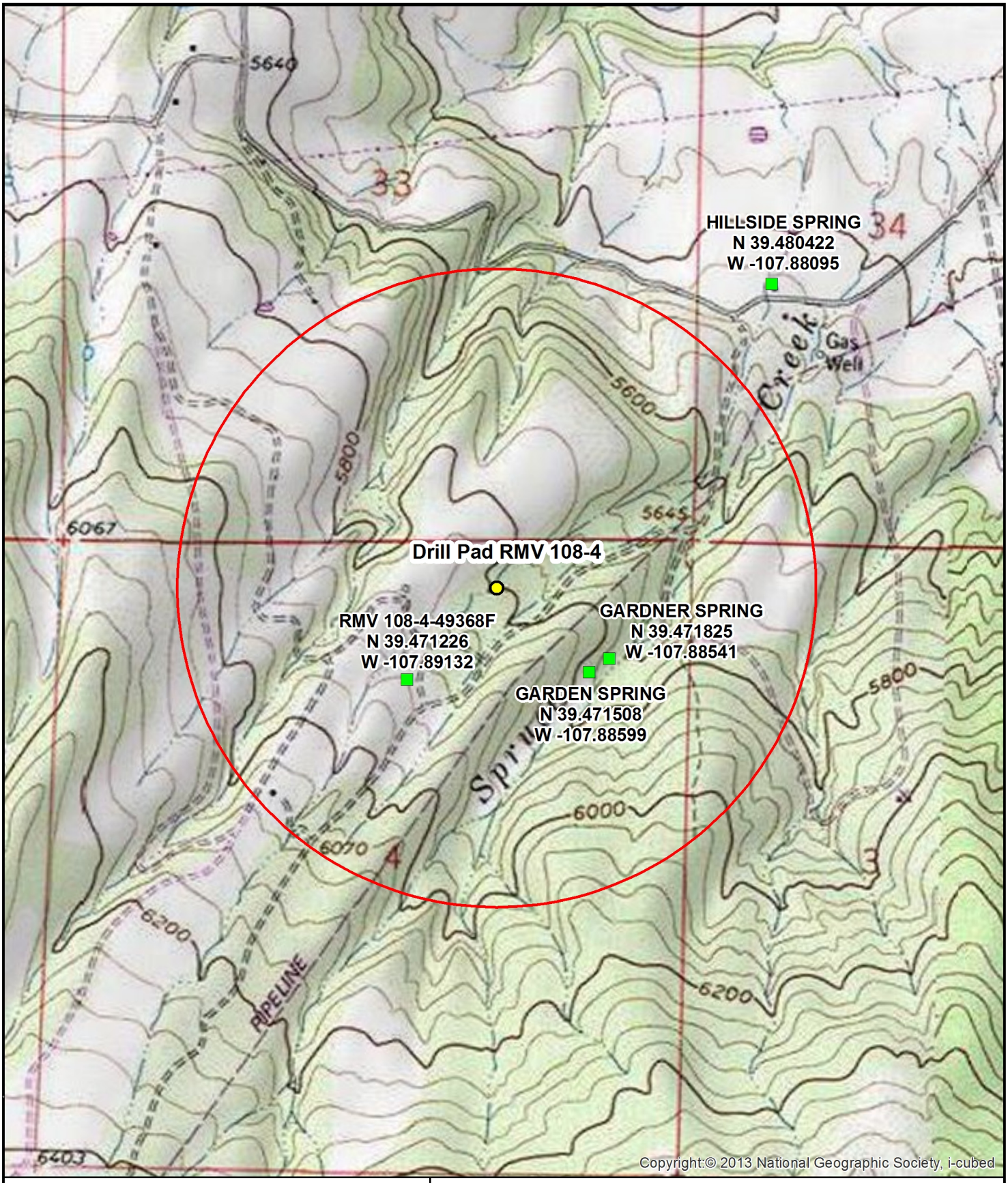
If you have any questions or concerns, please contact me at (970) 242-0170.

Sincerely,

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

Attachments

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



Legend

Sample Location(s) Drill Pad RMV 108-4

0.5-Mile Radius Evaluation Area

N

Feet

1,000 500 0 1,000

1:13,000

Figure 1: RMV 108-4 Sample Location Map
NW1/4, NE1/4, S4, T7S, R94W, 6 PM

Garfield County, Colorado

WPX Energy Rocky Mountain LLC

Basemap Source: Bing Maps and Esri ArcGIS Online

Western Water & Land, Inc.
Applications in Earth Science

ATTACHMENT A

Photographs

Photo 1. Stoakes Well Sampling Location (RMV 108-4-49368F)

Photo 2. Stoakes Well (RMV 108-4-49368F)

Photo 3. Garden Spring Sampling Location (RMV 108-4-Garden Spg)

Photo 4. Hillside Spring Sampling Location (RMV 108-4-Hillside Spg)

Photo 5. Gardner Spring (RMV 108-4-Gardner Spg); Covers for the Spring Piped to a Hose Bib - Sample Location at Standing Point Where Picture Was Taken

ATTACHMENT B

Field Monitoring Forms

Groundwater Monitoring Field Form

Facility/Site: RMV 108-4 | Date: 7-11-13 | Observer: NWS
Station/Well: RMV 108-4-49308F | Start Time: 9:57 | Sampling
Location: Stacks household | End Time: 1046 | Team: NWS SLG
Description: Near Spruce Co. | | Lead Signature: [signature]
Project: WPX BWQ | | Date: 7 / 31 / 13
Sampling Instruments: YSI Pro

Well Purging Information

Well Depth (d_t): _____ ft Static depth to water (d_w): _____ ft Sample/Set Depth: _____ ft
Bore radius (r_w): _____ in/ft Bore volume ($\pi r^2(d_t-d_w)$: _____ ft^3/gal Casing radius (r_c): _____ in/ft
Casing volume ($\pi r^2(d_t-d_w)(7.48)$: _____ gal Total volume: _____ ft^3/gal Total x 3: _____ ft^3/gal

Purge #	Time	Temp (°C)	pH (s.u.)	SpC/Cond (mS/cm, µS/cm)	DO (mg/L, %)	ORP (rmV)	Turb. (NTU)	Water Clarity (poor/ mod/ good)	Volume Purged (Gallons)	Cumulative Volume Purged (Gallons)
	Used Daily, No purging necessary									

Field Measurements at Time of Sampling

Parameter	Reading	Time	Measurement (In situ/Container)	Instrument	Comments
Air Temp °C		1038		Thermometer	
Water Temp °C	15.8			pHCon10, YSI	
pH (s.u.)	4.60			pHCon10/YSI	
SpC/Conductivity (mS/cm, µS/cm)	755			pHCon10/YSI	
ORP (rmV)	269.3			pH310/YSI	
DO (mg/L, %)	6.06/61.2			DO310/YSI	
Turbidity (NTU)	1.43	1037		MicroTPI	1.83; 1.43; 1.25
Discharge (ft^3/s, L/s, gpm)	10.14			Flow meter/ bucket/estimate	

Water Characteristics: Odor: None/Low/Mod/High Bubbles: None/Low/Mod/High
Sediment: None/Low/Mod/High Effervescence: None/Low/Mod/High
VOA Headspace: None/Low/Mod/High Other:

Number and type of filters used: 0 Sampling Time: 1020

GPS Coordinates: 13S 0251297, 4373045 ± 9' elev. 5875'

Groundwater Monitoring Field Form

Instrument Calibration Information						
Parameter	Date 7-11-13 Time of Calibration	Temperature Calibration Standard	Calibration Standard Value	Instrument Reading of Standard	Adjusted Reading	Other Information
pH (s. u.)	1003	25.6	7.00	6.46		
pH (s. u.)	1007	25.8	10.01	9.26		
pH (s. u.)	1009	26.7	4.01	3.96	4.03	
Sp.Conductivity (µS/cm, mS/cm)	0959	25.6	2070	2075	2070	(@ 25 °C) =
Sp.Conductivity (µS/cm, mS/cm)						(@ 25 °C) =
DO (mg/L, %)	1016	27.0		99.9%	81.2%	616.1 mmHg
DO (mg/L, %)					6.45	
ORP (mV)						
Turbidity (n.t.u)	1007					

Laboratory Information				
Samples collected for laboratory analysis: yes / no				
Constituents to be Analyzed (√)				
Inorganics	Inorganics	Organics	Organics	Other
Common ions □		TPH □	VOCs □	TDS □
Alkalinity □		BTEX □	SVOCs □	TSS □
Hardness □		Oil & Grease □		T. Coli. Bact. □
Chloride □		TOC □		Fecal Coli. Bact. □
Fluoride □		DOC □		Phos/Ni Pest. □
Phosphorus □		TIC □		
Sulfate □		DRO □		
Nitrate (as N) □		GRO □		
Nitrite (as N) □		Methane □		
Nitrogen (total) □				
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,				
Ship Date/Time:		Receiving Laboratory:		
Comments:				

Field Notes:

Discharge: 4 gal / 23.67 s

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: ~80°F Comments: _____

Surface-Water Monitoring Form

P 1 of 2

Site/Facility ID: RMV 108-4 Date: 7/11/13 Observer: Shelby

Station ID: RMV 108-4-Garden SPR Start Time: 1305 Sampling Team: SLG, NWS

Location: Spruce Creek Ranch End Time: 1330

Site Description: next to green fence at end Instruments: YSI Pro Lead Signature:

Project: WPX BLK Date: 7 / 31 / 13

Sample time: 1310

Sampling Information

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

Sampling Location: bank / wading / boat / bridge / other: Hose bib by fence

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

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: 85° F Comments: smokey

Field Measurements

Parameter	Units	Reading	Time	Instrument	Comments
Air Temp	°C	85 F	1335	Hock	
Water Temp	°C	13.8	1318	YSI	
pH	s.u.	4.11	1318	YSI	
Sp. Conductivity	µS/cm; mS/cm	762	1318	YSI	
Conductivity	µS/cm; mS/cm	598	1318	YSI	
DO	mg/L	9.04	1318	YSI	@ 17.3 mmHg
DO %	%	87.4	1318	YSI	
ORP	RmV	111.9	1318	YSI	
Turbidity	n.t.u.	0.79	1320		0.79; 0.89; 0.55
Discharge	ft³/s, gpm, L/s	1.18			measured/visual est.
Stage ht.	ft, m				
Sample Observations	Odor: None/Low/Mod/High Sediment: None/Low/Mod/High VOA Headspace: None/Low/Mod/High				Bubbles: None/Low/Mod/High Effervescence: None/Low/Mod/High Other:
GPS Coordinates	13S	0251744, 4373079			Elev: 5736
Measurement: In situ or container					
Number and types of filters used:					

Garden SPG.

