

State of Colorado
Oil and Gas Conservation Commission



1120 Lincoln Street, Suite 801, Denver, Colorado 80203 (303)894-2100 Fax: (303)894-2109

FOR OGCC USE ONLY

REM 9368

Document 2144720

Date 11/18/2015

SITE INVESTIGATION AND REMEDIATION WORKPLAN

This form shall be submitted to the Director for approval prior to the initiation of site investigation and remediation activities. Form 27 is intended to be used whenever possible. Additional documentation will be required when large volumes of soil and groundwater have been impacted or involve large facilities with multiple source areas. See Rule 910. Attach as many pages as needed to fully describe the proposed work.

CAUSE OF CONDITION BEING INVESTIGATED AND REMEDIATED

☐ Spill or Release ☐ Plug & Abandon ☐ Central Facility Closure ☐ Site/Facility Closure ☒ Other (describe): Non-Permitted Pit Closure

OGCC Employee:

☐ Spill ☐ Complaint
☐ Inspection ☐ NOAV

Tracking No:

OGCC Operator Number: 6720

Name of Operator: Robert L. Bayless

Address: 2700 N. Farmington Ave. Building F, Suite 1

City: Farmington State: NM Zip: 87401

Contact Name and Telephone:

John Thomas

No: 505-326-2659

Fax:

API Number: 05-081-06668

County: Craig

Facility Name: Zimmerman/Chamberlin 1

Facility Number: 313011 / 116724

Well Name: Zimmerman/Chamberlin

Well Number: 1

Location: (QtrQtr, Sec, Twp, Rng, Meridian): SWSE, Sec 4, T6N, R91W Latitude: 40.502648 Longitude: -107.608442

TECHNICAL CONDITIONS

Type of Waste Causing Impact (crude oil, condensate, produced water, etc): None Known

Site Conditions: Is location within a sensitive area (according to Rule 901e)? ☐ Y ☒ N If yes, attach evaluation.

Adjacent land use (cultivated, irrigated, dry land farming, industrial, residential, etc.): Non-cropland

Soil type, if not previously identified on Form 2A or Federal Surface Use Plan: Forelle-Evanot Complet, 1-12% Slope

Potential receptors (water wells within 1/4 mi, surface waters, etc.): groundwater well located approximately 740ft to the east.

Description of Impact (if previously provided, refer to that form or document):

Impacted Media (check):

- ☐ Soils
☐ Vegetation
☐ Groundwater
☐ Surface Water

Extent of Impact:

No impacts observed

How Determined:

Analytical testing

REMEDIAL WORKPLAN

Describe initial action taken (if previously provided, refer to that form or document):

See attached report

Describe how source is to be removed:

See attached report

Describe how remediation of existing impacts is to be accomplished, including removal and disposal at an injection well or licensed facility, land treatment on site, removal of impacted groundwater, insitu bioremediation, burning of oily vegetation, etc.:

See attached report



Page 2
REMEDIATION WORKPLAN (Cont.)

Tracking Number: _____
Name of Operator: Bayless
OGCC Operator No: 6720
Received Date: 11/18/15
Well Name & No: _____
Facility Name & No: Zimmerman Chamberlain 1

OGCC Employee: _____

If groundwater has been impacted, describe proposed monitoring plan (# of wells or sample points, sampling schedule, analytical methods, etc.):

See attached report

Describe reclamation plan. Discuss existing and new grade recontouring; method and testing of compaction alleviation; and reseeding program, including location of new seed, seed mix and noxious weed prevention. Attach diagram or drawing. Use additional sheet for description if required.

See attached report

Attach samples and analytical results taken to verify remediation of impacts. Show locations of samples on an onsite schematic or drawing.

Is further site investigation required? ☐ Y ☒ N If yes, describe:

See attached report

Final disposition of E&P waste (landtreated and disposed onsite, name of licensed disposal facility, recycling, reuse, etc.):

See attached report

IMPLEMENTATION SCHEDULE

Date Site Investigation Began: Sept 28, 2015 Date Site Investigation Completed: Sept 28, 2015 Date Remediation Plan Submitted: N/A
Remediation Start Date: N/A Anticipated Completion Date: N/A Actual Completion Date: N/A

I hereby certify that the statements made in this form are, to the best of my knowledge, true, correct, and complete.

