



Western Water & Land, Inc.

November 19, 2015

Mr. Carlos Lujan
Environmental Protection Specialist
Northwest Region
State of Colorado
Oil and Gas Conservation Commission
796 Megan Avenue, Suite 201
Rifle, CO 81650

**RE: Maralex Disposal LLC Roan Creek Evaporation Pond:
October 13, 2015 Soil Sampling Results Report**

Dear Mr. Lujan,

Western Water & Land, Inc. (WWL) has completed soil quality sampling for the Maralex Disposal LLC (Maralex) Roan Creek Evaporation Pond (RCEP) (Colorado Oil and Gas Conservation Commission [COGCC] ID: 391314). This work was completed at the request of the COGCC to confirm/compare results to samples collected a few weeks prior by Maralex. The Maralex RCEP is not currently accepting oil & gas wastewater and is mostly dry. The Maralex RCEP is located in the NE $\frac{1}{4}$, SE $\frac{1}{4}$, Section 36, Township 8 South, Range 98 West, 6th PM (See Figure 1).

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

SAMPLING ACTIVITIES

Six soil samples were collected by WWL personnel at the Maralex Roan Creek Evaporation Pond from six different locations on October 13, 2015 (see Figure 1). Mr. Carlos Lujan of COGCC was present during the sampling activities.

WWL conducted all soil sampling in accordance with industry-accepted practices and quality control procedures. Decontaminated stainless steel sampling hand tools were used to collect soil and sediment samples at the pond. Grab sampling of soils under the liner involved excavation of a small hole using hand sampling tools. Each sample pit was excavated to a depth of approximately 6 inches and width of 4 to 5 inches. Excavation was done to assure that naturally compacted soil was exposed before finishing the pit. Because the sampled sites had been previously sampled and potentially backfilled, the initial excavated volume of soil was set aside and not sampled. The hole was then widened to total depth to collect sample material. All samples were collected in new factory-cleaned glass jars for submittal to the analytical laboratory; two jars were used per sample. An additional volume of sample was collected in new ZiplocTM plastic bags for a temporary hand specimen to be used for soil description purposes and as laboratory back-up sample material.

Three grab soil samples (RCEP-1, RCEP-2, and RCEP-4) were collected from under the primary pond liner where Maralex had previously cut holes and collected samples. These sample points were

associated with locations previously identified as potential leakage holes in the liner. After sampling, Maralex had taped the holes closed and had applied a liquid sealant. WWL removed these seals in order to collect the samples and after sampling resealed the holes with PVC tape. WWL removed all loose fill material from the previously sampled holes under the liner prior to collecting samples. The excavations were backfilled with excavated soil and soil from the graded area from the impoundment berm.

Three composite samples (RCEP-3S, RCEP-5S, and RCEP-6S) were collected at the pond. Pond sediment samples consisted of seven sub-samples collected from a relatively broad area (approximately 20 feet long by 7 feet wide) at each sample location (see Figure 1). Pond sediment composite samples were prepared by placing each sub-sample into a clean 1-gallon Ziploc plastic bag, thoroughly mixing the material, and then placing a portion of the mixed sample into two 8-oz glass sample jars.

See Figure 1 for the sampled locations. Photographs of the sampling sites are shown in Attachment A. Field monitoring forms and notes are shown in Attachment B.

The samples were packed with ice for preservation and shipped via FedEx Ground to the analytical laboratory, ALS Environmental [ALS], Fort Collins, Colorado, on the same day of collection.

QUALITY CONTROL SUMMARY

ALS reported that the samples were received outside of the temperature criteria for proper preservation. ALS did not assign qualifiers to the analytical results based on the quality control summary.

ALS Laboratory assigned analytical results that were undetected with a “U” qualifier and a “J” qualifier to results that were detected above the method detection limit but below the reporting limit to indicate the result value is estimated.

As indicated in Attachment C, a number of recovery limits did not fall within acceptance criteria for a number of volatile, semi-volatile, and GRO compounds due to matrix effects. The matrix spike and matrix spike duplicate were not analyzed for DRO due to the high concentration of target analytes present in the native sample, and surrogate recoveries could not be reported for samples RCEP-3, RCEP-5 and RCEP-6 (sediment samples). All remaining acceptance criteria for DRO were met. Initial and continuing calibration blanks (CCBs) were below the reporting limits for all metals except barium. This was because the samples bracketed by the CCB were more than 10 times the concentration of barium in the CCB. See Attachment C for quality control summary details.

ANALYTICAL RESULTS

Laboratory analysis was performed by ALS, in Fort Collins, Colorado in accordance with the analytes outlined in COGCC Table 910-1. The analytical results are summarized and compared to Table 910-1 standards in Attachment D; the data are qualified as indicated. The full laboratory analytical report is presented in Attachment C.

INTERPRETATION

WWL was not requested to prepare an interpretive discussion for this project. The COGCC Table 910-1 standards are exceeded for a number of analytes, but no background chemistry information on native soils was provided.

Arsenic, barium, and boron exceed Table 910-1 concentrations in all samples collected. Greater exceedances in barium and boron in the sediment samples are observed where concentration by

evaporation is expected. The potential for an exceedance of the chromium (VI) standard exists for sample RCEP-6S; only total chromium was analyzed. Sodium adsorption ratio (SAR) values exceeded the Table 910-1 standard of <12 in all samples, with values ranging from 18 in sample RCEP-1 to 3,700 in sample RCEP-5S. The highest SAR in a sub-liner soil sample was 1,900 in sample RCEP-2.

With regard to hydrocarbons, DRO was detected in all samples. The Table 910-1 concentration was exceeded for TPH DRO in the sediment samples and the only detections of TPH GRO also occurred in these samples. For the semi-volatile organics, chrysene, naphthalene, and pyrene showed detections and some exceedances of the Table 910-1 concentration. Chrysene was detected in a range from 480 to 1,100 mg/kg in the sediment samples; the Table 910-1 standard is 22 mg/kg. Naphthalene was detected in a range from 170 to 290 mg/kg in the sediment samples; the Table 910-1 standard is 23 mg/kg. Pyrene was detected in one sample, RCEP-2 at 7.2 mg/kg. However, in the sediment samples Pyrene was undetected at levels as high as 120 mg/kg due to their inherently high DRO concentrations.

Benzene, toluene, ethylbenzene, and xylenes (BTEX) compounds were generally not detected in the soil samples collected from beneath the pond liner. Benzene was detected in samples RCEP-3S and RCEP-5S at concentrations between the method detection limit and the reporting limit which were above the Table 910-1 standard of 0.17 mg/kg. Ethylbenzene was detected just above the Table 910-1 concentration of 100 mg/kg at 110 mg/kg in sample RCEP-5S. Toluene was detected at 170 mg/kg in sample RCEP-5S, above the Table 910-1 concentration of 85 mg/kg. Total xylenes were detected at 3,000 mg/kg in sample RCEP-5S, above the Table 910-1 concentration of 175 mg/kg.

The exceedance of Table 910-1 concentrations in the pond sediment samples, (RCEP-3S, RCEP-5S, and RCEP-6S), is not of immediate consequence as this sediment is contained above the primary liner. However, poor liner integrity in these sample areas could result in contamination of underlying soils.

OTHER OBSERVATIONS

WWL made two other observations while conducting the sampling work at the Maralex RCEP. One observation was that the soils located on the flat top of the pond berm showed the development of rills towards cracks and holes in the soil. This indicated that subsurface piping of stormwater was occurring in the berm. This piping of water further indicates that the pond berm soils are not adequately compacted. The development of severe piping could lead to berm failure. Secondly, WWL observed with Mr. Lujan that the single pond liner was severely damaged on the east slope of the pond approximately 1 to 2 feet above the bottom of the pond. Damage was in the form of large cracks and holes and was consistently present for the entire length of the pond on the east slope. It was postulated that this linear damage could have been related to repeated wave action from westerly winds. Damage of this type is indicative that the liner has probably reached the end of its period of performance.

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

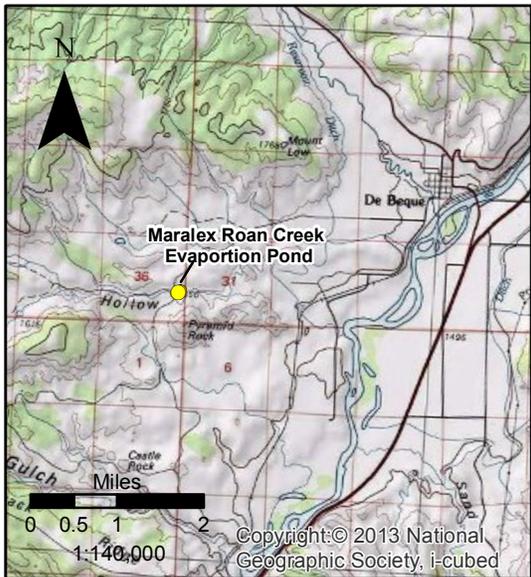
Figure 1- Sampling Location Map

Attachment A - Photographs

Attachment B - Field Monitoring Forms and Notes

Attachment C - Laboratory Analytical Summary Report

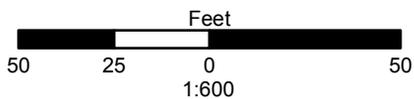
Attachment D - Summary of Analytical Results



Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Legend

- Maralex Roan Creek Evaporation Pond
- Sub-Liner Soil Sampling Locations
- Pond Sediment Sampling Locations



**Figure 1. Maralex Roan Creek Evaporation Pond
October 13, 2015 Soil Sampling
NE1/4, SE1/4, S 36, T 8S, R 98W, 6 P.M.**

Mesa County, Colorado



Western Water & Land, Inc.
Applications in Earth Science

ATTACHMENT A

Photographs



Photo 1. Maralex Roan Creek Evaporation Pond (COGCC ID: 391314)



Photo 2. Maralex-sealed sampling location.



Photo 3. WWL-sealed sampling location.



Photo 4. Sampling location RCEP-1.



Photo 5. Sampling location RCEP-2.



Photo 6. North-east (east) corner of pond. Sampling location RCEP-3S.



Photo 7. Sampling location RCEP-4.

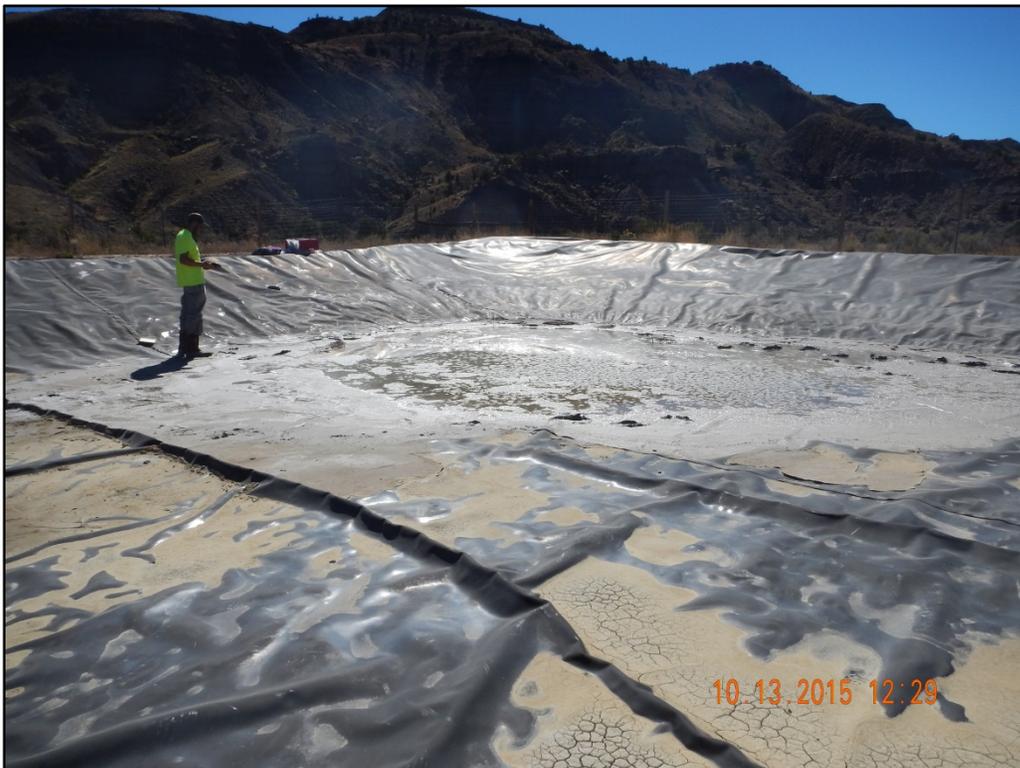


Photo 8. South-east (south) corner of pond. Sampling location RCEP-5S.



Photo 9. South-west (west) corner of pond. Sampling location RCEP-6S.