Surface-Water Monitoring Form

Calibration info on RMW 108-4-493608F P 2 of 2

Calibration Information						
Parameter	Date: 7-11 / Time	Temperature Calibration Standard	Calibration Standard Value	Instrument Reading of Standard	Adjusted Reading	Other Information
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 (rrmV)						
ORP (rrmV)						
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 □		TPH □	VOCs □	TDS □
Alkalinity □		BTEX □	SVOCs □	TSS □
Hardness □		Oil & Grease □		T. Coli. Bact. □
Chloride □		TOC □		Fecal Coli. Bact. □
Fluoride □		DOC □		Phos/Ni Pest. □
Phosphorus □		TIC □		
Sulfate □		DRO □		
Nitrate (as N) □		GRO □		
Nitrite (as N) □		Methane □		DW □
Nitrogen (total) □				NPDES □
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: 1 gal / 50.60 s

Mackley mentioned this spg has high chloroform

Surface-Water Monitoring Form

Site/Facility ID: RMV 108-4	**Date:** 7-11-13	**Observer:** NWS
Station ID: RMV108-4-Gardner Spg	**Start Time:** 1200	**Sampling**
Location: Spruce Creek Ranch	**End Time:** 1305	**Team:** NWS, SLG
Site Description: in field		**Lead Signature:**
post garage	**Instruments:** YSI Pro	**Date:** 7 / 31 / 13
Project: WPX BWQ		

Sampling Information

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

Sampling Location: bank / wading / boat / bridge / other: Hose bib in field

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

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: 82°F Comments: _____

Field Measurements

Parameter	Units	Reading	Time	Instrument	Comments
Air Temp	°C	82°F	1335	truck	
Water Temp	°C	14.16	1248	YSI	
pH	s.u.	4.01	1248	YSI	
Sp. Conductivity	µS/cm; mS/cm	7.62	1248	YSI	
Conductivity	µS/cm; mS/cm	6.09	1248	YSI	
DO	mg/L	6.81	1248	YSI	617.7 mmHg
DO %	%	66.8	1248	YSI	
ORP	RmV	254.1	1248	YSI	
Turbidity	n.t.u.	1.15	1253		1.15; 1.15; 0.89
Discharge	ft³/s, (gpm), L/s	0.805			measured/visual est.
Stage ht.	ft, m				
Sample Observations	Odor: None/Low/Mod/High Sediment: None/Low/Mod/High VOA Headspace: None/Low/Mod/High				Bubbles: None/Low/Mod/High Effervescence: None/Low/Mod/High Other:
GPS Coordinates	13S 0251795, 4373112 Elev: 5624				
Measurement: In situ or container					
Number and types of filters used: /					

Gardner Spg

Surface-Water Monitoring Form

Calibration info on RMX 108-4-49368F p 2 of 2

Calibration Information						
Parameter	Date: 7-11 / Time	Temperature Calibration Standard	Calibration Standard Value	Instrument Reading of Standard	Adjusted Reading	Other Information
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 (rrmV)						
ORP (rrmV)						
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 □		TPH □	VOCs □	TDS □
Alkalinity □		BTEX □	SVOCs □	TSS □
Hardness □		Oil & Grease □		T. Coli. Bact. □
Chloride □		TOC □		Fecal Coli. Bact. □
Fluoride □		DOC □		Phos/Ni Pest. □
Phosphorus □		TIC □		
Sulfate □		DRO □		
Nitrate (as N) □		GRO □		
Nitrite (as N) □		Methane □		DW □
Nitrogen (total) □				NPDES □
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: 15 gal / 111.84 s

Sample time 1215

Surface-Water Monitoring Form

P 1 of 2

Site/Facility ID: RMV 108-4	**Date:** 7-11-13	**Observer:** NWS
Station ID: RMV108-4-Hillside Spg	**Start Time:** 1353	**Sampling**
Location: Mackley Household	**End Time:** 1434	**Team:** NWS, JLG
Site Description: Hose bib in back of Mackley's house		**Lead Signature:**
	Instruments: YSI Pro	**Date:** 7 / 31 / 13
Project: WPX BWQ	Sample time: 1415	

Sampling Information

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

Sampling Location: bank / wading / boat / bridge / other: Hose bib

Sampling Site: pool / riffle / eddy / backwater / open / channel / braided / other: Hose bib behind house

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: 82°F Comments: _____

Field Measurements

Parameter	Units	Reading	Time	Instrument	Comments
Air Temp	°C °F	82			
Water Temp	°C	20.3	1425	YSI Pro	
pH	s.u.	6.07	1425		
Sp. Conductivity	µS/cm; mS/cm	761	1425		623.2 mmHg
Conductivity	µS/cm; mS/cm	692	1425		
DO	mg/L	7.77	1425		
DO %	%	86.7	1425		
ORP	RmV	194.7	1425		
Turbidity	n.t.u.	1.09	1425		1.09; 1.14; 0.85
Discharge	ft³/s, gpm, L/s				measured/visual est.
Stage ht.	ft, m				

Sample Observations	Odor: None/Low/Mod/High	Bubbles: None/Low/Mod/High
	Sediment: None/Low/Mod/High	Effervescence: None/Low/Mod/High
	VOA Headspace: None/Low/Mod/High	Other:
GPS Coordinates	13S 0252209, 4374055	elev.: 5359 ft
Measurement: In situ or container		
Number and types of filters used:	/	

Calibration info on RMV 108-4-493608 F

Surface-Water Monitoring Form

Hillside Spg

Calibration Information						
Parameter	Date: 7-11 / Time	Temperature Calibration Standard	Calibration Standard Value	Instrument Reading of Standard	Adjusted Reading	Other Information
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 (rrmV)						
ORP (rrmV)						
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 □		TPH □	VOCs □	TDS □
Alkalinity □		BTEX □	SVOCs □	TSS □
Hardness □		Oil & Grease □		T. Coli. Bact. □
Chloride □		TOC □		Fecal Coli. Bact. □
Fluoride □		DOC □		Phos/Ni Pest. □
Phosphorus □		TIC □		
Sulfate □		DRO □		
Nitrate (as N) □		GRO □		
Nitrite (as N) □		Methane □		DW □
Nitrogen (total) □				NPDES □
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 4 gal / 35,460 S

Could not use inverted method; Dissolved gasses VOAs preserved with HCl

ATTACHMENT C

Summary of Analytical Results

RMV 108-4 BWQ Analytical Results Summary

Station Name			Mackley Garden Spring 906						Mackley Gardner Spring 907						Mackley Hillside Spring 910						Stoakes 49368-F						Trip Blank						Trip Blank					
Facility ID			752712						752713						752714						752715						752712						752715					
Field Sample ID			RMV 108-4-Garden Spg						RMV 108-4-Gardner Spg						RMV 108-4-Hillside Spg						RMV 108-4-49368F						Trip.Blank						Trip.Blank					
Sample Date			7/11/2013 13:10						7/11/2013 12:15						7/11/2013 14:15						7/11/2013 10:20						7/11/2013 0:00						7/11/2013 0:00					
Lab Sample ID			1307168-1						1307169-2						1307168-2						1307169-1						1307168-3						1307169-3					
	Reporting Units	Analytic Method	Result	Lab Qual	WWL Qual	RL	MDL	DF	Result	Lab Qual	WWL Qual	RL	MDL	DF	Result	Lab Qual	WWL Qual	RL	MDL	DF	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[1]																																					
Iron Related Bacteria	nu	BART	1					1	1					1	1					1	1					1												
Slime forming bacteria	nu	BART	1					1	1					1	1					1	0					1												
Sulfate Reducing Bacteria	nu	BART	0					1	1					1	1					1	0					1												
Dissolved Gases																																					
Ethane	ug/l	RSK175	2	U		2	2	1	2	U		2	2	1	2	U		2	2	1	2	U		2	2	1												
Methane	ug/l	RSK175	1	U		1	1	1	1	U		1	1	1	1	U		1	1	1	1	U		1	1	1												
Propane	ug/l	RSK175	1	U		1	1	1	1	U		1	1	1	1	U		1	1	1	1	U		1	1	1												
Dissolved Metals																																					
Barium	ug/l	EPA200.8	97			1	0.3	10	80			1	0.3	10	87			1	0.3	10	86			1	0.3	10												
Boron	ug/l	EPA200.8	50	U		50	15	10	50	U		50	15	10	50	U		50	15	10	50	U		50	15	10												
Calcium	ug/l	EPA200.8	66000			1000	65	10	70000			1000	65	10	66000			1000	65	10	71000			1000	65	10												
Iron	ug/l	EPA200.8	100	U		100	30	10	100	U		100	30	10	100	U		100	30	10	100	U		100	30	10												
Magnesium	ug/l	EPA200.8	30000			100	30	10	32000			100	30	10	31000			100	30	10	28000			100	30	10												
Manganese	ug/l	EPA200.8	3.1			2	0.6	10	2	U		2	0.6	10	2.5			2	0.6	10	2	U		2	0.6	10												
Potassium	ug/l	EPA200.8	3300			1000	300	10	3100			1000	300	10	3100			1000	300	10	3500			1000	300	10												
Selenium	ug/l	EPA200.8	2			1	0.5	10	1.8			1	0.5	10	2.1			1	0.5	10	4.2			1	0.5	10												
Sodium	ug/l	EPA200.8	46000			1000	300	10	44000			1000	300	10	44000			1000	300	10	50000			1000	300	10												
Strontium	ug/l	EPA200.8	600			1	0.3	10	640			1	0.3	10	600			1	0.3	10	600			1	0.3	10												
Field_Parameters																																					
Bubbles	nu	Field	None					1	None					1	Low					1	None					1												
Color	nu	Field	Clear					1	Clear					1	NM					1	NM					1												
Conductivity, Field	uS/cm	Field	598					1	609					1	692					1	NM					1												
Depth to Water	ft	Field	NA					1	NA					1	NA					1	NM					1												
Discharge, measured	gpm	Field	1.18					1	0.805					1	6.77					1	10.14					1												
Dissolved Oxygen, Field	mg/l	Field	9.06					1	6.81					1	7.77					1	6.06					1												
Dissolved Oxygen, Field,%	%	Field	87.4					1	66.8					1	86.7					1	61.2					1												
Effervescence	nu	Field	None					1	None					1	High					1	None					1												
Odor	nu	Field	None					1	None					1	None					1	None					1												
ORP, field	mv	Field	111.9					1	254.1					1	194.7					1	269.3					1												
pH, Field	s.u.	Field	4.11		R			1	4.01		R			1	6.07		R			1	4.6		R			1												
Specific Conductivity, Field	uS/cm	Field	762					1	762					1	761					1	755					1												
Temperature, Water	Deg C	Field	13.8					1	14.6					1	20.3					1	15.8					1												
Turbidity, field	NTUs	Field	0.79					1	1.15					1	1.09					1	1.43					1												
Inorganics																																					
Alkalinity AS CaCO3, Total	mg/l	SM2320B	310			20		1	330			20		1	310			20		1	290			20		1												
Alkalinity, Bicarbonate as CaCO3	mg/l	SM2320B	310			20		1	330			20		1	310			20		1	290			20		1												
Alkalinity, Carbonate as CaCO3	mg/l	SM2320B	20	U		20		1	20	U		20		1	20	U		20		1	20	U		20		1												
Bromide	mg/l	EPA300.0	0.2	U		0.2	0.06	1	0.2	U		0.2	0.06	1	0.2	U		0.2	0.06	1	0.2	U		0.2	0.06	1												
Chloride	mg/l	EPA300.0	13			0.2	0.06	1	13			0.2	0.06	1	13			0.2	0.06	1	15			0.2	0.06	1												
Fluoride	mg/l	EPA300.0	0.25			0.1	0.03	1	0.3			0.1	0.03	1	0.3			0.1	0.03	1	0.24			0.1	0.03	1												
Nitrate as N	mg/l	EPA300.0	1.3			0.2	0.06	1	0.53			0.2	0.06	1	0.96			0.2	0.06	1	1.6			0.2	0.06	1												
Nitrite as N	mg/l	EPA300.0	0.1	U		0.1	0.03	1	0.1	U		0.1	0.03	1	0.1	U		0.1	0.03	1	0.1	U		0.1	0.03	1												
pH	s.u.	SM4500-H	7.63			0.1		1	7.48			0.1		1	7.72			0.1		1	7.66			0.1		1												
Specific Conductivity	umhos/cm	SM2510B	753			1		1	757			1		1	748			1		1	743			1		1												
Sulfate	mg/l	EPA300.0	73			1	0.3	1	61			1	0.3	1	67			1	0.3	1	79			1	0.3	1												
Total Dissolved Solids	mg/l	SM2540C	460			20		1	450			20		1	450			20		1	440			20		1												
Total Phosphorous	mg/l	EPA365.2	0.05	U		0.05	0.015	1	0.05	U		0.05	0.015	1	0.05	U		0.05	0.015	1	0.05	U		0.05	0.015	1												
Organics																																					
Diesel Range Organics	mg/l	SW8015M	0.5	U		0.5	0.15	1	0.5	U		0.5	0.15	1	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	30	1	100	U		100	30	1	100	U		100	30	1	100	U		100	30	1	100	U		100	30	1	100	U		100	30	1