Print Name: John D Thomas Signed: [Signature]
Title: Production & Asset Manager Date: 11/18/2015

OGCC Approved: [Signature] Title: EPS Date: 11/25/15

This form is notice of work completed

***ROBERT L. BAYLESS PRODUCER
CRAIG FIELD
NOTICE OF COMPLETION REPORT FOR
ZIMMERMAN/CHAMBERLIN 1 PIT***

Prepared For:



2700 Farmington Avenue
Building F, Suite 1
Farmington, New Mexico 87401

Prepared By:



HRL COMPLIANCE SOLUTIONS, INC.
Environmental Consultants

2385 F ½ RD
Grand Junction, CO81505
Phone: 970-243-3271
Fax: 970-243-3280

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Introduction

The purpose of this Form 27 Site Investigation & Remediation report – for the closure of the Zimmerman/Chamberlin 1 blowdown pit, facility ID 116724; hereinafter referred to as “Blowdown Pit” – is to provide detailed information and result analysis for the closure of the blowdown pit that doesn’t meet Form 15 permitting requirements as outlined in Colorado Oil & Gas Conservation Commission (COGCC) rule 903. This report will provide the documentation necessary to demonstrate a comprehensive and diligent investigation of the pit and adjacent environment which was obtained as described and in accordance with all appropriate county, state and federal rules and regulations.

The subject Form 27 is being submitted as requested by Kris Neidel on October 8, 2015 via verbal conversation when discussing another pit. Mr. Neidel indicated the COGCC would like a Form 27 submitted for the closure of these blowdown pits.

Evacuation of Pit Contents

No contents were present within the pit requiring removal and disposal as the pit has not been used in the past 10-15 years. The pit is believed to have been constructed and used for flaring/blowdown operations in the late 1990’s, prior to the production tank being placed on location.

Background Sampling

Three grab samples were collected from the upgradient, undisturbed soil surrounding the pad. All three samples were analyzed for arsenic, as well as an additional analysis at one location which included inorganic parameters listed in COGCC Table 910-1. Refer to Table 2 and Appendix 2 for background sampling results.

Evaluation of Pit Soils

The blowdown pit itself is was constructed at the entrance to the pad and lies primarily on the surface, with a constructed berm at the entrance, approximately 12” in height. The back of the pit was constructed into a cut slope. The construction of the pit resembled that of a secondary containment or and earthened bermed containment. The dimensions of the pit are approximately 15’x10’. Soils on the pit bottom were evaluated for evidence of staining and possibly impacts. Because of the small dimensions of the pit construction, the pit doesn’t contain any significant side walls, and therefore only the pit bottom was sampled at the lowest point as outlined in COGCC Rule 905.b(4).

No staining or noticeable odors were observed throughout the pit bottom that would indicate that the soils contained hydrocarbon impacts. Due to no evidence of impacts, a confirmation sample was collected from the lowest point within the pit from surface to 1ft below ground surface, and submitted to ALS Laboratories in Holland, Michigan for COGCC Table 910-1. Results are outlined in Table 1, as well as raw data provided in Appendix 1.

- Confirmation samples were collected in accordance with Rule 905.b.(4), from the pit bottom for confirmation of compliance of COGCC Rule 910 and Rule 905.b.(1) for hydrocarbon concentrations. Three (3) additional grab sample were collected from and

upgradient undisturbed location to determine background concentrations for arsenic and inorganics.

- A Trimble Geo XT 2011 was used to satisfy requirements as outlined in COGCC Rule 215 for collecting GPS locations of each confirmation sample location from the pit walls and pit bottom.

Backfill Material

Material utilized to backfill the pit will be the original excavated soil from construction of the pit.

- The soil will be placed in 2-3 foot lifts and will not be compacted beyond the point of making an impenetrable layer but sufficient to suppose subsequent operations and prevent subsidence.
- The pit will be reclaimed in accordance with the COGCC 1000 Series Rule in addition to all SUA/COA's per the land owner.