ATTACHMENT B

Field Monitoring Forms and Notes

Soil/Sediment/Mine-Waste Sampling Form Discrete Samples

Project Information			
Project Name:	MARALEX EVAP POND	Sample Purpose:	CONFIRM w/ COLECC TABLE 910-1
Client:	COLECC	Sample Date:	OCTOBER 13, 2015
Mine Site:	N/A	Start Time:	1035
Claim No.:	N/A	End Time:	1300
Other:		Sample Time:	1035-1245
Landowner Name:	U.S. BLM	Sample Team:	BDS NWS
Landowner Address:		Lead Signature/Date:	Bened Smith 10/13/15

Weather Conditions	
Sky: <u>Clear</u> / Scattered / Cloudy / Overcast	Estimated Air Temp (deg F): 70-80°
Precipitation: <u>None</u> / Light / Moderate / Heavy	Precip Type: <u>None</u> / Rain / Sleet / Hail / Snow
Wind: <u>Calm</u> / Light / Mod / Strong	Wind Speed/Direction:

Site Information and Sampling Methods			
General Site			
Location: ~3 miles South-west of De Beque, CO			
Site Description: Oil + gas evaporation Pond			
GPS Location:	Zone	Not Measured	N: W: Elv:
GPS Accuracy:	N/A		
Sampling Method:	Hand excavation		
Sample Type: Discrete/Composite	3 of each type		
Sampling Equipment:	Decontaminated stainless steel hand tools		

Discrete Sample Information:

Sample ID	Date	Time	Sampling Interval	Sample Location	Sample Description
RCEP-1	10-13-15	1035	0"-7"	Under liner - see sketch	See attached notes
RCEP-2		1055	0"-6"	Under liner - see sketch	
RCEP-3S		1135	0"-2"	pond sediment - see sketch	
RCEP-4		1155	0"-8"	Under liner - see sketch	
RCEP-5S		1217	0"-2"	pond sediment - see sketch	
RCEP-6S		1245	0"-2"	pond sediment - see sketch	

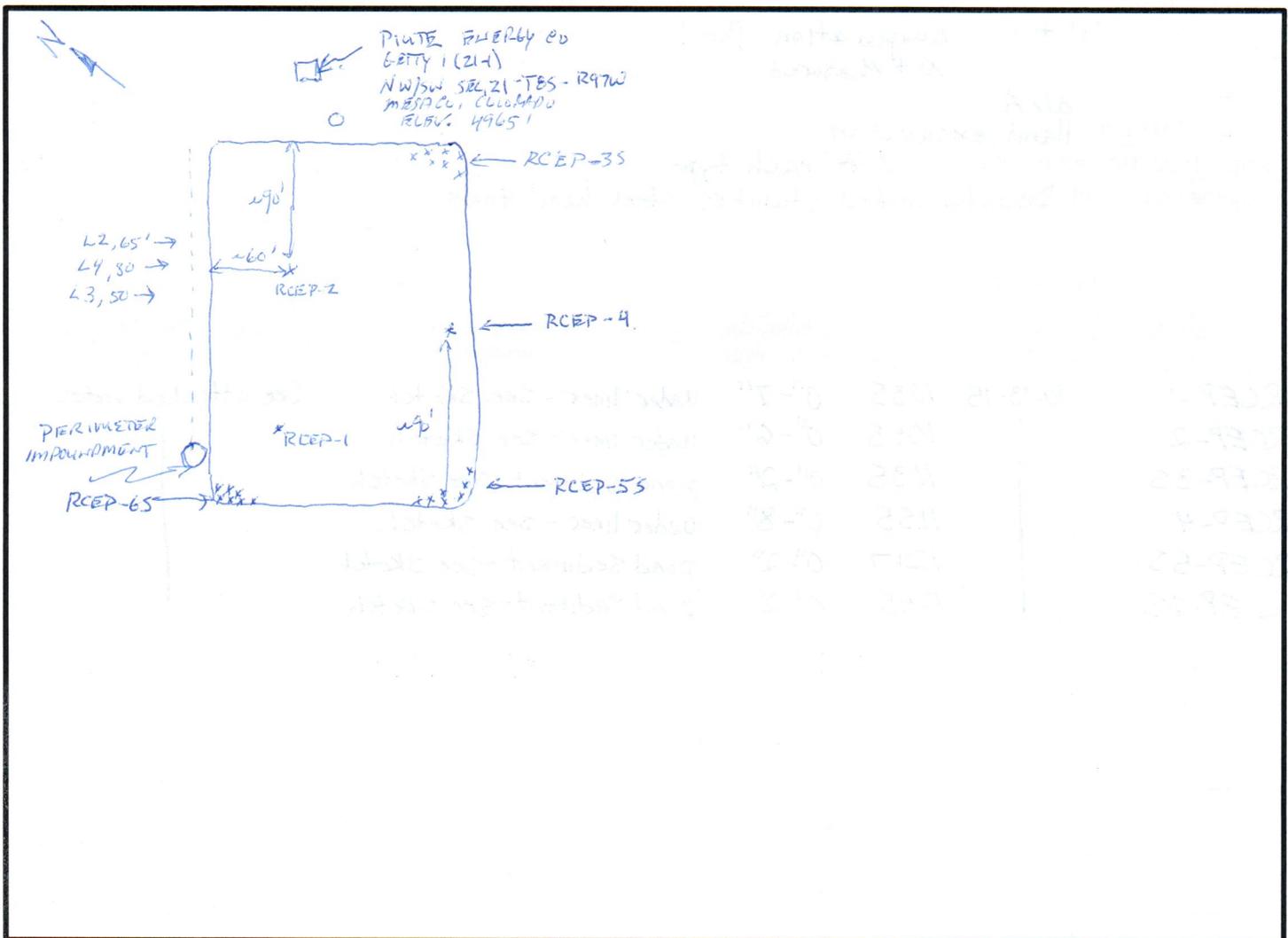
Soil/Sediment/Mine-Waste Sampling Form

Discrete Samples

Additional information:

MARALEX DISPOSAL LLC - ROUN CREEK EVAPORATION POND SOIL SAMPLING
 THIS IMPOUNDMENT IS NOT CURRENTLY ACCEPTING OIL & GAS WASTEWATER.
 SOIL SAMPLES WERE COLLECTED AT SIX (6) LOCATIONS; THREE UNDER HOLES IN
 THE SINGLE LINER (RCEP-1, RCEP-2, RCEP-4), AND THREE OF SEDIMENT WITHIN
 THE IMPOUNDMENT. THIS WORK WAS DONE PER REQUEST OF COGCC TO CONFIRM/COMPARE
 SAMPLES COLLECTED A FEW WEEKS AGO BY MARALEX. CARLOS LUJAN OF COGCC
 WAS PRESENT DURING SAMPLING. LINER HOLES HAD BEEN TAPED OVER & SPRAYED W/
 POSSIBLE SEDIMENT, WE REMOVED THIS TAPE, SAMPLED UNDERLYING SOILS (AFTER
 CLEANING OUT AND BRUING LOOSE SOILS), BACKFILLED W/ REMOVED SOIL ± SOIL FROM
 TOP OF LINER GRADE AREA; THEN RETAPED HOLES WITH PVC TAPE.

Site Sketch/Sampling Locations



OCTOBER 13, 2015

POCCC - MARALEX RAIN CREEK TREATMENT POND

0830 DEPART WWL ET OFFICE

PERSONNEL: B. SMITH, N. SALOWITZ

WEATHER: CLEAR, CALM, 70-80°F

0902: ARRIVE KENNETH STARR IN
DARRACH, ET MEET CARLOS
LUTER, CULCC

DRIVE TO MARALEX DISPOSAL LLC
"RAIN CREEK TREATMENT POND"
970-563-4000

0925 - 1011 CARLOS GIVES US HISTORY
AND TOUR OF MARALEX POND

1035 SAMPLE RCEP-1

THIS IS SAMPLE COLLECTED IN
4 3/4" Ø x 7" DEEP, SS. SPOON
EXCAVATION UNDER HOLE IN
LINER, ON N SIDE OF PIT
MARKING ON LINER SURFACE IS
"L10 251"

R101310A

1040 ~~R071212A~~ FILE NAME
FOR RCEP-1 SITE

FIRST HORN EXCAVATED HOLE
REMOVED SOIL, THEN COLLECTED
SAMPLE SOIL FROM HOLE UP-
COMMISSURE TO DEPTH OF 6"

1055 SAMPLE RCEP-2

REMOVED TAPE THAT COVERED
HOLE IN LINER. THIS SITE IS
LOCATED IN N-NE QTR OF IMPOUND-
MENT, IT APPEAR HOLE WAS MADE.

SAMPLED HERE HAS BEEN BACKFILLED
W/ LIGHT TAN SILT THAT IS FOUND
ON LINER SURFACE. NICK CLEANED
THIS OUT, AND FOUND DARK-MED
BROWN SOIL UNDERNEATH

1135 SAMPLE RCEP-3S

SURFACE SOIL / SLUDGE IN NE
CORNER OF LINER IMPOUNDMENT.

SAMPLE RCEP-3S CONT'D.

COLLECTED 7 SUBSAMPLES FOR COMPOSITE
SAMPLE AT THIS LOCATION. MODERATELY -
STRONG HYDROCARBON ODOUR.

1155 SAMPLE RCEP-4. LOCATED ~90 FT
EAST OF SW CORNER OF LINED IMPOUND-
MENT ON LINED SLOPE APPROXIMATELY $\frac{3}{5}$
OF WAY UP SLOPE FROM BOTTOM OF POND.
SIMILAR SAMPLING PROCEDURE AS RCEP-1
AND RCEP-2. CLEANED OUT HOLE TO 4-5"
Ø AND 6-8" DEEP, THEN CLEANED SLOPE
AND SAMPLED THIS MATERIAL.

12.17 SAMPLE RCEP-5S. COLLECTED
7 SUBSAMPLES IN SEDIMENT/SLOPE
NORTH CORNER OF IMPOUNDMENT IN
SW CORNER. SUBSAMPLES COLLECTED
AT BOTTOM OF SLOPE WITH ~1 FT OF
STANDING WATER + SALT PPT.

4/6

1245 SAMPLE REEF-65.
LOCATED IN SW CORNER OF IMPOUND-
MENT, COLLECTED 7 SUB SAMPLES,
MIXED SUBSAMPLES IN 1 GALLON
ZIPLOC BAG AND PLACED IN
8 OZ SAMPLE JAR - SAME
PROCEDURE AS OTHER SURFACE
SAMPLES (ABOVE LINEAL). TOOK
PHOTOS OF ALL SUBSAMPLE SITES.

1301 CLOSED EPS FIRE

1325 DEPART FROM MARALEX IMPOUNDMENT
SITE

1417 ARRIVE WWL KS OFFICE
PREP. SAMPLES FOR SHIPPING
AND DO SOIL DESCRIPTIONS.

MARAZEX POUND CREEK EVAPORATION POND
Soil Sample Descriptions

RECP-1: 10 yr 4/6 to 7.5 yr 4/6

DK yellowish brown, well sorted; v. fm. silty sand, SM; non-plastic, moist, silt ~ 10-20%; no gravel; earthy odor.

RECP-2: 10 yr 4/4 to 4/6; dk. yellowish brown; well sorted; v. fm. silty sand; SM; non-plastic, moist, silt ~ 20%, no gravel; earthy odor (no hydrocarbon odor)

RECP-35: 2.5 yr 3/1; dk. olive brown; well sorted, v. fm. sandy silt; SM; ML; sample is very moist; some plasticity, has sheen; silt ~ 20-30%; no gravel; hydrocarbon odor

RECP-4: 10 yr 6/4; dk. yellowish brown; well sorted; v. fm. silty sand; SM, to ML, dry; no plasticity, silt is > 50%; no gravel; possible silt hydrocarbon odor

6/6

RCEP-55; 5 YR 3/2 - DK. OLIVE GRAY;

WELL SORTED; V. FN. SANDY SILT, SM-ML

SAMPLE IS WET, NOT PLASTIC;

SILT - 250%; NO GRUL; HYDROCAR-
BON OIL OR

RCEP-65; 10 YR 4/4 - DK. YELLOWISH

BWN; V. FN. TO FN SANDY SILT; SM;

SILT - 40% SAND - 30%; NO

GRUL; EARTH TO POSSIBLE SILT

HYDROCARBON OIL OR; MOIST, NON-
PLASTIC.

ATTACHMENT C

Laboratory Analytical Summary Report

Monday, October 26, 2015

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

Re: ALS Workorder: 1510215
Project Name: Maralex Roan Creek Evap Pond
Project Number:

Dear Mr. Smith:

Six soil samples were received from Western Water and Land, Inc., on 10/14/2015. The samples were scheduled for the following analyses:

GC/MS Semivolatiles

GC/MS Volatiles

Inorganics

Metals

Total Extractable Petroleum Hydrocarbons (Diesel)

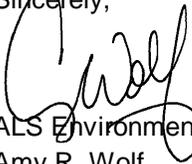
Total Volatile Petroleum Hydrocarbons (Gasoline)

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

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

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

Sincerely,



ALS Environmental
Amy R. Wolf
Project Manager

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

ALS Environmental – Fort Collins	
Accreditation Body	License or Certification Number
Alaska (AK)	UST-086
Alaska (AK)	CO01099
Arizona (AZ)	AZ0742
California (CA)	06251CA
Colorado (CO)	CO01099
Connecticut (CT)	PH-0232
Florida (FL)	E87914
Idaho (ID)	CO01099
Kansas (KS)	E-10381
Kentucky (KY)	90137
L-A-B (DoD ELAP/ISO 170250)	L2257
Maryland (MD)	285
Missouri (MO)	175
Nebraska(NE)	NE-OS-24-13
Nevada (NV)	CO000782008A
New Jersey (NJ)	CO003
New York (NY)	12036
North Dakota (ND)	R-057
Oklahoma (OK)	1301
Pennsylvania (PA)	68-03116
Tennessee (TN)	2976
Texas (TX)	T104704241
Utah (UT)	CO01099
Washington (WA)	C1280



1510215

GC/MS Volatiles:

The samples were analyzed using GC/MS following the current revision of SOP 525 based on SW-846 Method 8260C.

- All internal standard recoveries were within acceptance criteria with the following exceptions:

Internal Standard	Sample	Direction
Fluorobenzene	-3	Low
Chlorobenzene-d5	-3, -5, -6 & -5RR3	Low
1,4-Dichlorobenzene-d4	-3, -5, -6, -5RR2 & -5RR3	Low

Re-analysis of the samples confirmed the original result. This suggests that the outliers were due to matrix effects. No further action was taken.

- Due to the concentration of target analytes, sample -5 was analyzed at a dilution. The reporting limits have been adjusted accordingly.

All remaining acceptance criteria were met.

GC/MS Semivolatiles:

The samples were analyzed using GC/MS following the current revision of SOP 506 based on SW-846 Method 8270D. The samples were analyzed using selective ion monitoring (SIM), in order to achieve lower reporting limits.