RMV 108-4 BWQ Analytical Results Summary

Station Name			Mackley Garden Spring 906						Mackley Gardner Spring 907						Mackley Hillside Spring 910						Stoakes 49368-F						Trip Blank						Trip Blank					
Facility ID			752712						752713						752714						752715						752712						752715					
Field Sample ID			RMV 108-4-Garden Spg						RMV 108-4-Gardner Spg						RMV 108-4-Hillside Spg						RMV 108-4-49368F						Trip.Blank						Trip.Blank					
Sample Date			7/11/2013 13:10						7/11/2013 12:15						7/11/2013 14:15						7/11/2013 10:20						7/11/2013 0:00						7/11/2013 0:00					
Lab Sample ID			1307168-1						1307169-2						1307168-2						1307169-1						1307168-3						1307169-3					
	Reporting Units	Analytic Method	Result	Lab Qual	WWL Qual	RL	MDL	DF	Result	Lab Qual	WWL Qual	RL	MDL	DF	Result	Lab Qual	WWL Qual	RL	MDL	DF	Result	Lab Qual	WWL Qual	RL	MDL	DF	Result	Lab Qual	WWL Qual	RL	MDL	DF	Result	Lab Qual	WWL Qual	RL	MDL	DF
VOAs																																						
Benzene	ug/l	SW8260_25	1	U		1	0.3	1	1	U		1	0.3	1	1	U		1	0.3	1	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	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	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	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	1	U		1	0.3	1	1	U		1	0.3	1	1	U		1	0.3	1

Notes:

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

NM = Not measured

NA = Not applicable

U = not detected at the reporting limit

R = data rejected, equipment malfunction

ATTACHMENT D

Data Quality Review Sheets

DATA QUALITY REVIEW SHEET

Facility ID:	752715	Project:	WPX BWQ: RMV 108-4
Station Name:	Stoakes 49368-F	Lab Work Order:	1307169
Sample Date:	7/11/13	QA/QC Review Date:	10/3/13
Field Sample ID:	RMV 108-4-49368F	Reviewer:	J. Pahler

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*
Field personnel to conduct spot checks if suspect malfunction of water quality instrumentation; also carry and use spare instruments.	Ongoing

Calculated Parameters	**Calculated Value**	**Lab Value**	**Ratio/Percent Difference**	**Acceptable Limit**	**Meets QC Criteria?**
Cation/Anion Balance, % (CAB)	1.37	NA	NA	±5%	☒
Total Dissolved Solids, mg/L (TDS)	539	440	1.23	0.8 – 1.2	☐
Specific Conductance, µS/cm (SpC)	657	743	0.88	0.8 – 1.2	☒

Comments:

Field pH suspect; data rejected. Headspace ≤ pea-size in 2 vials upon sample receipt; no headspace at time of analysis.

DATA QUALITY REVIEW SHEET

Facility ID:	752712	Project:	WPX BWQ: RMV 108-4
Station Name:	Mackley Garden Spring 906	Lab Work Order:	1307168
Sample Date:	7/11/2013	QA/QC Review Date:	10/3/2013
Field Sample ID:	RMV 108-4-Garden Spg	Reviewer:	J. Pahler

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*
Field personnel to conduct spot checks if suspect malfunction of water quality instrumentation; also carry and use spare instruments.	Ongoing

Calculated Parameters	**Calculated Value**	**Lab Value**	**Ratio/Percent Difference**	**Acceptable Limit**	**Meets QC Criteria?**
Cation/Anion Balance, % (CAB)	1.61	NA	NA	±5%	☒
Total Dissolved Solids, mg/L (TDS)	543	460	1.18	0.8 – 1.2	☒
Specific Conductance, µS/cm (SpC)	687	753	0.91	0.8 – 1.2	☒

Comments:

Field pH suspect; data rejected. Headspace ≤ pea-size in two vials; at time of analysis, no headspace. Dissolved gas sample pH > 2.

DATA QUALITY REVIEW SHEET

Facility ID:	752713	Project:	WPX BWQ: RMV 108-4
Station Name:	Mackley Gardner Spring 907	Lab Work Order:	1307169
Sample Date:	7/11/13	QA/QC Review Date:	10/3/13
Field Sample ID:	RMV 108-4-Gardner Spg	Reviewer:	J. Pahler

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*
Field personnel to conduct spot checks if suspect malfunction of water quality instrumentation; also carry and use spare instruments.	Ongoing

Calculated Parameters	**Calculated Value**	**Lab Value**	**Ratio/Percent Difference**	**Acceptable Limit**	**Meets QC Criteria?**
Cation/Anion Balance, % (CAB)	0.76	NA	NA	±5%	☒
Total Dissolved Solids, mg/L (TDS)	554	450	1.23	0.8 – 1.2	☐
Specific Conductance, µS/cm (SpC)	672	757	0.89	0.8 – 1.2	☒

Comments:

Field pH reading suspect; data rejected. Headspace ≤ pea-size in one vial on sample receipt; no headspace at time of analysis. Dissolved gas sample pH > 2.

DATA QUALITY REVIEW SHEET

Facility ID:	752714	Project:	WPX BWQ: RMV 108-4
Station Name:	Mackley Hillside Spring 910	Lab Work Order:	1307168
Sample Date:	7/11/13	QA/QC Review Date:	10/3/13
Field Sample ID:	RMV 108-4-Hillside Spg	Reviewer:	J. Pahler

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*
Field personnel to conduct spot checks if suspect malfunction of water quality instrumentation; also carry and use spare instruments.	Ongoing

Calculated Parameters	**Calculated Value**	**Lab Value**	**Ratio/Percent Difference**	**Acceptable Limit**	**Meets QC Criteria?**
Cation/Anion Balance, % (CAB)	0.68	NA	NA	±5%	☒
Total Dissolved Solids, mg/L (TDS)	541	450	1.20	0.8 – 1.2	☒
Specific Conductance, µS/cm (SpC)	672	748	0.9	0.8 – 1.2	☒

Comments:

Field pH suspect; data rejected. Headspace ≤ pea-size in all vials on sample receipt; free of headspace at time of analysis.

ATTACHMENT E

Laboratory Analytical Summary Report

1307168

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 with the following exception:

Sample -1had a pH > 2 at the time of analysis.

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 with the following exceptions:

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

Analyte	Sample ID
Calcium	1307168-2MS & MSD
Sodium	1307168-2MS & MSD
Strontium	1307168-2MS & MSD

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

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: 1307168
Client Name: Western Water and Land, Inc.
Client Project Name: WPX Baseline Water Quality
Client Project Number: 30000.01.25
Client PO Number:

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
RMV 108-4-Garden Spg	1307168-1		WATER	11-Jul-13	13:10
RMV 108-4-Hillside Spg	1307168-2		WATER	11-Jul-13	14:15
Trip Blank	1307168-3		WATER	11-Jul-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 # 1307168

PAGE 1 of 1

DISPOSAL: (By Lab) or Return to Client

PROJECT NAME	WPX BWQ	SAMPLER	NWS
FACILITY NAME	RMV 108-4	PROJECT NO.	30000.01.25
FACILITY ID (API)		EDD FORMAT	
COMPANY NAME	Western Water + Land	PURCHASE ORDER	
SEND REPORT TO	Brule Smith	BILL TO COMPANY	WPX Energy
ADDRESS	743 Horizon Ct. Suite 330	INVOICE ATTN TO	Brandon Danforth
CITY / STATE / ZIP	Grand Jct, CO 81506	ADDRESS	1058 CR 215
PHONE	(970) 242-0170	CITY / STATE / ZIP	Parachute, CO 81635
FAX		PHONE	(970) 263-2792
E-MAIL	bsmith@westernwater and landcom	FAX	
		E-MAIL	

DATE: 7-11-13

TURNAROUND: Standard

Lab ID	Field ID	Matrix	Sample Date	Sample Time	# Bottles	Pres.	QC	NG1	BART	BTEX	GRO	Dissolved Gases MEP	DRO	Dissolved metals (lab filter)	Anions, Alk, TDS, pH, Conduc.	Total Phosphorus
1	RMV 108-4-Garden Spg	W	7-11-13	1310	15	1,3	IV	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	RMV 108-4-Hillside Spg	W	7-11-13	1415	15	1,3	IV	✓	✓	✓	✓	✓	✓	✓	✓	✓
3	TB1, TB2															

*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 metals need to be labratory filtered

D4 0824

QC PACKAGE (check below)

	LEVEL II (Standard QC)
	LEVEL III (Std QC + forms)
X	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		Shelby Goodwin	7-11-13	1620
RECEIVED BY		Lauren Schmitz	7/12/13	1015
RELINQUISHED BY				
RECEIVED BY				
RELINQUISHED BY				
RECEIVED BY				

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: Western Water Workorder No: 1307168

Project Manager: ARW Initials: LAS Date: 7/12/13

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):	4.4
No. of custody seals on cooler:	2
DOT Survey/ Acceptance Information — External µR/hr reading:	12
Background µR/hr reading:	11

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.