Exceptions to COGCC Table 910-1

The only exceedances with regards to COGCC Table 910-1 were within the arsenic values. Bayless is requesting that an allowance for arsenic within the pit be considered as it is below background arsenic levels.

Analytical Data Management

Refer to Appendix 1 for the raw analytical analysis for samples collected along the pit bottom, which are also presented in Table 1. Table 2 includes background sample results with raw analytical data available in Appendix 2.

FIGURES

FIGURE 1: SAMPLE LOCATION MAP

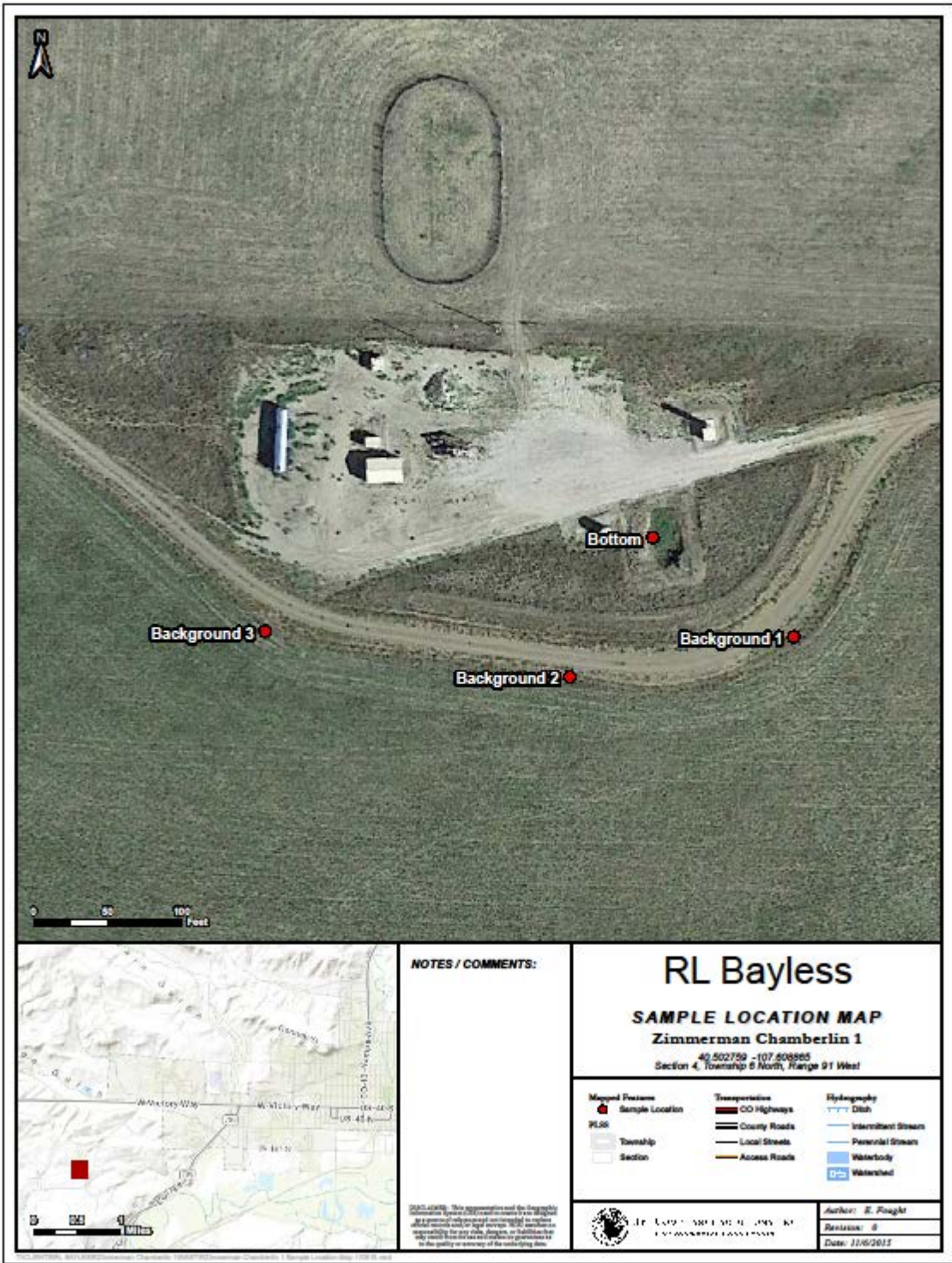


FIGURE 2: PIT IMAGE



Visual representation of the blowdown pit

TABLES

TABLE 1: PIT BOTTOM AND SIDE WALL ANALYTICAL RESULTS

Pit Confirmation Data	Pit Bottom
TEPH (DRO)	57
TVPH (GRO)	ND
BENZENE	ND
TOLUENE	ND
ETHYLBENZENE	ND
XYLENE TOTAL	ND
ACENAPHTHENE	ND
ANTHRACENE	ND
BENZO(A)ANTHRACENE	ND
BENZO(A)PYRENE	ND
BENZO(B)FLUORANTHENE	0.012
BENZO(G,H,I)PERYLENE	0.014
BENZO(K)FLUORANTHENE	0.012
CHRYSENE (mg/kg)	ND
DIBENZO(A,H)ANTHRACENE	ND
FLUORANTHENE	ND
FLUORENE	ND
INDENO(1,2,3-CD)PYRENE	0.012
NAPHTHALENE	ND
PYRENE	ND
ARSENIC	3.9
BARIUM	110
CADMIUM	ND
CHROMIUM	10
CHROMIUM (III)	10
CHROMIUM (IV)	ND
COPPER	15
LEAD	11
MERCURY	0.028
NICKEL	20
SELENIUM	1.0
SILVER	ND
ZINC	50
ELECTRICAL CONDUCTIVITY (EC) (mmho/cm)	7.2
pH	8.1
SODIUM ADSORPTION RATIO (SAR)	2.2

Readings above state limits are highlighted in yellow

Note: all results are in, mg/kg = milligram per kilogram, unless noted otherwise

ND = Non Detect

TABLE 2: BACKGROUND ANALYTICAL RESULTS

Sample ID	Arsenic (mg/kg)	Conductivity(mmho/cm)	pH (s.u.)	Sodium Adsorbion Ratio
BKGD 1	7.4	1.1	8.2	0.26
BKGD 2	7.1	N/A	N/A	N/A
BKGD 3	8.3	N/A	N/A	N/A

Results above state limits are highlighted in yellow

APPENDIX 1: PIT BOTTOM CONFIRMATION RAW DATA



07-Oct-2015

Kris Rowe