- All surrogate recoveries were within acceptance criteria with the following exceptions:

Surrogate	Sample	Direction
Nitrobenzene-D ₅	-5	High
Terphenyl-D ₁₄	-3, -6	High

The outliers were due to obvious matrix effects. No further action was taken.

- All internal standard recoveries were within acceptance criteria with the following exceptions:

Internal Standard	Sample	Direction
Chrysene-D ₁₂	-3, -6	Low



Perylene-D ₁₂	-3, -6	Low
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The outliers were due to obvious matrix effects. No further action was taken.

- Due to the matrix, samples 1510215-3, -5, and -6 had an elevated final volume. The reporting limits have been adjusted accordingly.

All remaining acceptance criteria were met.

GRO:

The samples were analyzed following the current revision of SOP 425 generally based on SW-846 Methods 8000C and 8015D. TVPH 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 C6 to C10.

All matrix spike and matrix spike duplicate recoveries and RPDs were within the acceptance criteria with the following exceptions:

Spiked Compound	QC Sample	Direction
Gasoline range organics	MS/MSD	Low

The recoveries for gasoline range organics in the laboratory control sample and laboratory control sample duplicate were within control limits, which suggest the outlier in the matrix spikes may have been due to matrix effects. No further action was taken. Laboratory control sample and laboratory control sample duplicate results have been included.

All surrogate recoveries were within acceptable limits with the following exceptions:

Surrogate	Sample	Direction
2,3,4-Trifluorotoluene	1510215-3	Low
2,3,4-Trifluorotoluene	1510215-6, -6MS/MSD	Low

The low surrogate result for sample 1510215-3 was confirmed by re-analysis. The low surrogate results for samples 1510215-6, -6MS/MSD confirm each other. The influence of sample matrix effects on the surrogate recoveries is confirmed.

All remaining acceptance criteria were met.

DRO:

The samples were analyzed following the current revision of SOP 406 generally based on SW-846 Methods 8000C and 8015D. TEPH is a multicomponent mixture and is quantitated by summing the entire carbon range, rather than individual peaks. The carbon range integrated in this test extends from C10 to C28.



The matrix spike and matrix spike duplicate were not analyzed due to the high concentration of target analytes in the native sample.

Surrogate recoveries could not be reported for samples 1510215-3, -5, and -6 due to the dilution needed to bring the target analyte into the linear range of the instrument.

All remaining acceptance criteria were met.

Metals:

The samples were analyzed following SW-846, 3rd Edition procedures. Analysis by ICPMS followed method 6020A and the current revision of SOP 827. Mercury analysis by CVAA followed method 7471A and the current revision of SOP 812.

All initial and continuing calibration blanks were below the reporting limit for the requested analytes, with the exception of CCB6 for barium. The samples bracketed by this CCB contained more than ten times the concentration of barium that was detected in the CCB.

All remaining acceptance criteria were met.

Inorganics:

The samples were analyzed following SW-846 and USDA Handbook 60 Chapter 6 procedures for the current revisions of the following SOPs and methods:

<u>Analyte</u>	<u>Method</u>	<u>SOP #</u>
Hexavalent chromium	7196A	1122
Electrical conductivity	USDA60	810 Draft
Sodium Adsorption Ratio	USDA60	810 Draft
Paste pH	USDA60	810 Draft

All remaining acceptance criteria were met.

ALS Environmental -- FC

Sample Number(s) Cross-Reference Table

OrderNum: 1510215

Client Name: Western Water and Land, Inc.

Client Project Name: Maralex Roan Creek Evap Pond

Client Project Number:

Client PO Number:

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
RCEP-1	1510215-1		SOIL	13-Oct-15	10:35
RCEP-2	1510215-2		SOIL	13-Oct-15	10:55
RCEP-3S	1510215-3		SOIL	13-Oct-15	11:35
RCEP-4	1510215-4		SOIL	13-Oct-15	11:55
RCEP-5S	1510215-5		SOIL	13-Oct-15	12:17
RCEP-6S	1510215-6		SOIL	13-Oct-15	12:45
RCEP-1	1510215-7		SatExtract	13-Oct-15	12:45
RCEP-2	1510215-8		SatExtract	13-Oct-15	12:45
RCEP-3S	1510215-9		SatExtract	13-Oct-15	12:45
RCEP-4	1510215-10		SatExtract	13-Oct-15	12:45
RCEP-5S	1510215-11		SatExtract	13-Oct-15	12:45
RCEP-6S	1510215-12		SatExtract	13-Oct-15	12:45



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 20218

PROJECT NAME Mesa Verde Reservoir Exp Pond		SAMPLER BDS	DATE 10-13-15	WORKORDER # 1510215			
PROJECT No.	SITE ID	EDD FORMAT	TURNAROUND 10 Days	PAGE 1 of 3			
COMPANY NAME Western Water + Land	PURCHASE ORDER	BILL TO COMPANY Western Water + Land	DISPOSAL By Lab or Return to Client				
SEND REPORT TO Bruce Smith	INVOICE ATTN TO	INVOICE ATTN TO					
ADDRESS 743 Horizon Ct. Suite 300	ADDRESS	ADDRESS					
CITY / STATE / ZIP Grand Junction, CO 81506	CITY / STATE / ZIP	CITY / STATE / ZIP					
PHONE 970-242-0170	PHONE	PHONE					
FAX 970-242-0270	FAX	FAX					
E-MAIL bsmith@westernwaterandland.com	E-MAIL	E-MAIL					
Lab ID	Field ID	Matrix	Sample Date	Sample Time	# Bottles	Pres.	QC
①	RCEP-1	S	10-13-15	1035	2		
②	RCEP-2	S	10-13-15	1055	2		
③	RCEP-3S	S	10-13-15	1135	2		
④	RCEP-4	S	10-13-15	1155	2		
⑤	RCEP-5S	S	10-13-15	1217	2		
⑥	RCEP-6S	S	10-13-15	1245	2		

See attached
 All table
 GPC-1 analytes

*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:	QC PACKAGE (check below)			
	<input type="checkbox"/>	LEVEL II (Standard QC)		
	<input type="checkbox"/>	LEVEL III (Std QC + forms)		
	<input checked="" type="checkbox"/>	LEVEL IV (Std QC + forms + raw data)		
RELINQUISHED BY	SIGNATURE	PRINTED NAME	DATE	TIME
RECEIVED BY	<i>[Signature]</i>	Nick Selawetz	10-13-15	1700
RELINQUISHED BY	<i>[Signature]</i>	Scott Malley	10-14-15	0915
RECEIVED BY				
RELINQUISHED BY				
RECEIVED BY				

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



ALS Environmental - Fort Collins
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: Western Water

Workorder No: 1510215

Project Manager: ARW

Initials: SDM Date: 10-14-15

1. Does this project require any special handling in addition to standard ALS procedures?		YES	<input checked="" type="radio"/> NO
2. Are custody seals on shipping containers intact?	NONE	<input checked="" type="radio"/> YES	NO
3. Are Custody seals on sample containers intact?	<input checked="" type="radio"/> NONE	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		<input checked="" type="radio"/> YES	NO
5. Are the COC and bottle labels complete and legible?		<input checked="" type="radio"/> YES	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		<input checked="" type="radio"/> YES	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	<input checked="" type="radio"/> YES	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	<input checked="" type="radio"/> N/A	YES	NO
9. Are all aqueous non-preserved samples pH 4-9?	<input checked="" type="radio"/> N/A	YES	NO
10. Is there sufficient sample for the requested analyses?		<input checked="" type="radio"/> YES	NO
11. Were all samples placed in the proper containers for the requested analyses?		<input checked="" type="radio"/> YES	NO
12. Are all samples within holding times for the requested analyses?		<input checked="" type="radio"/> YES	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		<input checked="" type="radio"/> YES	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ___ < green pea ___ > green pea	<input checked="" type="radio"/> N/A	YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ___ dusting ___ moderate ___ heavy	<input checked="" type="radio"/> N/A	YES	NO
16. Were the samples shipped on ice?		<input checked="" type="radio"/> YES	NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: <input checked="" type="radio"/> #2 #4 RAD ONLY		YES	<input checked="" type="radio"/> NO
Cooler #: <u>1</u>			
Temperature (°C): <u>7.2 *</u>			
No. of custody seals on cooler: <u>2</u>			
External µR/hr reading: <u>11</u>			
Background µR/hr reading: <u>10</u>			
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? <input checked="" type="radio"/> YES / NO / NA (If no, see Form 008.)			

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

* proceed with analyses per Bruce in email dated 10/14/15
ARW 10/15/15

If applicable, was the client contacted? YES / NO / NA Contact: Bruce Smith Date/Time: 10/14/15
email
Project Manager Signature / Date: [Signature] 10/15/15

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

SHIP DATE: 13OCT15
ACTWGT: 22.40 LB
CAD: 9622/POS1621
DIMMED: 15 X 13 X 10 IN

BILL 3rd PARTY

1510215

11

TO amy wolf
ALS LABORATORY
225 COMMERCE DR

FORT COLLINS CO 80524

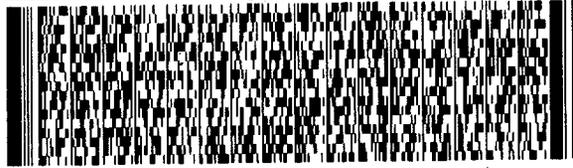
(US)

(970) 490-1511

REF:

DEPT:

INV:
PO:



FedEx
Ground



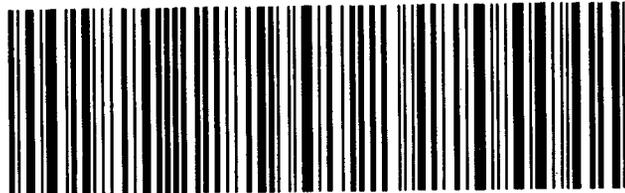
J1520150910011W

7.2°C

TRK# 7815 0887 8588

80524

9622 0417 3 (000 045 7800) 7 00 7815 0887 8588



Client: Western Water and Land, Inc.
 Project: Maralex Roan Creek Evap Pond
 Sample ID: RCEP-1
 Legal Location:
 Collection Date: 10/13/2015 10:35

Date: 26-Oct-15
 Work Order: 1510215
 Lab ID: 1510215-1
 Matrix: SOIL
 Percent Moisture: 9.3

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	MDL	Date Analyzed
DIESEL RANGE ORGANICS							
Diesel Range Organics	9.6	M	SW8015M		Prep Date: 10/19/2015	PrepBy: JFN	
<i>Surr: O-TERPHENYL</i>	90		5.5 MG/KG		1	1.6	10/19/2015 21:07
			49-114 %REC		1		10/19/2015 21:07
GASOLINE RANGE ORGANICS							
GASOLINE RANGE ORGANICS	ND		SW8015		Prep Date: 10/19/2015	PrepBy: JFN	
<i>Surr: 2,3,4-TRIFLUOROTOLUENE</i>	97		0.54 MG/KG		1	0.08	10/19/2015 10:58
			76-126 %REC		1		10/19/2015 10:58
GC/MS SEMI-VOLATILES							
NAPHTHALENE	ND		SW8270SIM		Prep Date: 10/16/2015	PrepBy: BCH	
ACENAPHTHENE	ND		3.6 UG/KG		1	1.1	10/23/2015 13:49
FLUORENE	ND		3.6 UG/KG		1	1.1	10/23/2015 13:49
ANTHRACENE	ND		3.6 UG/KG		1	1.1	10/23/2015 13:49
FLUORANTHENE	ND		3.6 UG/KG		1	1.1	10/23/2015 13:49
PYRENE	ND		3.6 UG/KG		1	1.1	10/23/2015 13:49
BENZO(A)ANTHRACENE	ND		3.6 UG/KG		1	1.1	10/23/2015 13:49
CHRYSENE	ND		3.6 UG/KG		1	1.1	10/23/2015 13:49
BENZO(B)FLUORANTHENE	ND		3.6 UG/KG		1	1.1	10/23/2015 13:49
BENZO(K)FLUORANTHENE	ND		3.6 UG/KG		1	1.1	10/23/2015 13:49
BENZO(A)PYRENE	ND		3.6 UG/KG		1	1.1	10/23/2015 13:49
INDENO(1,2,3-CD)PYRENE	ND		3.6 UG/KG		1	1.1	10/23/2015 13:49
DIBENZO(A,H)ANTHRACENE	ND		3.6 UG/KG		1	1.1	10/23/2015 13:49
<i>Surr: NITROBENZENE-D5</i>	62		28-113 %REC		1		10/23/2015 13:49
<i>Surr: 2-FLUOROBIPHENYL</i>	60		41-106 %REC		1		10/23/2015 13:49
<i>Surr: TERPHENYL-D14</i>	67		25-147 %REC		1		10/23/2015 13:49
GC/MS VOLATILES							
BENZENE	ND		SW8260		Prep Date: 10/20/2015	PrepBy: SDW	
TOLUENE	ND		5.4 UG/KG		1	0.49	10/20/2015 13:05
ETHYLBENZENE	ND		5.4 UG/KG		1	1.6	10/20/2015 13:05
M+P-XYLENE	ND		5.4 UG/KG		1	1.3	10/20/2015 13:05
O-XYLENE	ND		5.4 UG/KG		1	1.6	10/20/2015 13:05
TOTAL XYLENES	ND		5 UG/KG		1		10/20/2015 13:05
<i>Surr: DIBROMOFLUOROMETHANE</i>	106		61-134 %REC		1		10/20/2015 13:05
<i>Surr: TOLUENE-D8</i>	87		57-135 %REC		1		10/20/2015 13:05
<i>Surr: 4-BROMOFLUOROBENZENE</i>	98		52-151 %REC		1		10/20/2015 13:05
HEXAVALENT CHROMIUM							
CHROMIUM VI	0.31		SW7196		Prep Date: 10/26/2015	PrepBy: TLB	
			0.11 MG/KG		1	0.033	10/26/2015
ICPMS METALS							
ARSENIC	5.2		SW6020		Prep Date: 10/15/2015	PrepBy: CDR	
BARIUM	400		0.2 MG/KG		10	0.033	10/19/2015 17:21
BORON	5.9		0.1 MG/KG		10	0.059	10/19/2015 17:21
CADMIUM	0.21		5.1 MG/KG		10	0.75	10/19/2015 17:21
CHROMIUM	6.3		0.031 MG/KG		10	0.017	10/19/2015 17:21
COPPER	15		1 MG/KG		10	0.073	10/19/2015 17:21
			1 MG/KG		10	0.25	10/19/2015 17:21