(*14) 1307168-8-1-1 (Garden Spg) } all vials listed arrived with headspace ≤ pea-size
1-4
2-1,2→9 (all vials) (this side)

If applicable, was the client contacted? (YES) NO / NA Contact: Bruce Smith Date/Time: 7/12/13 e-mail

Project Manager Signature / Date: 7/12/13

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

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

1307168

FROM:
WESTERN WATER & LAND INC
(970) 242-0170
743 HORIZON CT STE 330
GRAND JUNCTION CO 81506
US
SHIP DATE: 11JUL13
ACTWGT: 53.2 LB
CAD: 9622/P0G1400
DIMMED: 25 X 14 X 14 IN
BILL 3rd PARTY
TO amy wolf
ALS ENVIRONMENTAL
225 COMMERCE DR
FORT COLLINS CO 80524
(970) 490-1511
REF:
DEPT:
INV:
PO:
(US)
FedEx Ground
2 of 2
MPS# 7957 9760 8307
Mstr# 7957 9760 8292
80524
9622 0417 3 (000 045 7800) 7 00 7957 9760 8307
221-3543
805
AMY WOLF
225 COMMERCE DR
FORT COLLINS CO
80524-2762-25

Client:	Western Water and Land, Inc.	**Date:**	*02-Aug-13*
Project:	30000.01.25 WPX Baseline Water Quality	**Work Order:**	1307168
Sample ID:	RMV 108-4-Garden Spg	**Lab ID:**	1307168-1
Legal Location:		**Matrix:**	WATER
Collection Date:	7/11/2013 13:10	**Percent Moisture:**	

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
ALKALINITY AS CALCIUM CARBONATE			**SM2320B**		Prep Date: **7/15/2013**	PrepBy: **AJD**
BICARBONATE AS CaCO3	**310**		**20**	**MG/L**	1	7/15/2013
CARBONATE AS CaCO3	ND		20	MG/L	1	7/15/2013
TOTAL ALKALINITY AS CaCO3	**310**		**20**	**MG/L**	1	7/15/2013
BIOLOGICAL ACTIVITY REACTION TEST			**BART**		Prep Date: **7/16/2013**	PrepBy: **BAS**
IRON RELATED BACTERIA	**1**			**NU**	1	7/24/2013
SLIME FORMING BACTERIA	**1**			**NU**	1	7/24/2013
SULFATE REDUCING BACTERIA	**0**			**NU**	1	7/24/2013
DIESEL RANGE ORGANICS			**SW8015M**		Prep Date: **7/15/2013**	PrepBy: **JAC**
Diesel Range Organics	ND		0.5	MG/L	1	7/16/2013 19:15
Surr: O-TERPHENYL	*81*		*51-97*	*%REC*	1	7/16/2013 19:15
DISSOLVED GASSES			**RSK175**		Prep Date: **7/18/2013**	PrepBy: **JFN**
METHANE	ND		1	UG/L	1	7/18/2013 17:20
ETHANE	ND		2	UG/L	1	7/18/2013 17:20
PROPANE	ND		1	UG/L	1	7/18/2013 17:20
GC/MS VOLATILES			**SW8260_25**		Prep Date: **7/15/2013**	PrepBy: **SDW**
BENZENE	ND		1	UG/L	1	7/15/2013 14:23
TOLUENE	ND		1	UG/L	1	7/15/2013 14:23
ETHYLBENZENE	ND		1	UG/L	1	7/15/2013 14:23
M+P-XYLENE	ND		1	UG/L	1	7/15/2013 14:23
O-XYLENE	ND		1	UG/L	1	7/15/2013 14:23
GASOLINE RANGE ORGANICS	ND		100	UG/L	1	7/15/2013 14:23
Surr: DIBROMOFLUOROMETHANE	*100*		*84-118*	*%REC*	1	7/15/2013 14:23
Surr: TOLUENE-D8	*101*		*85-115*	*%REC*	1	7/15/2013 14:23
Surr: 4-BROMOFLUOROBENZENE	*97*		*85-115*	*%REC*	1	7/15/2013 14:23
ION CHROMATOGRAPHY			**EPA300.0**		Prep Date: **7/12/2013**	PrepBy: **JFN**
BROMIDE	ND		0.2	MG/L	1	7/12/2013 22:01
CHLORIDE	**13**		**0.2**	**MG/L**	1	7/12/2013 22:01
FLUORIDE	**0.25**		**0.1**	**MG/L**	1	7/12/2013 22:01
NITRATE AS N	**1.3**		**0.2**	**MG/L**	1	7/12/2013 22:01
NITRITE AS N	ND		0.1	MG/L	1	7/12/2013 22:01
SULFATE	**73**		**1**	**MG/L**	1	7/12/2013 22:01
METALS BY 200.8			**EPA200.8**		Prep Date: **7/18/2013**	PrepBy: **BAS**
BORON	ND		50	UG/L	10	7/19/2013 12:37
BARIUM	**97**		**1**	**UG/L**	10	7/19/2013 12:37
CALCIUM	**66000**		**1000**	**UG/L**	10	7/19/2013 12:37
IRON	ND		100	UG/L	10	7/19/2013 12:37
POTASSIUM	**3300**		**1000**	**UG/L**	10	7/19/2013 12:37
MAGNESIUM	**30000**		**100**	**UG/L**	10	7/19/2013 12:37
MANGANESE	**3.1**		**2**	**UG/L**	10	7/19/2013 12:37
SODIUM	**46000**		**1000**	**UG/L**	10	7/19/2013 12:37

Client:	Western Water and Land, Inc.	**Date:**	*02-Aug-13*
Project:	30000.01.25 WPX Baseline Water Quality	**Work Order:**	1307168
Sample ID:	RMV 108-4-Garden Spg	**Lab ID:**	1307168-1
Legal Location:		**Matrix:**	WATER
Collection Date:	7/11/2013 13:10	**Percent Moisture:**	

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
SELENIUM	**2**		**1**	**UG/L**	10	7/19/2013 12:37
STRONTIUM	**600**		**1**	**UG/L**	10	7/19/2013 12:37
PH			**SM4500-H**		Prep Date: **7/15/2013**	PrepBy: **KLR**
PH	**7.63**		**0.1**	**pH**	1	7/15/2013
SPECIFIC CONDUCTANCE IN WATER			**SM2510B**		Prep Date: **7/15/2013**	PrepBy: **KLR**
SPECIFIC CONDUCTIVITY	**753**		**1**	**umhos/cm**	1	7/15/2013
TOTAL DISSOLVED SOLIDS			**SM2540C**		Prep Date: **7/15/2013**	PrepBy: **AJD**
TOTAL DISSOLVED SOLIDS	**460**		**20**	**MG/L**	1	7/16/2013
TOTAL PHOSPHORUS AS P			**EPA365.2**		Prep Date: **7/23/2013**	PrepBy: **TWK**
TOTAL PHOSPHORUS	ND		0.05	MG/L	1	7/24/2013

Client: Western Water and Land, Inc. **Date:** *02-Aug-13*
Project: 30000.01.25 WPX Baseline Water Quality **Work Order:** 1307168
Sample ID: RMV 108-4-Hillside Spg **Lab ID:** 1307168-2
Legal Location: **Matrix:** WATER
Collection Date: 7/11/2013 14:15 **Percent Moisture:**

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
ALKALINITY AS CALCIUM CARBONATE			**SM2320B**		Prep Date: **7/15/2013**	PrepBy: **AJD**
BICARBONATE AS CaCO3	**310**		**20**	**MG/L**	1	7/15/2013
CARBONATE AS CaCO3	ND		20	MG/L	1	7/15/2013
TOTAL ALKALINITY AS CaCO3	**310**		**20**	**MG/L**	1	7/15/2013
BIOLOGICAL ACTIVITY REACTION TEST			**BART**		Prep Date: **7/16/2013**	PrepBy: **BAS**
IRON RELATED BACTERIA	**1**			**NU**	1	7/24/2013
SLIME FORMING BACTERIA	**1**			**NU**	1	7/24/2013
SULFATE REDUCING BACTERIA	**1**			**NU**	1	7/24/2013
DIESEL RANGE ORGANICS			**SW8015M**		Prep Date: **7/15/2013**	PrepBy: **JAC**
Diesel Range Organics	ND		0.5	MG/L	1	7/16/2013 19:46
Surr: O-TERPHENYL	*83*		*51-97*	*%REC*	1	7/16/2013 19:46
DISSOLVED GASSES			**RSK175**		Prep Date: **7/18/2013**	PrepBy: **JFN**
METHANE	ND		1	UG/L	1	7/18/2013 17:23
ETHANE	ND		2	UG/L	1	7/18/2013 17:23
PROPANE	ND		1	UG/L	1	7/18/2013 17:23
GC/MS VOLATILES			**SW8260_25**		Prep Date: **7/15/2013**	PrepBy: **SDW**
BENZENE	ND		1	UG/L	1	7/15/2013 14:46
TOLUENE	ND		1	UG/L	1	7/15/2013 14:46
ETHYLBENZENE	ND		1	UG/L	1	7/15/2013 14:46
M+P-XYLENE	ND		1	UG/L	1	7/15/2013 14:46
O-XYLENE	ND		1	UG/L	1	7/15/2013 14:46
GASOLINE RANGE ORGANICS	ND		100	UG/L	1	7/15/2013 14:46
Surr: DIBROMOFLUOROMETHANE	*99*		*84-118*	*%REC*	1	7/15/2013 14:46
Surr: TOLUENE-D8	*101*		*85-115*	*%REC*	1	7/15/2013 14:46
Surr: 4-BROMOFLUOROBENZENE	*98*		*85-115*	*%REC*	1	7/15/2013 14:46
ION CHROMATOGRAPHY			**EPA300.0**		Prep Date: **7/12/2013**	PrepBy: **JFN**
BROMIDE	ND		0.2	MG/L	1	7/12/2013 22:29
CHLORIDE	**13**		**0.2**	**MG/L**	1	7/12/2013 22:29
FLUORIDE	**0.3**		**0.1**	**MG/L**	1	7/12/2013 22:29
NITRATE AS N	**0.96**		**0.2**	**MG/L**	1	7/12/2013 22:29
NITRITE AS N	ND		0.1	MG/L	1	7/12/2013 22:29
SULFATE	**67**		**1**	**MG/L**	1	7/12/2013 22:29
METALS BY 200.8			**EPA200.8**		Prep Date: **7/18/2013**	PrepBy: **BAS**
BORON	ND		50	UG/L	10	7/19/2013 13:07
BARIUM	**87**		**1**	**UG/L**	10	7/19/2013 13:07
CALCIUM	**66000**		**1000**	**UG/L**	10	7/19/2013 13:07
IRON	ND		100	UG/L	10	7/19/2013 13:07
POTASSIUM	**3100**		**1000**	**UG/L**	10	7/19/2013 13:07
MAGNESIUM	**31000**		**100**	**UG/L**	10	7/19/2013 13:07
MANGANESE	**2.5**		**2**	**UG/L**	10	7/19/2013 13:07
SODIUM	**44000**		**1000**	**UG/L**	10	7/19/2013 13:07