HRL Compliance Solutions, Inc
2385 F 1/2 Road
Grand Junction, CO 81505

Re: **R.L. Bayless - Zimmerman/Chamberlain-1-Pit Closure**

Work Order: **15091741**

Dear Kris,

ALS Environmental received 4 samples on 30-Sep-2015 09:00 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental and for only the analyses requested.

Sample results are compliant with NELAP standard requirements and QC results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 28.

If you have any questions regarding this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read "Les Arnold".

Electronically approved by: Les Arnold

Les Arnold
Senior Project Manager



Certificate No: MN 532786

Report of Laboratory Analysis

ADDRESS 3352 128th Avenue Holland, Michigan 49424-9263 | PHONE (616) 399-6070 | FAX (616) 399-6185

ALS GROUP USA, CORP Part of the ALS Laboratory Group A Campbell Brothers Limited Company

Environmental 

www.alsglobal.com

RIGHT SOLUTIONS RIGHT PARTNER

Client: HRL Compliance Solutions, Inc
Project: R.L. Bayless - Zimmerman/Chamberlain-1-Pit Closure
Work Order: 15091741

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
15091741-01	Blowdown Pit Bottom @ 1ft	Soil		9/28/2015 17:40	9/30/2015 09:00	<input type="checkbox"/>
15091741-02	Background 1	Soil		9/28/2015 17:50	9/30/2015 09:00	<input type="checkbox"/>
15091741-03	Background 2	Soil		9/28/2015 17:55	9/30/2015 09:00	<input type="checkbox"/>
15091741-04	Background 3	Soil		9/28/2015 18:00	9/30/2015 09:00	<input type="checkbox"/>

Client: HRL Compliance Solutions, Inc
Project: R.L. Bayless - Zimmerman/Chamberlain-1-Pit Closure
Work Order: 15091741

Case Narrative

Samples for the above noted Work Order were received on 09/30/2015. The attached "Sample Receipt Checklist" documents the status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting.