Client: Western Water and Land, Inc.
Project: Maralex Roan Creek Evap Pond
Sample ID: RCEP-1
Legal Location:
Collection Date: 10/13/2015 10:35

Date: 26-Oct-15
Work Order: 1510215
Lab ID: 1510215-1
Matrix: SOIL
Percent Moisture: 9.3

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	MDL	Date Analyzed
LEAD	9.2		0.051	MG/KG	10	0.019	10/19/2015 17:21
NICKEL	8.5		0.51	MG/KG	10	0.26	10/19/2015 17:21
SELENIUM	0.88		0.1	MG/KG	10	0.037	10/19/2015 17:21
SILVER	0.067		0.01	MG/KG	10	0.0052	10/19/2015 17:21
ZINC	32		2	MG/KG	10	0.43	10/19/2015 17:21
MERCURY			SW7471				Prep Date: 10/15/2015 PrepBy: NAQ
MERCURY	0.019	J	0.036	MG/KG	1	0.0039	10/15/2015 14:08
SODIUM ADSORPTION RATIO			USDA60				Prep Date: 10/21/2015 PrepBy: DMS
PASTE PH	8.2		0.1	pH	1		10/21/2015

Client: Western Water and Land, Inc.
 Project: Maralex Roan Creek Evap Pond
 Sample ID: RCEP-2
 Legal Location:
 Collection Date: 10/13/2015 10:55

Date: 26-Oct-15
 Work Order: 1510215
 Lab ID: 1510215-2
 Matrix: SOIL
 Percent Moisture: 7.8

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	MDL	Date Analyzed
DIESEL RANGE ORGANICS							
Diesel Range Organics	140	MH	SW8015M	5.3	MG/KG	1	10/19/2015 21:38
Surr: O-TERPHENYL	86		49-114	%REC	1		10/19/2015 21:38
GASOLINE RANGE ORGANICS							
GASOLINE RANGE ORGANICS	ND		SW8015	0.51	MG/KG	1	10/19/2015 11:19
Surr: 2,3,4-TRIFLUOROTOLUENE	99		76-126	%REC	1		10/19/2015 11:19
GC/MS SEMI-VOLATILES							
Prep Date: 10/16/2015 PrepBy: BCH							
NAPHTHALENE	ND		SW8270S1M	3.5	UG/KG	1	10/23/2015 14:09
ACENAPHTHENE	ND			3.5	UG/KG	1	10/23/2015 14:09
FLUORENE	ND			3.5	UG/KG	1	10/23/2015 14:09
ANTHRACENE	1.9	J		3.5	UG/KG	1	10/23/2015 14:09
FLUORANTHENE	4.5			3.5	UG/KG	1	10/23/2015 14:09
PYRENE	7.2			3.5	UG/KG	1	10/23/2015 14:09
BENZO(A)ANTHRACENE	ND			3.5	UG/KG	1	10/23/2015 14:09
CHRYSENE	15			3.5	UG/KG	1	10/23/2015 14:09
BENZO(B)FLUORANTHENE	2.5	J		3.5	UG/KG	1	10/23/2015 14:09
BENZO(K)FLUORANTHENE	ND			3.5	UG/KG	1	10/23/2015 14:09
BENZO(A)PYRENE	ND			3.5	UG/KG	1	10/23/2015 14:09
INDENO(1,2,3-CD)PYRENE	ND			3.5	UG/KG	1	10/23/2015 14:09
DIBENZO(A,H)ANTHRACENE	ND			3.5	UG/KG	1	10/23/2015 14:09
Surr: NITROBENZENE-D5	59		28-113	%REC	1		10/23/2015 14:09
Surr: 2-FLUOROBIPHENYL	58		41-106	%REC	1		10/23/2015 14:09
Surr: TERPHENYL-D14	59		25-147	%REC	1		10/23/2015 14:09
GC/MS VOLATILES							
Prep Date: 10/20/2015 PrepBy: SDW							
BENZENE	ND		SW8260	5.1	UG/KG	1	10/20/2015 13:31
TOLUENE	ND			5.1	UG/KG	1	10/20/2015 13:31
ETHYLBENZENE	ND			5.1	UG/KG	1	10/20/2015 13:31
M+P-XYLENE	ND			5.1	UG/KG	1	10/20/2015 13:31
O-XYLENE	ND			5.1	UG/KG	1	10/20/2015 13:31
TOTAL XYLENES	ND			5	UG/KG	1	10/20/2015 13:31
Surr: DIBROMOFLUOROMETHANE	103		61-134	%REC	1		10/20/2015 13:31
Surr: TOLUENE-D8	88		57-135	%REC	1		10/20/2015 13:31
Surr: 4-BROMOFLUOROBENZENE	96		52-151	%REC	1		10/20/2015 13:31
HEXAVALENT CHROMIUM							
CHROMIUM VI	0.16		SW7196	0.11	MG/KG	1	10/26/2015
ICPMS METALS							
Prep Date: 10/15/2015 PrepBy: CDR							
ARSENIC	3.6		SW6020	0.21	MG/KG	10	10/19/2015 17:25
BARIUM	870			0.11	MG/KG	10	10/19/2015 17:25
BORON	44			5.3	MG/KG	10	10/19/2015 17:25
CADMIUM	0.19			0.032	MG/KG	10	10/19/2015 17:25
CHROMIUM	6.5			1.1	MG/KG	10	10/19/2015 17:25
COPPER	12			1.1	MG/KG	10	10/19/2015 17:25

Client: Western Water and Land, Inc.
 Project: Maralex Roan Creek Evap Pond
 Sample ID: RCEP-2
 Legal Location:
 Collection Date: 10/13/2015 10:55

Date: 26-Oct-15
 Work Order: 1510215
 Lab ID: 1510215-2
 Matrix: SOIL
 Percent Moisture: 7.8

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	MDL	Date Analyzed
LEAD	8.5		0.053	MG/KG	10	0.02	10/19/2015 17:25
NICKEL	9.7		0.53	MG/KG	10	0.27	10/19/2015 17:25
SELENIUM	0.92		0.11	MG/KG	10	0.039	10/19/2015 17:25
SILVER	0.017		0.011	MG/KG	10	0.0054	10/19/2015 17:25
ZINC	38		2.1	MG/KG	10	0.45	10/19/2015 17:25
MERCURY			SW7471				Prep Date: 10/15/2015 PrepBy: NAQ
MERCURY	0.011	J	0.035	MG/KG	1	0.0038	10/15/2015 14:23
SODIUM ADSORPTION RATIO			USDA60				Prep Date: 10/21/2015 PrepBy: DMS
PASTE PH	9.1		0.1	pH	1		10/21/2015

Client: Western Water and Land, Inc.
 Project: Maralex Roan Creek Evap Pond
 Sample ID: RCEP-3S
 Legal Location:
 Collection Date: 10/13/2015 11:35

Date: 26-Oct-15
 Work Order: 1510215
 Lab ID: 1510215-3
 Matrix: SOIL
 Percent Moisture: 17.9

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	MDL	Date Analyzed
DIESEL RANGE ORGANICS			SW8015M		Prep Date: 10/19/2015 PrepBy: JFN		
Diesel Range Organics	50000	MH	1200	MG/KG	200	360	10/20/2015 09:06
Surr: O-TERPHENYL		X	49-114	%REC	200		10/20/2015 09:06
GASOLINE RANGE ORGANICS			SW8015		Prep Date: 10/19/2015 PrepBy: JFN		
GASOLINE RANGE ORGANICS	8.2	ZG	0.59	MG/KG	1	0.089	10/19/2015 11:41
Surr: 2,3,4-TRIFLUOROTOLUENE	42	*	76-126	%REC	1		10/19/2015 11:41
GC/MS SEMI-VOLATILES			SW8270SIM		Prep Date: 10/22/2015 PrepBy: BCH		
NAPHTHALENE	170		120	UG/KG	1	36	10/23/2015 16:55
ACENAPHTHENE	ND		120	UG/KG	1	36	10/23/2015 16:55
FLUORENE	930		120	UG/KG	1	36	10/23/2015 16:55
ANTHRACENE	ND		120	UG/KG	1	36	10/23/2015 16:55
FLUORANTHENE	ND		120	UG/KG	1	36	10/23/2015 16:55
PYRENE	ND		120	UG/KG	1	36	10/23/2015 16:55
BENZO(A)ANTHRACENE	ND		120	UG/KG	1	36	10/23/2015 16:55
CHRYSENE	1000		120	UG/KG	1	36	10/23/2015 16:55
BENZO(B)FLUORANTHENE	ND		120	UG/KG	1	36	10/23/2015 16:55
BENZO(K)FLUORANTHENE	ND		120	UG/KG	1	36	10/23/2015 16:55
BENZO(A)PYRENE	ND		120	UG/KG	1	36	10/23/2015 16:55
INDENO(1,2,3-CD)PYRENE	ND		120	UG/KG	1	36	10/23/2015 16:55
DIBENZO(A,H)ANTHRACENE	ND		120	UG/KG	1	36	10/23/2015 16:55
Surr: NITROBENZENE-D5	69		28-113	%REC	1		10/23/2015 16:55
Surr: 2-FLUOROBIPHENYL	88		41-106	%REC	1		10/23/2015 16:55
Surr: TERPHENYL-D14	154	*	25-147	%REC	1		10/23/2015 16:55
GC/MS VOLATILES			SW8260		Prep Date: 10/20/2015 PrepBy: SDW		
BENZENE	1.6	J	5.9	UG/KG	1	0.53	10/20/2015 13:53
TOLUENE	44		5.9	UG/KG	1	1.8	10/20/2015 13:53
ETHYLBENZENE	8.9		5.9	UG/KG	1	1.8	10/20/2015 13:53
M+P-XYLENE	110		5.9	UG/KG	1	1.4	10/20/2015 13:53
O-XYLENE	22		5.9	UG/KG	1	1.8	10/20/2015 13:53
TOTAL XYLENES	130		5	UG/KG	1		10/20/2015 13:53
Surr: DIBROMOFLUOROMETHANE	131		61-134	%REC	1		10/20/2015 13:53
Surr: TOLUENE-D8	134		57-135	%REC	1		10/20/2015 13:53
Surr: 4-BROMOFLUOROBENZENE	53		52-151	%REC	1		10/20/2015 13:53
HEXAVALENT CHROMIUM			SW7196		Prep Date: 10/26/2015 PrepBy: TLB		
CHROMIUM VI	1.6		0.12	MG/KG	1	0.037	10/26/2015
ICPMS METALS			SW6020		Prep Date: 10/15/2015 PrepBy: CDR		
ARSENIC	2.1		0.22	MG/KG	10	0.037	10/19/2015 17:28
BARIUM	41000		5.6	MG/KG	500	3.2	10/19/2015 18:02
BORON	57		5.6	MG/KG	10	0.83	10/19/2015 17:28
CADMIUM	0.069		0.034	MG/KG	10	0.019	10/19/2015 17:28
CHROMIUM	11		1.1	MG/KG	10	0.08	10/19/2015 17:28
COPPER	13		1.1	MG/KG	10	0.27	10/19/2015 17:28

Client: Western Water and Land, Inc.
Project: Maralex Roan Creek Evap Pond
Sample ID: RCEP-3S
Legal Location:
Collection Date: 10/13/2015 11:35

Date: 26-Oct-15
Work Order: 1510215
Lab ID: 1510215-3
Matrix: SOIL
Percent Moisture: 17.9

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	MDL	Date Analyzed
LEAD	12		0.056	MG/KG	10	0.021	10/19/2015 17:28
NICKEL	12		0.56	MG/KG	10	0.28	10/19/2015 17:28
SELENIUM	0.36		0.11	MG/KG	10	0.041	10/19/2015 17:28
SILVER	0.021		0.011	MG/KG	10	0.0057	10/19/2015 17:28
ZINC	73		2.2	MG/KG	10	0.47	10/19/2015 17:28
MERCURY			SW7471				Prep Date: 10/15/2015 PrepBy: NAQ
MERCURY	0.32		0.036	MG/KG	1	0.0039	10/15/2015 14:25
SODIUM ADSORPTION RATIO			USDA60				Prep Date: 10/21/2015 PrepBy: DMS
PASTE PH	9.1		0.1	pH	1		10/21/2015

ALS Environmental -- FC

SAMPLE SUMMARY REPORT

Client: Western Water and Land, Inc.
 Project: Maralex Roan Creek Evap Pond
 Sample ID: RCEP-4
 Legal Location:
 Collection Date: 10/13/2015 11:55

Date: 26-Oct-15
 Work Order: 1510215
 Lab ID: 1510215-4
 Matrix: SOIL
 Percent Moisture: 4.7