Client:	Western Water and Land, Inc.	**Date:**	*02-Aug-13*
Project:	30000.01.25 WPX Baseline Water Quality	**Work Order:**	1307168
Sample ID:	RMV 108-4-Hillside Spg	**Lab ID:**	1307168-2
Legal Location:		**Matrix:**	WATER
Collection Date:	7/11/2013 14:15	**Percent Moisture:**	

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
SELENIUM	**2.1**		**1**	**UG/L**	10	7/19/2013 13:07
STRONTIUM	**600**		**1**	**UG/L**	10	7/19/2013 13:07
PH			**SM4500-H**		Prep Date: **7/15/2013**	PrepBy: **KLR**
PH	**7.72**		**0.1**	**pH**	1	7/15/2013
SPECIFIC CONDUCTANCE IN WATER			**SM2510B**		Prep Date: **7/15/2013**	PrepBy: **KLR**
SPECIFIC CONDUCTIVITY	**748**		**1**	**umhos/cm**	1	7/15/2013
TOTAL DISSOLVED SOLIDS			**SM2540C**		Prep Date: **7/15/2013**	PrepBy: **AJD**
TOTAL DISSOLVED SOLIDS	**450**		**20**	**MG/L**	1	7/16/2013
TOTAL PHOSPHORUS AS P			**EPA365.2**		Prep Date: **7/23/2013**	PrepBy: **TWK**
TOTAL PHOSPHORUS	ND		0.05	MG/L	1	7/24/2013

Client:	Western Water and Land, Inc.	**Date:**	*02-Aug-13*
Project:	30000.01.25 WPX Baseline Water Quality	**Work Order:**	1307168
Sample ID:	Trip Blank	**Lab ID:**	1307168-3
Legal Location:		**Matrix:**	WATER
Collection Date:	7/11/2013	**Percent Moisture:**	

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GC/MS VOLATILES			**SW8260_25**		Prep Date: **7/15/2013**	PrepBy: **SDW**
BENZENE	ND		1	UG/L	1	7/15/2013 15:09
TOLUENE	ND		1	UG/L	1	7/15/2013 15:09
ETHYLBENZENE	ND		1	UG/L	1	7/15/2013 15:09
M+P-XYLENE	ND		1	UG/L	1	7/15/2013 15:09
O-XYLENE	ND		1	UG/L	1	7/15/2013 15:09
GASOLINE RANGE ORGANICS	ND		100	UG/L	1	7/15/2013 15:09
Surr: DIBROMOFLUOROMETHANE	*100*		*84-118*	*%REC*	1	7/15/2013 15:09
Surr: TOLUENE-D8	*100*		*85-115*	*%REC*	1	7/15/2013 15:09
Surr: 4-BROMOFLUOROBENZENE	*96*		*85-115*	*%REC*	1	7/15/2013 15:09

Client:	Western Water and Land, Inc.	**Date:**	*02-Aug-13*
Project:	30000.01.25 WPX Baseline Water Quality	**Work Order:**	1307168
Sample ID:	Trip Blank	**Lab ID:**	1307168-3
Legal Location:		**Matrix:**	WATER
Collection Date:	7/11/2013	**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:	30000.01.25 WPX Baseline Water Quality	**Work Order:**	1307168
Sample ID:	Trip Blank	**Lab ID:**	1307168-3
Legal Location:		**Matrix:**	WATER
Collection Date:	7/11/2013	**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: **EX130715-4-1** Instrument ID **FUELS-1** Method: **SW8015M**

LCS Sample ID: **EX130715-4** Units: **MG/L** Analysis Date: **7/16/2013 17:12**

Client ID: Run ID: **GC130716-1A** Prep Date: **7/15/2013** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
Diesel Range Organics	9.85	0.5	10		98	36-150			20	
Surr: O-TERPHENYL	1.16		1.25		93	51-97				

LCSD Sample ID: **EX130715-4** Units: **MG/L** Analysis Date: **7/16/2013 17:42**

Client ID: Run ID: **GC130716-1A** Prep Date: **7/15/2013** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
Diesel Range Organics	9.81	0.5	10		98	36-150	9.85	0	20	
Surr: O-TERPHENYL	1.12		1.25		89	51-97		4		

MB Sample ID: **EX130715-4** Units: **MG/L** Analysis Date: **7/16/2013 16:41**

Client ID: Run ID: **GC130716-1A** Prep Date: **7/15/2013** 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	0.958		1.25		77	51-97				

The following samples were analyzed in this batch: 1307168-1 1307168-2

QC BATCH REPORT

Batch ID: **HC130718-9-1** Instrument ID **MEE-1** Method: **RSK175**

LCS Sample ID: **HC130718-9** Units: **UG/L** Analysis Date: **7/18/2013 16:57**
Client ID: Run ID: **HC130718-9** Prep Date: **7/18/2013** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
METHANE	149	1	142		104	80-120			25	
ETHANE	275	2	267		103	80-120			25	
PROPANE	392	1	391		100	80-120			25	

LCSD Sample ID: **HC130718-9** Units: **UG/L** Analysis Date: **7/18/2013 18:14**
Client ID: Run ID: **HC130718-9** Prep Date: **7/18/2013** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
METHANE	146	1	142		103	80-120	149	2	25	
ETHANE	260	2	267		98	80-120	275	5	25	
PROPANE	367	1	391		94	80-120	392	7	25	

MB Sample ID: **HC130718-9** Units: **UG/L** Analysis Date: **7/18/2013 17:03**
Client ID: Run ID: **HC130718-9** Prep Date: **7/18/2013** 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: 1307168-1 1307168-2

QC BATCH REPORT

Batch ID: **IP130718-2-3** Instrument ID **ICPMS2** Method: **EPA200.8**

DUP Sample ID: **1307168-2** Units: **UG/L** Analysis Date: **7/19/2013 13:10**

Client ID: **RMV 108-4-Hillside Spg** Run ID: **IM130719-10A2** Prep Date: **7/18/2013** DF: **10**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
BARIUM	90.5	1					87	4	30	
BORON	ND	50					50		30	
CALCIUM	66800	1000					66000	1	30	
IRON	ND	100					100		30	
MAGNESIUM	31200	100					31000	1	30	
MANGANESE	ND	2					2.5		30	
POTASSIUM	3440	1000					3100		30	
SELENIUM	2.51	1					2.1		30	
SODIUM	45700	1000					44000	3	30	
STRONTIUM	613	1					600	3	30	

LCS Sample ID: **FM130717-1** Units: **UG/L** Analysis Date: **7/19/2013 13:22**

Client ID: Run ID: **IM130719-10A2** Prep Date: **7/18/2013** DF: **10**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
BARIUM	102	1	100		102	85-115			20	
BORON	994	50	1000		99	85-115			20	
CALCIUM	10300	1000	10000		103	85-115			20	
IRON	5120	100	5000		102	85-115			20	
MAGNESIUM	9690	100	10000		97	85-115			20	
MANGANESE	206	2	200		103	85-115			20	
POTASSIUM	5260	1000	5000		105	85-115			20	
SELENIUM	104	1	100		104	85-115			20	
SODIUM	10700	1000	10000		107	85-115			20	
STRONTIUM	102	1	100		102	85-115			20	

MB Sample ID: **F130717-1** Units: **UG/L** Analysis Date: **7/19/2013 13:40**

Client ID: Run ID: **IM130719-10A2** Prep Date: **7/18/2013** 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								

QC BATCH REPORT

Batch ID: **IP130718-2-3** Instrument ID **ICPMS2** Method: **EPA200.8**

MS Sample ID: **1307168-2** Units: **UG/L** Analysis Date: **7/19/2013 13:16**

Client ID: **RMV 108-4-Hillside Spg** Run ID: **IM130719-10A2** Prep Date: **7/18/2013** DF: **10**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
BARIUM	189	1	100	87	102	70-130			20	
BORON	976	50	1000	50	98	70-130			20	
CALCIUM	77400	1000	10000	66000	113	70-130			20	
IRON	5030	100	5000	100	101	70-130			20	
MAGNESIUM	40500	100	10000	31000	97	70-130			20	
MANGANESE	204	2	200	2.5	101	70-130			20	
POTASSIUM	8520	1000	5000	3100	109	70-130			20	
SELENIUM	99.9	1	100	2.1	98	70-130			20	
SODIUM	55700	1000	10000	44000	113	70-130			20	
STRONTIUM	701	1	100	600	106	70-130			20	

MSD Sample ID: **1307168-2** Units: **UG/L** Analysis Date: **7/19/2013 13:19**

Client ID: **RMV 108-4-Hillside Spg** Run ID: **IM130719-10A2** Prep Date: **7/18/2013** DF: **10**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
BARIUM	187	1	100	87	100.5	70-130	189	1	20	
BORON	1020	50	1000	50	102	70-130	976	4	20	
CALCIUM	78900	1000	10000	66000	128.1	70-130	77400	2	20	
IRON	5140	100	5000	100	103	70-130	5030	2	20	
MAGNESIUM	41200	100	10000	31000	104.2	70-130	40500	2	20	
MANGANESE	208	2	200	2.5	102.8	70-130	204	2	20	
POTASSIUM	8840	1000	5000	3100	115.3	70-130	8520	4	20	
SELENIUM	109	1	100	2.1	106.8	70-130	99.9	9	20	
SODIUM	57100	1000	10000	44000	127.4	70-130	55700	3	20	
STRONTIUM	724	1	100	600	128.8	70-130	701	3	20	

The following samples were analyzed in this batch: 1307168-1 1307168-2

Batch ID: **VL130715-4-1** Instrument ID **HPV1** Method: **SW8260_25**

LCS Sample ID: **VL130715-4** Units: **UG/L** Analysis Date: **7/15/2013 13:12**

Client ID: Run ID: **VL130715-4A** Prep Date: **7/15/2013** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
BENZENE	9.45	1	10		94	83-117			20	
TOLUENE	9.42	1	10		94	82-113			20	
ETHYLBENZENE	9.29	1	10		93	81-113			20	
M+P-XYLENE	19.3	1	20		96	82-115			20	
O-XYLENE	9.61	1	10		96	81-115			20	
GASOLINE RANGE ORGANICS	448	100	500		89.638	80-120		1	20	
Surr: DIBROMOFLUOROMETHA	24.6		25		98	84-118				
Surr: TOLUENE-D8	25.4		25		101	85-115				
Surr: 4-BROMOFLUOROBENZE	24.9		25		100	85-115				