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	MDL	Date Analyzed
DIESEL RANGE ORGANICS			SW8015M				
Diesel Range Organics	4.6	J	5.2	MG/KG	1	1.6	10/19/2015 22:09
Surr: O-TERPHENYL	84		49-114	%REC	1		10/19/2015 22:09
GASOLINE RANGE ORGANICS			SW8015				
GASOLINE RANGE ORGANICS	ND		0.5	MG/KG	1	0.076	10/19/2015 12:02
Surr: 2,3,4-TRIFLUOROTOLUENE	95		76-126	%REC	1		10/19/2015 12:02
GC/MS SEMI-VOLATILES			SW8270SIM				
NAPHTHALENE	ND		3.5	UG/KG	1	1	10/23/2015 14:29
ACENAPHTHENE	ND		3.5	UG/KG	1	1	10/23/2015 14:29
FLUORENE	ND		3.5	UG/KG	1	1	10/23/2015 14:29
ANTHRACENE	ND		3.5	UG/KG	1	1	10/23/2015 14:29
FLUORANTHENE	ND		3.5	UG/KG	1	1	10/23/2015 14:29
PYRENE	ND		3.5	UG/KG	1	1	10/23/2015 14:29
BENZO(A)ANTHRACENE	ND		3.5	UG/KG	1	1	10/23/2015 14:29
CHRYSENE	ND		3.5	UG/KG	1	1	10/23/2015 14:29
BENZO(B)FLUORANTHENE	ND		3.5	UG/KG	1	1	10/23/2015 14:29
BENZO(K)FLUORANTHENE	ND		3.5	UG/KG	1	1	10/23/2015 14:29
BENZO(A)PYRENE	ND		3.5	UG/KG	1	1	10/23/2015 14:29
INDENO(1,2,3-CD)PYRENE	ND		3.5	UG/KG	1	1	10/23/2015 14:29
DIBENZO(A,H)ANTHRACENE	ND		3.5	UG/KG	1	1	10/23/2015 14:29
Surr: NITROBENZENE-D5	66		28-113	%REC	1		10/23/2015 14:29
Surr: 2-FLUOROBIPHENYL	63		41-106	%REC	1		10/23/2015 14:29
Surr: TERPHENYL-D14	66		25-147	%REC	1		10/23/2015 14:29
GC/MS VOLATILES			SW8260				
BENZENE	ND		5.1	UG/KG	1	0.46	10/20/2015 14:20
TOLUENE	3.5	J	5.1	UG/KG	1	1.5	10/20/2015 14:20
ETHYLBENZENE	ND		5.1	UG/KG	1	1.5	10/20/2015 14:20
M+P-XYLENE	ND		5.1	UG/KG	1	1.2	10/20/2015 14:20
O-XYLENE	ND		5.1	UG/KG	1	1.5	10/20/2015 14:20
TOTAL XYLENES	ND		5	UG/KG	1		10/20/2015 14:20
Surr: DIBROMOFLUOROMETHANE	105		61-134	%REC	1		10/20/2015 14:20
Surr: TOLUENE-D8	88		57-135	%REC	1		10/20/2015 14:20
Surr: 4-BROMOFLUOROBENZENE	96		52-151	%REC	1		10/20/2015 14:20
HEXAVALENT CHROMIUM			SW7196				
CHROMIUM VI	0.24		0.1	MG/KG	1	0.031	10/26/2015
ICPMS METALS			SW6020				
ARSENIC	5.9		0.2	MG/KG	10	0.033	10/19/2015 17:32
BARIUM	500		0.099	MG/KG	10	0.058	10/19/2015 17:32
BORON	7.5		5	MG/KG	10	0.73	10/19/2015 17:32
CADMIUM	0.33		0.03	MG/KG	10	0.017	10/19/2015 17:32
CHROMIUM	7.2		0.99	MG/KG	10	0.071	10/19/2015 17:32
COPPER	16		0.99	MG/KG	10	0.24	10/19/2015 17:32

Client: Western Water and Land, Inc.
Project: Maralex Roan Creek Evap Pond
Sample ID: RCEP-4
Legal Location:
Collection Date: 10/13/2015 11:55

Date: 26-Oct-15
Work Order: 1510215
Lab ID: 1510215-4
Matrix: SOIL
Percent Moisture: 4.7

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	MDL	Date Analyzed
LEAD	10		0.05	MG/KG	10	0.019	10/19/2015 17:32
NICKEL	10		0.5	MG/KG	10	0.25	10/19/2015 17:32
SELENIUM	1.3		0.099	MG/KG	10	0.036	10/19/2015 17:32
SILVER	0.057		0.0099	MG/KG	10	0.005	10/19/2015 17:32
ZINC	39		2	MG/KG	10	0.42	10/19/2015 17:32
MERCURY			SW7471				Prep Date: 10/15/2015 PrepBy: NAQ
MERCURY	0.02	J	0.034	MG/KG	1	0.0036	10/15/2015 14:27
SODIUM ADSORPTION RATIO			USDA60				Prep Date: 10/21/2015 PrepBy: DMS
PASTE PH	7.8		0.1	pH	1		10/21/2015

Client: Western Water and Land, Inc.
Project: Maralex Roan Creek Evap Pond
Sample ID: RCEP-5S
Legal Location:
Collection Date: 10/13/2015 12:17

Date: 26-Oct-15
Work Order: 1510215
Lab ID: 1510215-5
Matrix: SOIL
Percent Moisture: 24.7

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	MDL	Date Analyzed
DIESEL RANGE ORGANICS			SW8015M		Prep Date: 10/19/2015 PrepBy: JFN		
Diesel Range Organics	29000	DMH	1200	MG/KG	200	370	10/20/2015 09:37
Surr: O-TERPHENYL		X	49-114	%REC	200		10/20/2015 09:37
GASOLINE RANGE ORGANICS			SW8015		Prep Date: 10/19/2015 PrepBy: JFN		
GASOLINE RANGE ORGANICS	150	ZG	11	MG/KG	80	1.6	10/19/2015 15:59
Surr: 2,3,4-TRIFLUOROTOLUENE	96		76-126	%REC	80		10/19/2015 15:59
GC/MS SEMI-VOLATILES			SW8270SIM		Prep Date: 10/22/2015 PrepBy: BCH		
NAPHTHALENE	270		100	UG/KG	1	31	10/23/2015 15:51
ACENAPHTHENE	ND		100	UG/KG	1	31	10/23/2015 15:51
FLUORENE	580		100	UG/KG	1	31	10/23/2015 15:51
ANTHRACENE	ND		100	UG/KG	1	31	10/23/2015 15:51
FLUORANTHENE	ND		100	UG/KG	1	31	10/23/2015 15:51
PYRENE	ND		100	UG/KG	1	31	10/23/2015 15:51
BENZO(A)ANTHRACENE	ND		100	UG/KG	1	31	10/23/2015 15:51
CHRYSENE	480		100	UG/KG	1	31	10/23/2015 15:51
BENZO(B)FLUORANTHENE	ND		100	UG/KG	1	31	10/23/2015 15:51
BENZO(K)FLUORANTHENE	ND		100	UG/KG	1	31	10/23/2015 15:51
BENZO(A)PYRENE	ND		100	UG/KG	1	31	10/23/2015 15:51
INDENO(1,2,3-CD)PYRENE	ND		100	UG/KG	1	31	10/23/2015 15:51
DIBENZO(A,H)ANTHRACENE	ND		100	UG/KG	1	31	10/23/2015 15:51
Surr: NITROBENZENE-D5	150	*	28-113	%REC	1		10/23/2015 15:51
Surr: 2-FLUOROBIPHENYL	81		41-106	%REC	1		10/23/2015 15:51
Surr: TERPHENYL-D14	143		25-147	%REC	1		10/23/2015 15:51
GC/MS VOLATILES			SW8260		Prep Date: 10/20/2015 PrepBy: SDW		
BENZENE	5.4	J	6	UG/KG	1	0.54	10/20/2015 14:44
BENZENE	ND		270	UG/KG	50	24	10/20/2015 19:47
BENZENE	ND		71	UG/KG	1	6.4	10/21/2015 12:52
BENZENE	7.2	J	25	UG/KG	1	2.2	10/21/2015 13:14
TOLUENE	410		71	UG/KG	1	21	10/21/2015 12:52
TOLUENE	390		25	UG/KG	1	7.4	10/21/2015 13:14
TOLUENE	170	J	270	UG/KG	50	81	10/20/2015 19:47
TOLUENE	380	E	6	UG/KG	1	1.8	10/20/2015 14:44
ETHYLBENZENE	130		25	UG/KG	1	7.4	10/21/2015 13:14
ETHYLBENZENE	170		71	UG/KG	1	21	10/21/2015 12:52
ETHYLBENZENE	ND		270	UG/KG	50	81	10/20/2015 19:47
ETHYLBENZENE	110		6	UG/KG	1	1.8	10/20/2015 14:44
M+P-XYLENE	2000	E	25	UG/KG	1	5.9	10/21/2015 13:14
M+P-XYLENE	1300		270	UG/KG	50	65	10/20/2015 19:47
M+P-XYLENE	1400	E	6	UG/KG	1	1.5	10/20/2015 14:44
M+P-XYLENE	2600		71	UG/KG	1	17	10/21/2015 12:52
O-XYLENE	420		71	UG/KG	1	21	10/21/2015 12:52
O-XYLENE	200	J	270	UG/KG	50	81	10/20/2015 19:47
O-XYLENE	300		25	UG/KG	1	7.4	10/21/2015 13:14

Client: Western Water and Land, Inc.
 Project: Maralex Roan Creek Evap Pond
 Sample ID: RCEP-5S
 Legal Location:
 Collection Date: 10/13/2015 12:17

Date: 26-Oct-15
 Work Order: 1510215
 Lab ID: 1510215-5
 Matrix: SOIL
 Percent Moisture: 24.7

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	MDL	Date Analyzed
O-XYLENE	220	E	6	UG/KG	1	1.8	10/20/2015 14:44
TOTAL XYLENES	3000		5	UG/KG	1		10/21/2015 13:14
TOTAL XYLENES	3000		5	UG/KG	1		10/21/2015 12:52
TOTAL XYLENES	3000		5	UG/KG	1		10/20/2015 14:44
TOTAL XYLENES	3000		5	UG/KG	1		10/20/2015 19:47
Surr: DIBROMOFLUOROMETHANE	129		61-134	%REC	1		10/20/2015 14:44
Surr: DIBROMOFLUOROMETHANE	95		61-134	%REC	1		10/21/2015 12:52
Surr: DIBROMOFLUOROMETHANE	110		61-134	%REC	1		10/21/2015 13:14
Surr: DIBROMOFLUOROMETHANE	99		61-134	%REC	50		10/20/2015 19:47
Surr: TOLUENE-D8	88		57-135	%REC	50		10/20/2015 19:47
Surr: TOLUENE-D8	95		57-135	%REC	1		10/21/2015 12:52
Surr: TOLUENE-D8	127		57-135	%REC	1		10/20/2015 14:44
Surr: TOLUENE-D8	101		57-135	%REC	1		10/21/2015 13:14
Surr: 4-BROMOFLUOROBENZENE	96		52-151	%REC	50		10/20/2015 19:47
Surr: 4-BROMOFLUOROBENZENE	78		52-151	%REC	1		10/21/2015 12:52
Surr: 4-BROMOFLUOROBENZENE	77		52-151	%REC	1		10/21/2015 13:14
Surr: 4-BROMOFLUOROBENZENE	53		52-151	%REC	1		10/20/2015 14:44
HEXAVALENT CHROMIUM			SW7196				Prep Date: 10/26/2015 PrepBy: TLB
CHROMIUM VI	1.6		0.13	MG/KG	1	0.04	10/26/2015
ICPMS METALS			SW6020				Prep Date: 10/15/2015 PrepBy: CDR
ARSENIC	2.4		0.25	MG/KG	10	0.041	10/19/2015 17:35
BARIUM	36000		6.2	MG/KG	500	3.6	10/19/2015 17:59
BORON	52		6.2	MG/KG	10	0.92	10/19/2015 17:35
CADMIUM	0.14		0.037	MG/KG	10	0.021	10/19/2015 17:35
CHROMIUM	8		1.2	MG/KG	10	0.089	10/19/2015 17:35
COPPER	9.8		1.2	MG/KG	10	0.3	10/19/2015 17:35
LEAD	7.4		0.062	MG/KG	10	0.023	10/19/2015 17:35
NICKEL	9		0.62	MG/KG	10	0.32	10/19/2015 17:35
SELENIUM	0.41		0.12	MG/KG	10	0.046	10/19/2015 17:35
SILVER	0.021		0.012	MG/KG	10	0.0063	10/19/2015 17:35
ZINC	48		2.5	MG/KG	10	0.52	10/19/2015 17:35
MERCURY			SW7471				Prep Date: 10/15/2015 PrepBy: NAQ
MERCURY	0.15		0.043	MG/KG	1	0.0047	10/15/2015 14:30
SODIUM ADSORPTION RATIO			USDA60				Prep Date: 10/21/2015 PrepBy: DMS
PASTE PH	9.3		0.1	pH	1		10/21/2015

Client: Western Water and Land, Inc.
 Project: Maralex Roan Creek Evap Pond
 Sample ID: RCEP-6S
 Legal Location:
 Collection Date: 10/13/2015 12:45

Date: 26-Oct-15
 Work Order: 1510215
 Lab ID: 1510215-6
 Matrix: SOIL
 Percent Moisture: 14.7