LCSD Sample ID: **VL130715-4** Units: **UG/L** Analysis Date: **7/15/2013 13:36**

Client ID: Run ID: **VL130715-4A** Prep Date: **7/15/2013** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
BENZENE	9.13	1	10		91	83-117	9.45	3	20	
TOLUENE	9.06	1	10		91	82-113	9.42	4	20	
ETHYLBENZENE	9.18	1	10		92	81-113	9.29	1	20	
M+P-XYLENE	18.6	1	20		93	82-115	19.3	3	20	
O-XYLENE	9.28	1	10		93	81-115	9.61	4	20	
GASOLINE RANGE ORGANICS	452	100	500		90.308	80-120	448	1	20	
Surr: DIBROMOFLUOROMETHA	24.8		25		99	84-118		1		
Surr: TOLUENE-D8	25.3		25		101	85-115		0		
Surr: 4-BROMOFLUOROBENZE	25.2		25		101	85-115		1		

MB Sample ID: **VL130715-4** Units: **UG/L** Analysis Date: **7/15/2013 13:59**

Client ID: Run ID: **VL130715-4A** Prep Date: **7/15/2013** 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	24.6		25		99	84-118				
Surr: TOLUENE-D8	25.3		25		101	85-115				
Surr: 4-BROMOFLUOROBENZE	24.5		25		98	85-115				

The following samples were analyzed in this batch: 1307168-1 1307168-2 1307168-3

QC BATCH REPORT

Batch ID: **AK130715-1-1** Instrument ID **NONE** Method: **SM2320B**

LCS Sample ID: **AK130715-1** Units: **MG/L** Analysis Date: **7/15/2013**
Client ID: Run ID: **AK130715-1** Prep Date: **7/15/2013** 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: **AK130715-1** Units: **MG/L** Analysis Date: **7/15/2013**
Client ID: Run ID: **AK130715-1** Prep Date: **7/15/2013** 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: 1307168-1 1307168-2

QC BATCH REPORT

Batch ID: **IC130712-1-1** Instrument ID **IC** Method: **EPA300.0**

LCS Sample ID: **IC130712-1** Units: **MG/L** Analysis Date: **7/17/2013 21:51**

Client ID: Run ID: **IC130717-1A1** Prep Date: **7/12/2013** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
FLUORIDE	1.98	0.1	2		99	90-110			15	
CHLORIDE	4.79	0.2	5		96	90-110			15	
NITRITE AS N	1.81	0.1	2		90	90-110			15	
BROMIDE	4.98	0.2	5		100	90-110			15	
NITRATE AS N	5.01	0.2	5		100	90-110			15	
SULFATE	19	1	20		95	90-110			15	

MB Sample ID: **IC130712-1** Units: **MG/L** Analysis Date: **7/17/2013 21:23**

Client ID: Run ID: **IC130717-1A1** Prep Date: **7/12/2013** 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:

QC BATCH REPORT

Batch ID: **ph130715-4-2** Instrument ID **pH-1** Method: **SM4500-H**

DUP Sample ID: **1307168-1** Units: **pH** Analysis Date: **7/15/2013**

Client ID: **RMV 108-4-Garden Spg** Run ID: **pH130715-1A** Prep Date: **7/15/2013** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
PH	7.61	0.1					7.63		0.2	

The following samples were analyzed in this batch: 1307168-1 1307168-2

QC BATCH REPORT

Batch ID: **sc130715-1-2** Instrument ID **pH-1** Method: **SM2510B**

DUP Sample ID: **1307168-1** Units: **umhos/cm** Analysis Date: **7/15/2013**

Client ID: **RMV 108-4-Garden Spg** Run ID: **SC130715-1A** Prep Date: **7/15/2013** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
SPECIFIC CONDUCTIVITY	750	1					753	0	10	

The following samples were analyzed in this batch: 1307168-1 1307168-2

QC BATCH REPORT

Batch ID: **TD130715-1-1** Instrument ID **Balance** Method: **SM2540C**

LCS Sample ID: **TD130715-1** Units: **MG/L** Analysis Date: **7/16/2013**
Client ID: Run ID: **TD130716-1A** Prep Date: **7/15/2013** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
TOTAL DISSOLVED SOLIDS	396	20	400		99	85-115			5	

MB Sample ID: **TD130715-1** Units: **MG/L** Analysis Date: **7/16/2013**
Client ID: Run ID: **TD130716-1A** Prep Date: **7/15/2013** 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: 1307168-1 1307168-2

QC BATCH REPORT

Batch ID: **TP130723-1-1** Instrument ID **Spec** Method: **EPA365.2**

LCS Sample ID: **TP130723-1** Units: **MG/L** Analysis Date: **7/24/2013**
Client ID: Run ID: **TP130723-1A** Prep Date: **7/23/2013** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
TOTAL PHOSPHORUS	0.547	0.05	0.5		109	80-120			20	

MB Sample ID: **TP130723-1** Units: **MG/L** Analysis Date: **7/24/2013**
Client ID: Run ID: **TP130723-1A** Prep Date: **7/23/2013** 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								

MS Sample ID: **1307168-1** Units: **MG/L** Analysis Date: **7/24/2013**
Client ID: **RMV 108-4-Garden Spg** Run ID: **TP130723-1A** Prep Date: **7/23/2013** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
TOTAL PHOSPHORUS	0.546	0.05	0.5	0.05	109	80-120			20	

MSD Sample ID: **1307168-1** Units: **MG/L** Analysis Date: **7/24/2013**
Client ID: **RMV 108-4-Garden Spg** Run ID: **TP130723-1A** Prep Date: **7/23/2013** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
TOTAL PHOSPHORUS	0.561	0.05	0.5	0.05	112	80-120	0.546	3	20	

The following samples were analyzed in this batch: 1307168-1 1307168-2

1307169

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 with the following exception:

The samples had a pH > 2 at the time of analysis.

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:

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: 1307169
Client Name: Western Water and Land, Inc.
Client Project Name: WPX Baseline Water Quality
Client Project Number: 30000.01.25
Client PO Number:

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
RMV 108-4-49368F	1307169-1		WATER	11-Jul-13	10:20
RMV 108-4-Gardner Spg	1307169-2		WATER	11-Jul-13	12:15
Trip Blank	1307169-3		WATER	11-Jul-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 # 1307169

PAGE 1 of 1

DISPOSAL: By Lab / or Return to Client

PROJECT NAME	WPX BWG	SAMPLER	NWS
FACILITY NAME	RMV 108-4	PROJECT NO.	30000.01.25
FACILITY ID (API)		EDD FORMAT	
COMPANY NAME	Western Water + Land	PURCHASE ORDER	
SEND REPORT TO	Bruce Smith	BILL TO COMPANY	WPX Energy
ADDRESS	743 Horizon Ct, Suite 330	INVOICE ATTN TO	Brandon Danforth
CITY / STATE / ZIP	Grand Jct, CO 81506	ADDRESS	1058 CR 215
PHONE	970-242-0170	CITY / STATE / ZIP	Parachute, CO 81635
FAX		PHONE	970-263-2792
E-MAIL	bsmith@westernwater andlandcon	FAX	
		E-MAIL	

DATE: 7-11-13

TURNAROUND: Standard

Lab ID	Field ID	Matrix	Sample Date	Sample Time	# Bottles	Pres.	QC	NGI	BART	BTEX	H2O	Dissolved gases	MEP	H2O	Dissolved metals	Hab filter)	Anions, alk, tds	pH, conduc.	Total phosphorus
(1)	RMV 108-4-49368F	W	7-11-13	1620	15	1,3	IV	✓	✓	✓	✓	✓		✓	✓		✓		✓
(2)	RMV 108-4-Gardner Spg	W	7-11-13	1215	15	1,3	IV	✓	✓	✓	✓	✓		✓	✓		✓		✓
(3)	TB1, TB2																		

*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 metals need to be laboratory filtered

QC PACKAGE (check below)

- LEVEL II (Standard QC)
- LEVEL III (Std QC + forms)
- X 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		Shelby Gartwin	7-11-13	1630
RECEIVED BY		Lauren Schmitz	7/12/13	1015
RELINQUISHED BY				
RECEIVED BY				
RELINQUISHED BY				
RECEIVED BY				

ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: Western Water Workorder No: 1307169

Project Manager: ARW Initials: LAS Date: 7/12/13

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):	4.6							
No. of custody seals on cooler:	2							
DOT Survey/ Acceptance Information — External µR/hr reading:	12							
Background µR/hr reading:	11							

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.

(*14) 1307169-1-3 (49368F) } listed vials arrived with headspace ≤ pea-size
↓ 1-6 ↓
↓ 2-6 (Gardner Spg) }

If applicable, was the client contacted? (YES) / NO / NA Contact: Bruce Smith Date/Time: 7/12/13 e-mail

Project Manager Signature / Date: [signature] 7/12/13

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

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

1307169


FROM:
(970) 242-0170
WESTERN WATER & LAND INC
743 HORIZON CT STE 330
GRAND JUNCTION CO 81506
JS
SHIP DATE: 11JUL13
ACTWGT: 46.8 LB
CAD: 9622/POS1400
DIMMED: 26 X 14 X 14 IN
BILL 3rd PARTY
TO
ny wolf
S ENVIRONMENTAL
25 COMMERCE DR
FORT COLLINS CO 80524
(970) 490-1511
REF:
DEPT:
INV:
PO:
(US)
FedEx
Ground
G
1 of 2
TRK# 7957 9760 8292
MASTER
80524
9622 0417 3 (000 045 7800) 7 00 7957 9760 8292

Client:	Western Water and Land, Inc.	**Date:**	*02-Aug-13*
Project:	30000.01.25 WPX Baseline Water Quality	**Work Order:**	1307169
Sample ID:	RMV 108-4-49368F	**Lab ID:**	1307169-1
Legal Location:		**Matrix:**	WATER
Collection Date:	7/11/2013 10:20	**Percent Moisture:**	

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
ALKALINITY AS CALCIUM CARBONATE			**SM2320B**		Prep Date: **7/15/2013**	PrepBy: **AJD**
BICARBONATE AS CaCO3	**290**		**20**	**MG/L**	1	7/15/2013
CARBONATE AS CaCO3	ND		20	MG/L	1	7/15/2013
TOTAL ALKALINITY AS CaCO3	**290**		**20**	**MG/L**	1	7/15/2013
BIOLOGICAL ACTIVITY REACTION TEST			**BART**		Prep Date: **7/16/2013**	PrepBy: **BAS**
IRON RELATED BACTERIA	**1**			**NU**	1	7/24/2013
SLIME FORMING BACTERIA	**0**			**NU**	1	7/24/2013
SULFATE REDUCING BACTERIA	**0**			**NU**	1	7/24/2013
DIESEL RANGE ORGANICS			**SW8015M**		Prep Date: **7/15/2013**	PrepBy: **JAC**
Diesel Range Organics	ND		0.5	MG/L	1	7/16/2013 20:16
Surr: O-TERPHENYL	*80*		*51-97*	*%REC*	1	7/16/2013 20:16
DISSOLVED GASSES			**RSK175**		Prep Date: **7/18/2013**	PrepBy: **JFN**
METHANE	ND		1	UG/L	1	7/18/2013 17:27
ETHANE	ND		2	UG/L	1	7/18/2013 17:27
PROPANE	ND		1	UG/L	1	7/18/2013 17:27
GC/MS VOLATILES			**SW8260_25**		Prep Date: **7/15/2013**	PrepBy: **SDW**
BENZENE	ND		1	UG/L	1	7/15/2013 15:32
TOLUENE	ND		1	UG/L	1	7/15/2013 15:32
ETHYLBENZENE	ND		1	UG/L	1	7/15/2013 15:32
M+P-XYLENE	ND		1	UG/L	1	7/15/2013 15:32
O-XYLENE	ND		1	UG/L	1	7/15/2013 15:32
GASOLINE RANGE ORGANICS	ND		100	UG/L	1	7/15/2013 15:32
Surr: DIBROMOFLUOROMETHANE	*100*		*84-118*	*%REC*	1	7/15/2013 15:32
Surr: TOLUENE-D8	*101*		*85-115*	*%REC*	1	7/15/2013 15:32
Surr: 4-BROMOFLUOROBENZENE	*96*		*85-115*	*%REC*	1	7/15/2013 15:32
ION CHROMATOGRAPHY			**EPA300.0**		Prep Date: **7/12/2013**	PrepBy: **JFN**
BROMIDE	ND		0.2	MG/L	1	7/12/2013 23:25
CHLORIDE	**15**		**0.2**	**MG/L**	1	7/12/2013 23:25
FLUORIDE	**0.24**		**0.1**	**MG/L**	1	7/12/2013 23:25
NITRATE AS N	**1.6**		**0.2**	**MG/L**	1	7/12/2013 23:25
NITRITE AS N	ND		0.1	MG/L	1	7/12/2013 23:25
SULFATE	**79**		**1**	**MG/L**	1	7/12/2013 23:25
METALS BY 200.8			**EPA200.8**		Prep Date: **7/18/2013**	PrepBy: **BAS**
BORON	ND		50	UG/L	10	7/19/2013 12:40
BARIUM	**86**		**1**	**UG/L**	10	7/19/2013 12:40
CALCIUM	**71000**		**1000**	**UG/L**	10	7/19/2013 12:40
IRON	ND		100	UG/L	10	7/19/2013 12:40
POTASSIUM	**3500**		**1000**	**UG/L**	10	7/19/2013 12:40
MAGNESIUM	**28000**		**100**	**UG/L**	10	7/19/2013 12:40
MANGANESE	ND		2	UG/L	10	7/19/2013 12:40
SODIUM	**50000**		**1000**	**UG/L**	10	7/19/2013 12:40

Client:	Western Water and Land, Inc.	**Date:**	*02-Aug-13*
Project:	30000.01.25 WPX Baseline Water Quality	**Work Order:**	1307169
Sample ID:	RMV 108-4-49368F	**Lab ID:**	1307169-1
Legal Location:		**Matrix:**	WATER
Collection Date:	7/11/2013 10:20	**Percent Moisture:**	

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
SELENIUM	**4.2**		**1**	**UG/L**	10	7/19/2013 12:40
STRONTIUM	**600**		**1**	**UG/L**	10	7/19/2013 12:40
PH			**SM4500-H**		Prep Date: **7/15/2013**	PrepBy: **KLR**
PH	**7.66**		**0.1**	**pH**	1	7/15/2013
SPECIFIC CONDUCTANCE IN WATER			**SM2510B**		Prep Date: **7/15/2013**	PrepBy: **KLR**
SPECIFIC CONDUCTIVITY	**743**		**1**	**umhos/cm**	1	7/15/2013
TOTAL DISSOLVED SOLIDS			**SM2540C**		Prep Date: **7/15/2013**	PrepBy: **AJD**
TOTAL DISSOLVED SOLIDS	**440**		**20**	**MG/L**	1	7/16/2013
TOTAL PHOSPHORUS AS P			**EPA365.2**		Prep Date: **7/23/2013**	PrepBy: **TWK**
TOTAL PHOSPHORUS	ND		0.05	MG/L	1	7/24/2013

Client:	Western Water and Land, Inc.	**Date:**	*02-Aug-13*
Project:	30000.01.25 WPX Baseline Water Quality	**Work Order:**	1307169
Sample ID:	RMV 108-4-Gardner Spg	**Lab ID:**	1307169-2
Legal Location:		**Matrix:**	WATER
Collection Date:	7/11/2013 12:15	**Percent Moisture:**	

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
ALKALINITY AS CALCIUM CARBONATE			**SM2320B**		Prep Date: **7/15/2013**	PrepBy: **AJD**
BICARBONATE AS CaCO3	**330**		**20**	**MG/L**	1	7/15/2013
CARBONATE AS CaCO3	ND		20	MG/L	1	7/15/2013
TOTAL ALKALINITY AS CaCO3	**330**		**20**	**MG/L**	1	7/15/2013
BIOLOGICAL ACTIVITY REACTION TEST			**BART**		Prep Date: **7/16/2013**	PrepBy: **BAS**
IRON RELATED BACTERIA	**1**			**NU**	1	7/24/2013
SLIME FORMING BACTERIA	**1**			**NU**	1	7/24/2013
SULFATE REDUCING BACTERIA	**1**			**NU**	1	7/24/2013
DIESEL RANGE ORGANICS			**SW8015M**		Prep Date: **7/15/2013**	PrepBy: **JAC**
Diesel Range Organics	ND		0.5	MG/L	1	7/16/2013 20:47
Surr: O-TERPHENYL	*84*		*51-97*	*%REC*	1	7/16/2013 20:47
DISSOLVED GASSES			**RSK175**		Prep Date: **7/18/2013**	PrepBy: **JFN**
METHANE	ND		1	UG/L	1	7/18/2013 17:30
ETHANE	ND		2	UG/L	1	7/18/2013 17:30
PROPANE	ND		1	UG/L	1	7/18/2013 17:30
GC/MS VOLATILES			**SW8260_25**		Prep Date: **7/15/2013**	PrepBy: **SDW**
BENZENE	ND		1	UG/L	1	7/15/2013 15:55
TOLUENE	ND		1	UG/L	1	7/15/2013 15:55
ETHYLBENZENE	ND		1	UG/L	1	7/15/2013 15:55
M+P-XYLENE	ND		1	UG/L	1	7/15/2013 15:55
O-XYLENE	ND		1	UG/L	1	7/15/2013 15:55
GASOLINE RANGE ORGANICS	ND		100	UG/L	1	7/15/2013 15:55
Surr: DIBROMOFLUOROMETHANE	*101*		*84-118*	*%REC*	1	7/15/2013 15:55
Surr: TOLUENE-D8	*101*		*85-115*	*%REC*	1	7/15/2013 15:55
Surr: 4-BROMOFLUOROBENZENE	*98*		*85-115*	*%REC*	1	7/15/2013 15:55
ION CHROMATOGRAPHY			**EPA300.0**		Prep Date: **7/12/2013**	PrepBy: **JFN**
BROMIDE	ND		0.2	MG/L	1	7/12/2013 23:53
CHLORIDE	**13**		**0.2**	**MG/L**	1	7/12/2013 23:53
FLUORIDE	**0.3**		**0.1**	**MG/L**	1	7/12/2013 23:53
NITRATE AS N	**0.53**		**0.2**	**MG/L**	1	7/12/2013 23:53
NITRITE AS N	ND		0.1	MG/L	1	7/12/2013 23:53
SULFATE	**61**		**1**	**MG/L**	1	7/12/2013 23:53
METALS BY 200.8			**EPA200.8**		Prep Date: **7/18/2013**	PrepBy: **BAS**
BORON	ND		50	UG/L	10	7/19/2013 12:43
BARIUM	**80**		**1**	**UG/L**	10	7/19/2013 12:43
CALCIUM	**70000**		**1000**	**UG/L**	10	7/19/2013 12:43
IRON	ND		100	UG/L	10	7/19/2013 12:43
POTASSIUM	**3100**		**1000**	**UG/L**	10	7/19/2013 12:43
MAGNESIUM	**32000**		**100**	**UG/L**	10	7/19/2013 12:43
MANGANESE	ND		2	UG/L	10	7/19/2013 12:43
SODIUM	**44000**		**1000**	**UG/L**	10	7/19/2013 12:43

Client:	Western Water and Land, Inc.	**Date:**	*02-Aug-13*
Project:	30000.01.25 WPX Baseline Water Quality	**Work Order:**	1307169
Sample ID:	RMV 108-4-Gardner Spg	**Lab ID:**	1307169-2
Legal Location:		**Matrix:**	WATER
Collection Date:	7/11/2013 12:15	**Percent Moisture:**	

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
SELENIUM	**1.8**		**1**	**UG/L**	10	7/19/2013 12:43
STRONTIUM	**640**		**1**	**UG/L**	10	7/19/2013 12:43
PH			**SM4500-H**		Prep Date: **7/15/2013**	PrepBy: **KLR**
PH	**7.48**		**0.1**	**pH**	1	7/15/2013
SPECIFIC CONDUCTANCE IN WATER			**SM2510B**		Prep Date: **7/15/2013**	PrepBy: **KLR**
SPECIFIC CONDUCTIVITY	**757**		**1**	**umhos/cm**	1	7/15/2013
TOTAL DISSOLVED SOLIDS			**SM2540C**		Prep Date: **7/15/2013**	PrepBy: **AJD**
TOTAL DISSOLVED SOLIDS	**450**		**20**	**MG/L**	1	7/16/2013
TOTAL PHOSPHORUS AS P			**EPA365.2**		Prep Date: **7/23/2013**	PrepBy: **TWK**
TOTAL PHOSPHORUS	ND		0.05	MG/L	1	7/24/2013

Client:	Western Water and Land, Inc.	**Date:**	*02-Aug-13*
Project:	30000.01.25 WPX Baseline Water Quality	**Work Order:**	1307169
Sample ID:	Trip Blank	**Lab ID:**	1307169-3
Legal Location:		**Matrix:**	WATER
Collection Date:	7/11/2013	**Percent Moisture:**	