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	MDL	Date Analyzed
DIESEL RANGE ORGANICS			SW8015M		Prep Date: 10/19/2015 PrepBy: JFN		
Diesel Range Organics	36000	MH	1200	MG/KG	200	350	10/20/2015 10:08
Surr: O-TERPHENYL		X	49-114	%REC	200		10/20/2015 10:08
GASOLINE RANGE ORGANICS			SW8015		Prep Date: 10/19/2015 PrepBy: JFN		
GASOLINE RANGE ORGANICS	1.9	H	0.55	MG/KG	1	0.082	10/19/2015 13:06
Surr: 2,3,4-TRIFLUOROTOLUENE	46	*	76-126	%REC	1		10/19/2015 13:06
GC/MS SEMI-VOLATILES			SW8270SIM		Prep Date: 10/22/2015 PrepBy: BCH		
NAPHTHALENE	290		93	UG/KG	1	28	10/23/2015 16:15
ACENAPHTHENE	92	J	93	UG/KG	1	28	10/23/2015 16:15
FLUORENE	ND		93	UG/KG	1	28	10/23/2015 16:15
ANTHRACENE	ND		93	UG/KG	1	28	10/23/2015 16:15
FLUORANTHENE	ND		93	UG/KG	1	28	10/23/2015 16:15
PYRENE	ND		93	UG/KG	1	28	10/23/2015 16:15
BENZO(A)ANTHRACENE	ND		93	UG/KG	1	28	10/23/2015 16:15
CHRYSENE	1100		93	UG/KG	1	28	10/23/2015 16:15
BENZO(B)FLUORANTHENE	ND		93	UG/KG	1	28	10/23/2015 16:15
BENZO(K)FLUORANTHENE	ND		93	UG/KG	1	28	10/23/2015 16:15
BENZO(A)PYRENE	ND		93	UG/KG	1	28	10/23/2015 16:15
INDENO(1,2,3-CD)PYRENE	ND		93	UG/KG	1	28	10/23/2015 16:15
DIBENZO(A,H)ANTHRACENE	ND		93	UG/KG	1	28	10/23/2015 16:15
Surr: NITROBENZENE-D5	73		28-113	%REC	1		10/23/2015 16:15
Surr: 2-FLUOROBIPHENYL	86		41-106	%REC	1		10/23/2015 16:15
Surr: TERPHENYL-D14	157	*	25-147	%REC	1		10/23/2015 16:15
GC/MS VOLATILES			SW8260		Prep Date: 10/20/2015 PrepBy: SDW		
BENZENE	ND		5.6	UG/KG	1	0.5	10/20/2015 15:12
TOLUENE	17		5.6	UG/KG	1	1.7	10/20/2015 15:12
ETHYLBENZENE	ND		5.6	UG/KG	1	1.7	10/20/2015 15:12
M+P-XYLENE	28		5.6	UG/KG	1	1.3	10/20/2015 15:12
O-XYLENE	6.6		5.6	UG/KG	1	1.7	10/20/2015 15:12
TOTAL XYLENES	35		5	UG/KG	1		10/20/2015 15:12
Surr: DIBROMOFLUOROMETHANE	120		61-134	%REC	1		10/20/2015 15:12
Surr: TOLUENE-D8	116		57-135	%REC	1		10/20/2015 15:12
Surr: 4-BROMOFLUOROBENZENE	63		52-151	%REC	1		10/20/2015 15:12
HEXAVALENT CHROMIUM			SW7196		Prep Date: 10/26/2015 PrepBy: TLB		
CHROMIUM VI	1		0.12	MG/KG	1	0.035	10/26/2015
ICPMS METALS			SW6020		Prep Date: 10/15/2015 PrepBy: CDR		
ARSENIC	5.1		0.22	MG/KG	10	0.036	10/19/2015 17:38
BARIUM	38000		5.6	MG/KG	500	3.2	10/19/2015 17:55
BORON	38		5.6	MG/KG	10	0.82	10/19/2015 17:38
CADMIUM	0.2		0.033	MG/KG	10	0.019	10/19/2015 17:38
CHROMIUM	27		1.1	MG/KG	10	0.08	10/19/2015 17:38
COPPER	45		1.1	MG/KG	10	0.27	10/19/2015 17:38

Client: Western Water and Land, Inc.
Project: Maralex Roan Creek Evap Pond
Sample ID: RCEP-6S
Legal Location:
Collection Date: 10/13/2015 12:45

Date: 26-Oct-15
Work Order: 1510215
Lab ID: 1510215-6
Matrix: SOIL
Percent Moisture: 14.7

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	MDL	Date Analyzed
LEAD	43		0.056	MG/KG	10	0.021	10/19/2015 17:38
NICKEL	23		0.56	MG/KG	10	0.28	10/19/2015 17:38
SELENIUM	0.54		0.11	MG/KG	10	0.041	10/19/2015 17:38
SILVER	0.062		0.011	MG/KG	10	0.0057	10/19/2015 17:38
ZINC	110		2.2	MG/KG	10	0.47	10/19/2015 17:38
MERCURY			SW7471				Prep Date: 10/15/2015 PrepBy: NAQ
MERCURY	0.91		0.035	MG/KG	1	0.0038	10/15/2015 14:32
SODIUM ADSORPTION RATIO			USDA60				Prep Date: 10/21/2015 PrepBy: DMS
PASTE PH	8.8		0.1	pH	1		10/21/2015

Client: Western Water and Land, Inc.
Project: Maralex Roan Creek Evap Pond
Sample ID: RCEP-1
Legal Location:
Collection Date: 10/13/2015 12:45

Date: 26-Oct-15
Work Order: 1510215
Lab ID: 1510215-7
Matrix: SATEXTRACT
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	MDL	Date Analyzed
ICP METALS							
			USDA60		Prep Date: 10/15/2015		PrepBy: SMW
CALCIUM	350		10	MG/L	10	0.00024	10/19/2015 12:20
MAGNESIUM	130		10	MG/L	10	0.00027	10/19/2015 12:20
SODIUM	1600		100	MG/L	100	0.0049	10/19/2015 12:38
SODIUM ADSORPTION RATIO							
			USDA60		Prep Date: 10/21/2015		PrepBy: DMS
ELECTRICAL CONDUCTIVITY @ SATURATION	1100		1	umhos/cm	10		10/21/2015
SODIUM ADSORPTION RATIO	18		5.4	NU	100	0.051	10/19/2015 12:38

Client: Western Water and Land, Inc.
Project: Maralex Roan Creek Evap Pond
Sample ID: RCEP-2
Legal Location:
Collection Date: 10/13/2015 12:45

Date: 26-Oct-15
Work Order: 1510215
Lab ID: 1510215-8
Matrix: SATEXTRACT
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	MDL	Date Analyzed
ICP METALS							
			USDA60				Prep Date: 10/15/2015 PrepBy: SMW
CALCIUM	ND		10	MG/L	10	0.00024	10/19/2015 12:21
MAGNESIUM	ND		10	MG/L	10	0.00027	10/19/2015 12:21
SODIUM	36000		1000	MG/L	1000	0.049	10/19/2015 13:20
SODIUM ADSORPTION RATIO							
			USDA60				Prep Date: 10/21/2015 PrepBy: DMS
ELECTRICAL CONDUCTIVITY @ SATURATION	17000		1	umhos/cm	10		10/21/2015
SODIUM ADSORPTION RATIO	1900	S	54	NU	1000	0.51	10/19/2015 13:20

Client: Western Water and Land, Inc.
Project: Maralex Roan Creek Evap Pond
Sample ID: RCEP-3S
Legal Location:
Collection Date: 10/13/2015 12:45

Date: 26-Oct-15
Work Order: 1510215
Lab ID: 1510215-9
Matrix: SATEXTRACT
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	MDL	Date Analyzed
ICP METALS							
			USDA60				Prep Date: 10/15/2015 PrepBy: SMW
CALCIUM	15		10	MG/L	10	0.00024	10/19/2015 12:22
MAGNESIUM	ND		10	MG/L	10	0.00027	10/19/2015 12:22
SODIUM	21000		1000	MG/L	1000	0.049	10/19/2015 13:21
SODIUM ADSORPTION RATIO							
			USDA60				Prep Date: 10/21/2015 PrepBy: DMS
ELECTRICAL CONDUCTIVITY @ SATURATION	9800		1	umhos/cm	10		10/21/2015
SODIUM ADSORPTION RATIO	1000	S	54	NU	1000	0.51	10/19/2015 13:21

Client: Western Water and Land, Inc.
Project: Maralex Roan Creek Evap Pond
Sample ID: RCEP-4
Legal Location:
Collection Date: 10/13/2015 12:45

Date: 26-Oct-15
Work Order: 1510215
Lab ID: 1510215-10
Matrix: SATEXTRACT
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	MDL	Date Analyzed
ICP METALS			USDA60		Prep Date: 10/15/2015		PrepBy: SMW
CALCIUM	380		10	MG/L	10	0.00024	10/19/2015 12:23
MAGNESIUM	130		10	MG/L	10	0.00027	10/19/2015 12:23
SODIUM	1800		100	MG/L	100	0.0049	10/19/2015 12:41
SODIUM ADSORPTION RATIO			USDA60		Prep Date: 10/21/2015		PrepBy: DMS
ELECTRICAL CONDUCTIVITY @ SATURATION	1100		1	umhos/cm	10		10/21/2015
SODIUM ADSORPTION RATIO	20		5.4	NU	100	0.051	10/19/2015 12:41

Client: Western Water and Land, Inc.
Project: Maralex Roan Creek Evap Pond
Sample ID: RCEP-5S
Legal Location:
Collection Date: 10/13/2015 12:45

Date: 26-Oct-15
Work Order: 1510215
Lab ID: 1510215-11
Matrix: SATEXTRACT
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	MDL	Date Analyzed
ICP METALS							
			USDA60			Prep Date: 10/15/2015	PrepBy: SMW
CALCIUM	ND		10	MG/L	10	0.00024	10/19/2015 12:24
MAGNESIUM	ND		10	MG/L	10	0.00027	10/19/2015 12:24
SODIUM	70000		1000	MG/L	1000	0.049	10/19/2015 13:22
SODIUM ADSORPTION RATIO							
			USDA60			Prep Date: 10/21/2015	PrepBy: DMS
ELECTRICAL CONDUCTIVITY @ SATURATION	31000		1	umhos/cm	10		10/21/2015
SODIUM ADSORPTION RATIO	3700	S	54	NU	1000	0.51	10/19/2015 13:22

Client: Western Water and Land, Inc.
Project: Maralex Roan Creek Evap Pond
Sample ID: RCEP-6S
Legal Location:
Collection Date: 10/13/2015 12:45

Date: 26-Oct-15
Work Order: 1510215
Lab ID: 1510215-12
Matrix: SATEXTRACT
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	MDL	Date Analyzed
ICP METALS			USDA60		Prep Date: 10/15/2015		PrepBy: SMW
CALCIUM	ND		10	MG/L	10	0.00024	10/19/2015 12:25
MAGNESIUM	ND		10	MG/L	10	0.00027	10/19/2015 12:25
SODIUM	3000		100	MG/L	100	0.0049	10/19/2015 12:45
SODIUM ADSORPTION RATIO			USDA60		Prep Date: 10/21/2015		PrepBy: DMS
ELECTRICAL CONDUCTIVITY @ SATURATION	1400		1	umhos/cm	10		10/21/2015
SODIUM ADSORPTION RATIO	160	S	5.4	NU	100	0.051	10/19/2015 12:45

Client: Western Water and Land, Inc.
Project: Maralex Roan Creek Evap Pond
Sample ID: RCEP-6S
Legal Location:
Collection Date: 10/13/2015 12:45

Date: 26-Oct-15
Work Order: 1510215
Lab ID: 1510215-12
Matrix: SATEXTRACT
Percent Moisture:

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	MDL	Date Analyzed
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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.
- S - SAR value is estimated as one or more analytes used in the calculation were not detected above the detection limit.

Organics:

- U or ND - Indicates that the compound was analyzed for but not detected.
- B - Analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user.
- E - Analyte concentration exceeds the upper level of the calibration range.
- J - Estimated value. The result is less than the reporting limit but greater than the instrument method detection limit (MDL).
- A - A tentatively identified compound is a suspected aldol-condensation product.
- X - The analyte was diluted below an accurate quantitation level.
- * - The spike recovery is equal to or outside the control criteria used.
- + - The relative percent difference (RPD) equals or exceeds the control criteria.
- G - A pattern resembling gasoline was detected in this sample.
- D - A pattern resembling diesel was detected in this sample.
- M - A pattern resembling motor oil was detected in this sample.
- C - A pattern resembling crude oil was detected in this sample.
- 4 - A pattern resembling JP-4 was detected in this sample.
- 5 - A pattern resembling JP-5 was detected in this sample.
- H - Indicates that the fuel pattern was in the heavier end of the retention time window for the analyte of interest.
- L - Indicates that the fuel pattern was in the lighter end of the retention time window for the analyte of interest.
- Z - This flag indicates that a significant fraction of the reported result did not resemble the patterns of any of the following petroleum hydrocarbon products:
 - gasoline
 - JP-8
 - diesel
 - mineral spirits
 - motor oil
 - Stoddard solvent
 - bunker C

ALS Environmental -- FC

Date: 10/26/2015 6:05

Client: Western Water and Land, Inc.