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
GC/MS VOLATILES			**SW8260_25**		Prep Date: **7/15/2013**	PrepBy: **SDW**
BENZENE	ND		1	UG/L	1	7/15/2013 16:19
TOLUENE	ND		1	UG/L	1	7/15/2013 16:19
ETHYLBENZENE	ND		1	UG/L	1	7/15/2013 16:19
M+P-XYLENE	ND		1	UG/L	1	7/15/2013 16:19
O-XYLENE	ND		1	UG/L	1	7/15/2013 16:19
GASOLINE RANGE ORGANICS	ND		100	UG/L	1	7/15/2013 16:19
Surr: DIBROMOFLUOROMETHANE	*99*		*84-118*	*%REC*	1	7/15/2013 16:19
Surr: TOLUENE-D8	*101*		*85-115*	*%REC*	1	7/15/2013 16:19
Surr: 4-BROMOFLUOROBENZENE	*97*		*85-115*	*%REC*	1	7/15/2013 16:19

Client:	Western Water and Land, Inc.	**Date:**	*02-Aug-13*
Project:	30000.01.25 WPX Baseline Water Quality	**Work Order:**	1307169
Sample ID:	Trip Blank	**Lab ID:**	1307169-3
Legal Location:		**Matrix:**	WATER
Collection Date:	7/11/2013	**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:	30000.01.25 WPX Baseline Water Quality	**Work Order:**	1307169
Sample ID:	Trip Blank	**Lab ID:**	1307169-3
Legal Location:		**Matrix:**	WATER
Collection Date:	7/11/2013	**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: **EX130715-4-1** Instrument ID **FUELS-1** Method: **SW8015M**

LCS Sample ID: **EX130715-4** Units: **MG/L** Analysis Date: **7/16/2013 17:12**

Client ID: Run ID: **GC130716-1A** Prep Date: **7/15/2013** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
Diesel Range Organics	9.85	0.5	10		98	36-150			20	
Surr: O-TERPHENYL	1.16		1.25		93	51-97				

LCSD Sample ID: **EX130715-4** Units: **MG/L** Analysis Date: **7/16/2013 17:42**

Client ID: Run ID: **GC130716-1A** Prep Date: **7/15/2013** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
Diesel Range Organics	9.81	0.5	10		98	36-150	9.85	0	20	
Surr: O-TERPHENYL	1.12		1.25		89	51-97		4		

MB Sample ID: **EX130715-4** Units: **MG/L** Analysis Date: **7/16/2013 16:41**

Client ID: Run ID: **GC130716-1A** Prep Date: **7/15/2013** 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	0.958		1.25		77	51-97				

MS Sample ID: **1307169-2** Units: **MG/L** Analysis Date: **7/16/2013 21:18**

Client ID: **RMV 108-4-Gardner Spg** Run ID: **GC130716-1A** Prep Date: **7/15/2013** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
Diesel Range Organics	9.42	0.5	10	0.5	94	36-150			20	
Surr: O-TERPHENYL	1.09		1.25		87	51-97				

MSD Sample ID: **1307169-2** Units: **MG/L** Analysis Date: **7/16/2013 21:50**

Client ID: **RMV 108-4-Gardner Spg** Run ID: **GC130716-1A** Prep Date: **7/15/2013** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
Diesel Range Organics	9.38	0.5	10	0.5	94	36-150	9.42	0	20	
Surr: O-TERPHENYL	1.08		1.25		86	51-97		1		

The following samples were analyzed in this batch: 1307169-1 1307169-2

QC BATCH REPORT

Batch ID: **HC130718-9-1** Instrument ID **MEE-1** Method: **RSK175**

LCS Sample ID: **HC130718-9** Units: **UG/L** Analysis Date: **7/18/2013 16:57**
Client ID: Run ID: **HC130718-9** Prep Date: **7/18/2013** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
METHANE	149	1	142		104	80-120			25	
ETHANE	275	2	267		103	80-120			25	
PROPANE	392	1	391		100	80-120			25	

LCSD Sample ID: **HC130718-9** Units: **UG/L** Analysis Date: **7/18/2013 18:14**
Client ID: Run ID: **HC130718-9** Prep Date: **7/18/2013** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
METHANE	146	1	142		103	80-120	149	2	25	
ETHANE	260	2	267		98	80-120	275	5	25	
PROPANE	367	1	391		94	80-120	392	7	25	

MB Sample ID: **HC130718-9** Units: **UG/L** Analysis Date: **7/18/2013 17:03**
Client ID: Run ID: **HC130718-9** Prep Date: **7/18/2013** 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: 1307169-1 1307169-2

QC BATCH REPORT

Batch ID: **IP130718-2-3** Instrument ID **ICPMS2** Method: **EPA200.8**

LCS Sample ID: **FM130717-1** Units: **UG/L** Analysis Date: **7/19/2013 13:22**

Client ID: Run ID: **IM130719-10A2** Prep Date: **7/18/2013** DF: **10**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
BARIUM	102	1	100		102	85-115			20	
BORON	994	50	1000		99	85-115			20	
CALCIUM	10300	1000	10000		103	85-115			20	
IRON	5120	100	5000		102	85-115			20	
MAGNESIUM	9690	100	10000		97	85-115			20	
MANGANESE	206	2	200		103	85-115			20	
POTASSIUM	5260	1000	5000		105	85-115			20	
SELENIUM	104	1	100		104	85-115			20	
SODIUM	10700	1000	10000		107	85-115			20	
STRONTIUM	102	1	100		102	85-115			20	

MB Sample ID: **F130717-1** Units: **UG/L** Analysis Date: **7/19/2013 13:40**

Client ID: Run ID: **IM130719-10A2** Prep Date: **7/18/2013** 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: 1307169-1 1307169-2

Batch ID: **VL130715-4-1** Instrument ID **HPV1** Method: **SW8260_25**

LCS Sample ID: **VL130715-4** Units: **UG/L** Analysis Date: **7/15/2013 13:12**

Client ID: Run ID: **VL130715-4A** Prep Date: **7/15/2013** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
BENZENE	9.45	1	10		94	83-117			20	
TOLUENE	9.42	1	10		94	82-113			20	
ETHYLBENZENE	9.29	1	10		93	81-113			20	
M+P-XYLENE	19.3	1	20		96	82-115			20	
O-XYLENE	9.61	1	10		96	81-115			20	
GASOLINE RANGE ORGANICS	448	100	500		89.638	80-120		1	20	
Surr: DIBROMOFLUOROMETHA	24.6		25		98	84-118				
Surr: TOLUENE-D8	25.4		25		101	85-115				
Surr: 4-BROMOFLUOROBENZE	24.9		25		100	85-115				

LCSD Sample ID: **VL130715-4** Units: **UG/L** Analysis Date: **7/15/2013 13:36**

Client ID: Run ID: **VL130715-4A** Prep Date: **7/15/2013** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
BENZENE	9.13	1	10		91	83-117	9.45	3	20	
TOLUENE	9.06	1	10		91	82-113	9.42	4	20	
ETHYLBENZENE	9.18	1	10		92	81-113	9.29	1	20	
M+P-XYLENE	18.6	1	20		93	82-115	19.3	3	20	
O-XYLENE	9.28	1	10		93	81-115	9.61	4	20	
GASOLINE RANGE ORGANICS	452	100	500		90.308	80-120	448	1	20	
Surr: DIBROMOFLUOROMETHA	24.8		25		99	84-118		1		
Surr: TOLUENE-D8	25.3		25		101	85-115		0		
Surr: 4-BROMOFLUOROBENZE	25.2		25		101	85-115		1		

MB Sample ID: **VL130715-4** Units: **UG/L** Analysis Date: **7/15/2013 13:59**

Client ID: Run ID: **VL130715-4A** Prep Date: **7/15/2013** 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	24.6		25		99	84-118				
Surr: TOLUENE-D8	25.3		25		101	85-115				
Surr: 4-BROMOFLUOROBENZE	24.5		25		98	85-115				

The following samples were analyzed in this batch: 1307169-1 1307169-2 1307169-3

QC BATCH REPORT

Batch ID: **AK130715-1-1** Instrument ID **NONE** Method: **SM2320B**

LCS Sample ID: **AK130715-1** Units: **MG/L** Analysis Date: **7/15/2013**
Client ID: Run ID: **AK130715-1** Prep Date: **7/15/2013** 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: **AK130715-1** Units: **MG/L** Analysis Date: **7/15/2013**
Client ID: Run ID: **AK130715-1** Prep Date: **7/15/2013** 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: 1307169-1 1307169-2

QC BATCH REPORT

Batch ID: **IC130712-1-1** Instrument ID **IC** Method: **EPA300.0**

LCS Sample ID: **IC130712-1** Units: **MG/L** Analysis Date: **7/17/2013 21:51**

Client ID: Run ID: **IC130717-1A1** Prep Date: **7/12/2013** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
FLUORIDE	1.98	0.1	2		99	90-110			15	
CHLORIDE	4.79	0.2	5		96	90-110			15	
NITRITE AS N	1.81	0.1	2		90	90-110			15	
BROMIDE	4.98	0.2	5		100	90-110			15	
NITRATE AS N	5.01	0.2	5		100	90-110			15	
SULFATE	19	1	20		95	90-110			15	

MB Sample ID: **IC130712-1** Units: **MG/L** Analysis Date: **7/17/2013 21:23**

Client ID: Run ID: **IC130717-1A1** Prep Date: **7/12/2013** 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:

QC BATCH REPORT

Batch ID: **TD130715-1-1** Instrument ID **Balance** Method: **SM2540C**

DUP Sample ID: **1307169-2** Units: **MG/L** Analysis Date: **7/16/2013**
Client ID: **RMV 108-4-Gardner Spg** Run ID: **TD130716-1A** Prep Date: **7/15/2013** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
TOTAL DISSOLVED SOLIDS	452	20					450	0	5	

LCS Sample ID: **TD130715-1** Units: **MG/L** Analysis Date: **7/16/2013**
Client ID: Run ID: **TD130716-1A** Prep Date: **7/15/2013** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
TOTAL DISSOLVED SOLIDS	396	20	400		99	85-115			5	

MB Sample ID: **TD130715-1** Units: **MG/L** Analysis Date: **7/16/2013**
Client ID: Run ID: **TD130716-1A** Prep Date: **7/15/2013** 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: 1307169-1 1307169-2

QC BATCH REPORT

Batch ID: **TP130723-1-1** Instrument ID **Spec** Method: **EPA365.2**

LCS Sample ID: **TP130723-1** Units: **MG/L** Analysis Date: **7/24/2013**
Client ID: Run ID: **TP130723-1A** Prep Date: **7/23/2013** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
TOTAL PHOSPHORUS	0.547	0.05	0.5		109	80-120			20	

MB Sample ID: **TP130723-1** Units: **MG/L** Analysis Date: **7/24/2013**
Client ID: Run ID: **TP130723-1A** Prep Date: **7/23/2013** 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: 1307169-1 1307169-2