QC BATCH REPORT

Work Order: 1510215

Project: Maralex Roan Creek Evap Pond

Batch ID: **HC151019-61-1**

Instrument ID **FUELS-1**

Method: **SW8015**

LCS		Sample ID: HC151019-61			Units: MG/KG			Analysis Date: 10/19/2015 08:38				
Client ID:		Run ID: HC151019-6A			Prep Date: 10/19/2015			DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual	
GASOLINE RANGE ORGANICS	2.24	0.5	2.5		90	79-118				20		
Surr: 2,3,4-TRIFLUOROTOLUENE	0.426		0.5		85	76-126						

LCSD		Sample ID: HC151019-61			Units: MG/KG			Analysis Date: 10/19/2015 16:38				
Client ID:		Run ID: HC151019-6A			Prep Date: 10/19/2015			DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual	
GASOLINE RANGE ORGANICS	2.36	0.5	2.5		94	79-118		2.24	5	20		
Surr: 2,3,4-TRIFLUOROTOLUENE	0.572		0.5		114	76-126			29			

MB		Sample ID: HC151019-61			Units: MG/KG			Analysis Date: 10/19/2015 08:59				
Client ID:		Run ID: HC151019-6A			Prep Date: 10/19/2015			DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual	
GASOLINE RANGE ORGANICS	ND	0.5										
Surr: 2,3,4-TRIFLUOROTOLUENE	0.47		0.5		94	76-126						

MB		Sample ID: HC151019-61M			Units: MG/KG			Analysis Date: 10/19/2015 14:54				
Client ID:		Run ID: HC151019-6A			Prep Date: 10/19/2015			DF: 50				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual	
GASOLINE RANGE ORGANICS	ND	5										
Surr: 2,3,4-TRIFLUOROTOLUENE	4.7		5		94	76-126						

MS		Sample ID: 1510215-6			Units: MG/KG			Analysis Date: 10/19/2015 13:28				
Client ID: RCEP-6S		Run ID: HC151019-6A			Prep Date: 10/19/2015			DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual	
GASOLINE RANGE ORGANICS	2.68	0.496	2.48	1.9	31	79-118				40	*	
Surr: 2,3,4-TRIFLUOROTOLUENE	0.2		0.496		40	76-126					*	

Client: Western Water and Land, Inc.
 Work Order: 1510215
 Project: Maralex Roan Creek Evap Pond

QC BATCH REPORT

Batch ID: **HC151019-61-1** Instrument ID **FUELS-1** Method: **SW8015**

MSD Sample ID: **1510215-6** Units: **MG/KG** Analysis Date: **10/19/2015 13:49**
 Client ID: **RCEP-6S** Run ID: **HC151019-6A** Prep Date: **10/19/2015** DF: **1**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
GASOLINE RANGE ORGANICS	2.98	0.492	2.46	1.9	43	79-118		2.68	10	40	*
Surr: 2,3,4-TRIFLUOROTOLUENE	0.198		0.492		40	76-126			1		*

The following samples were analyzed in this batch:

1510215-1	1510215-2	1510215-3
1510215-4	1510215-5	1510215-6

Client: Western Water and Land, Inc.
 Work Order: 1510215
 Project: Maralex Roan Creek Evap Pond

QC BATCH REPORT

Batch ID: **HC151019-100-1** Instrument ID **FUELS-1** Method: **SW8015M**

LCS		Sample ID: HC151019-100			Units: MG/KG		Analysis Date: 10/19/2015 19:35				
Client ID:		Run ID: HC151019-7A			Prep Date: 10/19/2015		DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
Diesel Range Organics	129	5	125		103	76-124				20	
Surr: O-TERPHENYL	5.26		6.25		84	49-114					

MB		Sample ID: HC151019-100			Units: MG/KG		Analysis Date: 10/19/2015 15:27				
Client ID:		Run ID: HC151019-7A			Prep Date: 10/19/2015		DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
Diesel Range Organics	ND	5									
Surr: O-TERPHENYL	4.55		6.25		73	49-114					

The following samples were analyzed in this batch:

1510215-1	1510215-2	1510215-4
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Client: Western Water and Land, Inc.
 Work Order: 1510215
 Project: Maralex Roan Creek Evap Pond

QC BATCH REPORT

Batch ID: **HG151015-1-1** Instrument ID **CETAC7500** Method: **SW7471**

DUP		Sample ID: 1510215-1		Units: MG/KG			Analysis Date: 10/15/2015 14:12				
Client ID: RCEP-1		Run ID: HG151015-2A2			Prep Date: 10/15/2015			DF: 1			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
MERCURY	0.0166	0.0365						0.019		20	J

LCS		Sample ID: HG151015-1		Units: MG/KG			Analysis Date: 10/15/2015 13:59				
Client ID:		Run ID: HG151015-2A2			Prep Date: 10/15/2015			DF: 1			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
MERCURY	0.169	0.0333	0.167		102	80-120				20	

MB		Sample ID: HG151015-1		Units: MG/KG			Analysis Date: 10/15/2015 13:57				
Client ID:		Run ID: HG151015-2A2			Prep Date: 10/15/2015			DF: 1			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
MERCURY	ND	0.033									

MS		Sample ID: 1510215-1		Units: MG/KG			Analysis Date: 10/15/2015 14:14				
Client ID: RCEP-1		Run ID: HG151015-2A2			Prep Date: 10/15/2015			DF: 1			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
MERCURY	0.393	0.0363	0.363	0.019	103	80-120				20	

MSD		Sample ID: 1510215-1		Units: MG/KG			Analysis Date: 10/15/2015 14:21				
Client ID: RCEP-1		Run ID: HG151015-2A2			Prep Date: 10/15/2015			DF: 1			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
MERCURY	0.389	0.0362	0.362	0.019	102	80-120		0.393	1	20	

The following samples were analyzed in this batch:

1510215-1	1510215-2	1510215-3
1510215-4	1510215-5	1510215-6

Client: Western Water and Land, Inc.
 Work Order: 1510215
 Project: Maralex Roan Creek Evap Pond

QC BATCH REPORT

Batch ID: **IP151015-1-3** Instrument ID **ICPMS2** Method: **SW6020**

LCS		Sample ID: IM151015-1			Units: MG/KG		Analysis Date: 10/19/2015 15:40				
Client ID:		Run ID: IM151019-10A11			Prep Date: 10/15/2015		DF: 10				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
ARSENIC	9.67	0.2	10		97	80-120				20	
BARIUM	11	0.1	10		110	80-120				20	
BORON	96.7	5	100		97	80-120				20	
CADMIUM	3.11	0.03	3		104	80-120				20	
CHROMIUM	49.6	1	50		99	80-120				20	
COPPER	101	1	100		101	80-120				20	
LEAD	4.9	0.05	5		98	80-120				20	
NICKEL	50.5	0.5	50		101	80-120				20	
SELENIUM	9.56	0.1	10		96	80-120				20	
SILVER	1.06	0.01	1		106	80-120				20	
ZINC	201	2	200		100	80-120				20	

MB		Sample ID: IP151015-1			Units: MG/KG		Analysis Date: 10/19/2015 15:37				
Client ID:		Run ID: IM151019-10A11			Prep Date: 10/15/2015		DF: 10				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
ARSENIC	ND	0.2									
BARIUM	0.067	0.1									J
BORON	1.1	5									J
CADMIUM	ND	0.03									
CHROMIUM	ND	1									
COPPER	ND	1									
LEAD	0.034	0.05									J
NICKEL	ND	0.5									
SELENIUM	ND	0.1									
SILVER	ND	0.01									
ZINC	ND	2									

The following samples were analyzed in this batch:

1510215-1	1510215-2	1510215-3
1510215-4	1510215-5	1510215-6

Client: Western Water and Land, Inc.
Work Order: 1510215
Project: Maralex Roan Creek Evap Pond

QC BATCH REPORT

Batch ID: **PH151021-1-1** Instrument ID **pH-1** Method: **USDA60**

CCV	Sample ID: CCV1					Units: pH	Analysis Date: 10/21/2015				
Client ID:		Run ID: pH151021-1A1					Prep Date: 10/21/2015		DF: 1		
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
PASTE PH	6.99	0.1	7			6.9-7.1					

ICV	Sample ID: ICV					Units: pH	Analysis Date: 10/21/2015				
Client ID:		Run ID: pH151021-1A1					Prep Date: 10/21/2015		DF: 1		
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
PASTE PH	7.05	0.1	7			6.95-7.05					

The following samples were analyzed in this batch:

1510215-1	1510215-2	1510215-3
1510215-4	1510215-5	1510215-6

Client: Western Water and Land, Inc.
 Work Order: 1510215
 Project: Maralex Roan Creek Evap Pond

QC BATCH REPORT

Batch ID: **SC151021-1-1** Instrument ID **pH-1** Method: **USDA60**

CCV	Sample ID: CCV1	Units: umhos/cm			Analysis Date: 10/21/2015						
Client ID:	Run ID: SC151021-1A1	Prep Date: 10/21/2015		DF: 1							
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
ELECTRICAL CONDUCTIVITY @ SATURATION	1400	1	1410		99	1270-1550					

ICV	Sample ID: ICV	Units: umhos/cm			Analysis Date: 10/21/2015						
Client ID:	Run ID: SC151021-1A1	Prep Date: 10/21/2015		DF: 1							
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
ELECTRICAL CONDUCTIVITY @ SATURATION	700	1	718		97	646-790					

The following samples were analyzed in this batch:

1510215-7	1510215-8	1510215-9
1510215-10	1510215-11	1510215-12

Client: Western Water and Land, Inc.
 Work Order: 1510215
 Project: Maralex Roan Creek Evap Pond

QC BATCH REPORT

Batch ID: EX151016-5-2 Instrument ID HPSV1 Method: SW8270SIM

LCS		Sample ID: EX151016-5		Units: UG/KG			Analysis Date: 10/23/2015 12:27				
Client ID:		Run ID: SV151023-2			Prep Date: 10/16/2015			DF: 1			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
NAPHTHALENE	46.7	3.33	66.7		70	40-107				30	
ACENAPHTHENE	45.6	3.33	66.7		68	46-108				30	
FLUORENE	48.8	3.33	66.7		73	49-108				30	
ANTHRACENE	47.5	3.33	66.7		71	53-107				30	
FLUORANTHENE	51	3.33	66.7		77	54-114				30	
PYRENE	43.6	3.33	66.7		65	46-123				30	
BENZO(A)ANTHRACENE	53.4	3.33	66.7		80	52-111				30	
CHRYSENE	49.9	3.33	66.7		75	53-112				30	
BENZO(B)FLUORANTHENE	53.9	3.33	66.7		81	45-114				30	
BENZO(K)FLUORANTHENE	46.4	3.33	66.7		70	45-123				30	
BENZO(A)PYRENE	52.3	3.33	66.7		78	50-111				30	
INDENO(1,2,3-CD)PYRENE	55.2	3.33	66.7		83	38-121				30	
DIBENZO(A,H)ANTHRACENE	58.4	3.33	66.7		88	41-125				30	
Surr: NITROBENZENE-D5	46.9		66.7		70	28-113					
Surr: 2-FLUOROBIPHENYL	44		66.7		66	41-106					
Surr: TERPHENYL-D14	46		66.7		69	25-147					

MB		Sample ID: EX151016-5		Units: UG/KG			Analysis Date: 10/23/2015 12:07				
Client ID:		Run ID: SV151023-2			Prep Date: 10/16/2015			DF: 1			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
NAPHTHALENE	ND	3.3									
ACENAPHTHENE	ND	3.3									
FLUORENE	ND	3.3									
ANTHRACENE	ND	3.3									
FLUORANTHENE	ND	3.3									
PYRENE	ND	3.3									
BENZO(A)ANTHRACENE	ND	3.3									
CHRYSENE	ND	3.3									
BENZO(B)FLUORANTHENE	ND	3.3									
BENZO(K)FLUORANTHENE	ND	3.3									
BENZO(A)PYRENE	ND	3.3									
INDENO(1,2,3-CD)PYRENE	ND	3.3									
DIBENZO(A,H)ANTHRACENE	ND	3.3									
Surr: NITROBENZENE-D5	47.8		66.7		72	28-113					
Surr: 2-FLUOROBIPHENYL	44.5		66.7		67	41-106					
Surr: TERPHENYL-D14	45.9		66.7		69	25-147					

Client: Western Water and Land, Inc.
 Work Order: 1510215
 Project: Maralex Roan Creek Evap Pond

QC BATCH REPORT

Batch ID: EX151022-5-2 Instrument ID HPSV1 Method: SW8270SIM

LCS		Sample ID: EX151022-5			Units: UG/KG			Analysis Date: 10/23/2015 13:08			
Client ID:		Run ID: SV151023-2			Prep Date: 10/22/2015			DF: 1			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
NAPHTHALENE	46	3.33	66.7		69	40-107				30	
ACENAPHTHENE	45.4	3.33	66.7		68	46-108				30	
FLUORENE	47.8	3.33	66.7		72	49-108				30	
ANTHRACENE	47.5	3.33	66.7		71	53-107				30	
FLUORANTHENE	50.5	3.33	66.7		76	54-114				30	
PYRENE	45	3.33	66.7		67	46-123				30	
BENZO(A)ANTHRACENE	53.1	3.33	66.7		80	52-111				30	
CHRYSENE	48.8	3.33	66.7		73	53-112				30	
BENZO(B)FLUORANTHENE	53.6	3.33	66.7		80	45-114				30	
BENZO(K)FLUORANTHENE	46.9	3.33	66.7		70	45-123				30	
BENZO(A)PYRENE	52.4	3.33	66.7		79	50-111				30	
INDENO(1,2,3-CD)PYRENE	49.7	3.33	66.7		75	38-121				30	
DIBENZO(A,H)ANTHRACENE	52.9	3.33	66.7		79	41-125				30	
Surr: NITROBENZENE-D5	46		66.7		69	28-113					
Surr: 2-FLUOROBIPHENYL	44.2		66.7		66	41-106					
Surr: TERPHENYL-D14	48.6		66.7		73	25-147					

MB		Sample ID: EX151022-5			Units: UG/KG			Analysis Date: 10/23/2015 13:28			
Client ID:		Run ID: SV151023-2			Prep Date: 10/22/2015			DF: 1			
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
NAPHTHALENE	ND	3.3									
ACENAPHTHENE	ND	3.3									
FLUORENE	ND	3.3									
ANTHRACENE	ND	3.3									
FLUORANTHENE	ND	3.3									
PYRENE	ND	3.3									
BENZO(A)ANTHRACENE	ND	3.3									
CHRYSENE	ND	3.3									
BENZO(B)FLUORANTHENE	ND	3.3									
BENZO(K)FLUORANTHENE	ND	3.3									
BENZO(A)PYRENE	ND	3.3									
INDENO(1,2,3-CD)PYRENE	ND	3.3									
DIBENZO(A,H)ANTHRACENE	ND	3.3									
Surr: NITROBENZENE-D5	42.6		66.7		64	28-113					
Surr: 2-FLUOROBIPHENYL	41.5		66.7		62	41-106					
Surr: TERPHENYL-D14	47.7		66.7		72	25-147					

The following samples were analyzed in this batch:

1510215-1	1510215-2	1510215-3
1510215-4	1510215-5	1510215-6

Client: Western Water and Land, Inc.
 Work Order: 1510215
 Project: Maralex Roan Creek Evap Pond

QC BATCH REPORT

Batch ID: VL151020-2-1 Instrument ID: HPV1 Method: SW8260

LCS		Sample ID: VL151020-2			Units: UG/KG		Analysis Date: 10/20/2015 11:35				
Client ID:		Run ID: VL151020-2A			Prep Date: 10/20/2015		DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
BENZENE	41.7	5	40		104	73-126				30	
TOLUENE	37	5	40		92	71-127				30	
ETHYLBENZENE	36.5	5	40		91	74-127				30	
M+P-XYLENE	76.1	5	80		95	79-126				30	
O-XYLENE	38.3	5	40		96	77-125				30	
Surr: DIBROMOFLUOROMETHANE	50		50		100	61-134					
Surr: TOLUENE-D8	43.5		50		87	57-135					
Surr: 4-BROMOFLUOROBENZENE	49.6		50		99	52-151					

LCSD		Sample ID: VL151020-2			Units: UG/KG		Analysis Date: 10/20/2015 11:58				
Client ID:		Run ID: VL151020-2A			Prep Date: 10/20/2015		DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
BENZENE	44.3	5	40		111	73-126		41.7	6	30	
TOLUENE	37.1	5	40		93	71-127		37	1	30	
ETHYLBENZENE	37.2	5	40		93	74-127		36.5	2	30	
M+P-XYLENE	77.7	5	80		97	79-126		76.1	2	30	
O-XYLENE	37.8	5	40		94	77-125		38.3	1	30	
Surr: DIBROMOFLUOROMETHANE	52.6		50		105	61-134			5		
Surr: TOLUENE-D8	42.6		50		85	57-135			2		
Surr: 4-BROMOFLUOROBENZENE	49.2		50		98	52-151			1		

MB		Sample ID: VL151020-2			Units: UG/KG		Analysis Date: 10/20/2015 12:22				
Client ID:		Run ID: VL151020-2A			Prep Date: 10/20/2015		DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
BENZENE	ND	5									
TOLUENE	ND	5									
ETHYLBENZENE	ND	5									
M+P-XYLENE	ND	5									
O-XYLENE	ND	5									
TOTAL XYLENES	ND	5									
Surr: DIBROMOFLUOROMETHANE	49.6		50		99	61-134					
Surr: TOLUENE-D8	44.2		50		88	57-135					
Surr: 4-BROMOFLUOROBENZENE	47.6		50		95	52-151					

Client: Western Water and Land, Inc.
Work Order: 1510215
Project: Maralex Roan Creek Evap Pond

QC BATCH REPORT

Batch ID: **VL151020-2-2** Instrument ID **HPV1** Method: **SW8260**

MB Sample ID: **VL151020-2M** Units: **UG/KG** Analysis Date: **10/20/2015 12:44**
 Client ID: Run ID: **VL151020-2A** Prep Date: **10/20/2015** DF: **50**

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
BENZENE	ND	250									
TOLUENE	ND	250									
ETHYLBENZENE	ND	250									
M+P-XYLENE	ND	250									
O-XYLENE	ND	250									
TOTAL XYLENES	ND	5									
Surr: DIBROMOFLUOROMETHANE	2570		2500		103	61-134					
Surr: TOLUENE-D8	2180		2500		87	57-135					
Surr: 4-BROMOFLUOROBENZENE	2450		2500		98	52-151					

The following samples were analyzed in this batch:

1510215-1	1510215-2	1510215-3
1510215-4	1510215-5	1510215-6

Client: Western Water and Land, Inc.
 Work Order: 1510215
 Project: Maralex Roan Creek Evap Pond

QC BATCH REPORT

Batch ID: VL151021-2-1 Instrument ID: HPV1 Method: SW8260

LCS		Sample ID: VL151021-2			Units: UG/KG		Analysis Date: 10/21/2015 11:47				
Client ID:		Run ID: VL151021-2A			Prep Date: 10/21/2015		DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
BENZENE	41.9	5	40		105	73-126				30	
TOLUENE	36.2	5	40		90	71-127				30	
ETHYLBENZENE	36.3	5	40		91	74-127				30	
M+P-XYLENE	74.8	5	80		93	79-126				30	
O-XYLENE	37.5	5	40		94	77-125				30	
Surr: DIBROMOFLUOROMETHANE	52.7		50		105	61-134					
Surr: TOLUENE-D8	43.5		50		87	57-135					
Surr: 4-BROMOFLUOROBENZENE	47.8		50		96	52-151					

LCSD		Sample ID: VL151021-2			Units: UG/KG		Analysis Date: 10/21/2015 12:09				
Client ID:		Run ID: VL151021-2A			Prep Date: 10/21/2015		DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
BENZENE	41.4	5	40		103	73-126		41.9	1	30	
TOLUENE	35.3	5	40		88	71-127		36.2	3	30	
ETHYLBENZENE	35.4	5	40		88	74-127		36.3	3	30	
M+P-XYLENE	73.1	5	80		91	79-126		74.8	2	30	
O-XYLENE	36	5	40		90	77-125		37.5	4	30	
Surr: DIBROMOFLUOROMETHANE	51.6		50		103	61-134			2		
Surr: TOLUENE-D8	42.3		50		85	57-135			3		
Surr: 4-BROMOFLUOROBENZENE	47.6		50		95	52-151			0		

MB		Sample ID: VL151021-2			Units: UG/KG		Analysis Date: 10/21/2015 12:31				
Client ID:		Run ID: VL151021-2A			Prep Date: 10/21/2015		DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
BENZENE	ND	5									
TOLUENE	ND	5									
ETHYLBENZENE	ND	5									
M+P-XYLENE	ND	5									
O-XYLENE	ND	5									
TOTAL XYLENES	ND	5									
Surr: DIBROMOFLUOROMETHANE	51.2		50		102	61-134					
Surr: TOLUENE-D8	43.9		50		88	57-135					
Surr: 4-BROMOFLUOROBENZENE	47.9		50		96	52-151					

The following samples were analyzed in this batch:

Client: Western Water and Land, Inc.
 Work Order: 1510215
 Project: Maralex Roan Creek Evap Pond

QC BATCH REPORT

Batch ID: CR151026-1-1 Instrument ID Spec Method: SW7196

LCS		Sample ID: CR151026-1			Units: MG/KG		Analysis Date: 10/26/2015				
Client ID:		Run ID: CR151026-1A2			Prep Date: 10/26/2015		DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
CHROMIUM VI	2.6	0.1	3		87	80-120				20	

MB		Sample ID: CR151026-1			Units: MG/KG		Analysis Date: 10/26/2015				
Client ID:		Run ID: CR151026-1A2			Prep Date: 10/26/2015		DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
CHROMIUM VI	ND	0.1									

MS		Sample ID: 1510215-1			Units: MG/KG		Analysis Date: 10/26/2015				
Client ID: RCEP-1		Run ID: CR151026-1A2			Prep Date: 10/26/2015		DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
CHROMIUM VI	1.29	0.11	1.1	0.31	89	75-125				20	

MSD		Sample ID: 1510215-1			Units: MG/KG		Analysis Date: 10/26/2015				
Client ID: RCEP-1		Run ID: CR151026-1A2			Prep Date: 10/26/2015		DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	Decision Level	RPD Ref	RPD	RPD Limit	Qual
CHROMIUM VI	1.36	0.11	1.1	0.31	95	75-125		1.29	5	20	

The following samples were analyzed in this batch:

1510215-1	1510215-2	1510215-3
1510215-4	1510215-5	1510215-6

ATTACHMENT D

Summary of Analytical Results

ATTACHMENT D
Analytical Summary
Maralex Road Creek Evaporation Pond Soil and Sediment Samples

Sample ID Sample Date	RCEP-1 10/13/2015			RCEP-2 10/13/2015			RCEP-3S 10/13/2015			RCEP-4 10/13/2015			RCEP-5S 10/13/2015			RCEP-6S 10/13/2015			COGCC Table 910-1		
	Analyte	Units	Result	Qual	DF	Result	Qual	DF	Result	Qual	DF	Result	Qual	DF	Result	Qual	DF	Result	Qual	DF	Concentration Levels
METALS																					
ARSENIC	MG/KG	5.2		10	3.6		10	2.1		10	5.9		10	2.4		10	5.1		10	0.39	
BARIUM	MG/KG	400		10	870		10	41000		500	500		10	36000		500	38000		500	15,000	
BORON	MG/KG	5.9		10	44		10	57		10	7.5		10	52		10	38		10	2	
CADMIUM	MG/KG	0.21		10	0.19		10	0.069		10	0.33		10	0.14		10	0.2		10	70	
CHROMIUM	MG/KG	6.3		10	6.5		10	11		10	7.2		10	8		10	27		10	See notes	
COPPER	MG/KG	15		10	12		10	13		10	16		10	9.8		10	45		10	3,100	
LEAD	MG/KG	9.2		10	8.5		10	12		10	10		10	7.4		10	43		10	400	
MERCURY	MG/KG	0.019	J	1	0.011	J	1	0.32		1	0.02	J	1	0.15		1	0.91		1	23	
NICKEL	MG/KG	8.5		10	9.7		10	12		10	10		10	9		10	23		10	1,600	
SELENIUM	MG/KG	0.88		10	0.92		10	0.36		10	1.3		10	0.41		10	0.54		10	390	
SILVER	MG/KG	0.067		10	0.017		10	0.021		10	0.057		10	0.021		10	0.062		10	390	
ZINC	MG/KG	32		10	38		10	73		10	39		10	48		10	110		10	23,000	
COMMON IONS																					
CALCIUM	MG/L	350		10	0.00024	U	10	15		10	380		10	0.00024	U	10	0.00024	U	10	---	
MAGNESIUM	MG/L	130		10	0.00027	U	10	0.00027	U	10	130		10	0.00027	U	10	0.00027	U	10	---	
SODIUM	MG/L	1600		100	36000		1000	21000		1000	1800		100	70000		1000	3000		100	---	
SODIUM ADSORPTION RATIO	NU	18		100	1900	S	1000	1000	S	1000	20		100	3700	S	1000	160	S	100	<12	
SVOC																					
Diesel Range Organics	MG/KG	9.6	M	1	140	MH	1	50000	MH	200	4.6	J	1	29000	DMH	200	36000	MH	200	500 ¹	
GASOLINE RANGE ORGANICS	MG/KG	0.54	U	1	0.51	U	1	8.2	ZG	1	0.5	U	1	150	ZG	80	1.9	H	1	500 ¹	
ACENAPHTHENE	MG/KG	3.6	U	1	3.5	U	1	120	U	1	3.5	U	1	100	U	1	92	J	1	1,000	
ANTHRACENE	MG/KG	3.6	U	1	1.9	J	1	120	U	1	3.5	U	1	100	U	1	93	U	1	1,000	
BENZO(A)ANTHRACENE	MG/KG	3.6	U	1	3.5	U	1	120	U	1	3.5	U	1	100	U	1	93	U	1	0.22	
BENZO(A)PYRENE	MG/KG	3.6	U	1	3.5	U	1	120	U	1	3.5	U	1	100	U	1	93	U	1	0.022	
BENZO(B)FLUORANTHENE	MG/KG	3.6	U	1	2.5	J	1	120	U	1	3.5	U	1	100	U	1	93	U	1	0.22	
BENZO(K)FLUORANTHENE	MG/KG	3.6	U	1	3.5	U	1	120	U	1	3.5	U	1	100	U	1	93	U	1	2.20	
CHRYSENE	MG/KG	3.6	U	1	15		1	1000		1	3.5	U	1	480		1	1100		1	22	
DIBENZO(A,H)ANTHRACENE	MG/KG	3.6	U	1	3.5	U	1	120	U	1	3.5	U	1	100	U	1	93	U	1	0.022	
FLUORANTHENE	MG/KG	3.6	U	1	4.5		1	120	U	1	3.5	U	1	100	U	1	93	U	1	1,000	
FLUORENE	MG/KG	3.6	U	1	3.5	U	1	930		1	3.5	U	1	580		1	93	U	1	1,000	
INDENO(1,2,3-CD)PYRENE	MG/KG	3.6	U	1	3.5	U	1	120	U	1	3.5	U	1	100	U	1	93	U	1	0.22	
NAPHTHALENE	MG/KG	3.6	U	1	3.5	U	1	170		1	3.5	U	1	270		1	290		1	23	
PYRENE	MG/KG	3.6	U	1	7.2		1	120	U	1	3.5	U	1	100	U	1	93	U	1	1,000	
VOC																					
BENZENE	MG/KG	5.4	U	1	5.1	U	1	1.6	J	1	5.1	U	1	5.4	J	1	5.6	U	1	0.17	
ETHYLBENZENE	MG/KG	5.4	U	1	5.1	U	1	8.9		1	5.1	U	1	110		1	5.6	U	1	100	
M+P-XYLENE	MG/KG	5.4	U	1	5.1	U	1	110		1	5.1	U	1	1300		50	28		1	---	
O-XYLENE	MG/KG	5.4	U	1	5.1	U	1	22		1	5.1	U	1	200	J	50	6.6		1	---	
TOLUENE	MG/KG	5.4	U	1	5.1	U	1	44		1	3.5	J	1	170	J	50	17		1	85	
TOTAL XYLENES	MG/KG	5	U	1	5	U	1	130		1	5	U	1	3000		1	35		1	175	
WETCHEM																					
CHROMIUM VI	MG/KG	0.31		1	0.16		1	1.6		1	0.24		1	1.6		1	1		1	23	
PASTE PH	PH	8.2		1	9.1		1	9.1		1	7.8		1	9.3		1	8.8		1	6 - 9	
ELECTRICAL CONDUCTIVITY @ SATURATION	UMHOS/CM	1100		10	17000		10	9800		10	1100		10	31000		10	1400		10	<4 or 2 x Background	

Notes
¹ Concentration level for TPH
U = analyte not detected at the MDL
J = analyte detected between the MDL and PRL, estimated
M = a pattern resembling motor oil was detected
D = a pattern resembling diesel was detected
H = Indicates that fuel pattern was in the heavier end of the retention time window for the analyte of interest
S = SAR value is estimated as one or more analytes used in the calculation were not detected above the detection limit
G = A pattern resembling gasoline was detected in this sample
Z = 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

Chromium (III) Standard: 120,000 mg/kg
Chromium (VI) Standard: 23 mg/kg