With the following exceptions, all sample analyses achieved analytical criteria.

Sample Receiving:

No deviations or anomalies were noted.

Volatile Organics:

No deviations or anomalies were noted.

Extractable Organics:

No deviations or anomalies were noted.

Metals:

No deviations or anomalies were noted.

Wet Chemistry:

No deviations or anomalies were noted.

ALS Group USA, Corp

Date: 07-Oct-15

Client:	HRL Compliance Solutions, Inc		Work Order:	15091741
Project:	R.L. Bayless - Zimmerman/Chamberlain-1-Pit Closure		Lab ID:	15091741-01
Sample ID:	Blowdown Pit Bottom @ 1ft		Matrix:	SOIL
Collection Date:	9/28/2015 05:40 PM			

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
DIESEL RANGE ORGANICS BY GC-FID						
			SW8015M		Prep: SW3541 / 10/2/15	Analyst: IT
DRO (C10-C28)	57		5.0	mg/Kg-dry	1	10/2/2015 09:40 PM
Surr: 4-Terphenyl-d14	47.6		39-133	%REC	1	10/2/2015 09:40 PM
GASOLINE RANGE ORGANICS BY GC-FID						
			SW8015D		Prep: SW5035 / 9/30/15	Analyst: IT
GRO (C6-C10)	ND		3.0	mg/Kg-dry	1	10/1/2015 02:45 AM
Surr: Toluene-d8	91.9		50-150	%REC	1	10/1/2015 02:45 AM
MERCURY BY CVAA						
			SW7471B		Prep: SW7471 / 10/5/15	Analyst: LR
Mercury	0.028		0.016	mg/Kg-dry	1	10/6/2015 02:26 PM
METALS ANALYSIS BY ICP						
			SW846 6010C		Prep: SW3050B / 10/1/15	Analyst: RH
Arsenic	3.9		0.45	mg/Kg-dry	1	10/2/2015 04:35 PM
Barium	110		0.45	mg/Kg-dry	1	10/2/2015 04:35 PM
Cadmium	ND		0.36	mg/Kg-dry	1	10/2/2015 04:35 PM
Chromium	10		0.45	mg/Kg-dry	1	10/2/2015 04:35 PM
Copper	15		0.45	mg/Kg-dry	1	10/2/2015 04:35 PM
Lead	11		0.45	mg/Kg-dry	1	10/2/2015 04:35 PM
Nickel	20		0.45	mg/Kg-dry	1	10/2/2015 04:35 PM
Selenium	1.0		0.45	mg/Kg-dry	1	10/5/2015 11:36 AM
Silver	ND		0.45	mg/Kg-dry	1	10/2/2015 04:35 PM
Zinc	50		0.89	mg/Kg-dry	1	10/2/2015 04:35 PM
SOLUBLE CATIONS FOR SAR						
			SW846 6010C		Prep: USDA Method 20B / 10/5/15	Analyst: JEC
Calcium	590		5.0	mg/L	10	10/5/2015 01:05 PM
Magnesium	300		2.0	mg/L	10	10/5/2015 01:05 PM
Sodium	270		2.0	mg/L	10	10/5/2015 01:05 PM
SODIUM ADSORPTION RATIO						
			USDA H60 METHO		Prep: USDA Method 20B / 10/5/15	Analyst: JEC
Sodium Adsorption Ratio	2.2		0.010	none	1	10/5/2015
SEMI-VOLATILE ORGANIC COMPOUNDS						
			SW846 8270D		Prep: SW3541 / 10/2/15	Analyst: RM
Acenaphthene	ND		0.0080	mg/Kg-dry	1	10/6/2015 04:05 AM
Acenaphthylene	ND		0.0080	mg/Kg-dry	1	10/6/2015 04:05 AM
Anthracene	ND		0.0080	mg/Kg-dry	1	10/6/2015 04:05 AM
Benzo(a)anthracene	ND		0.0080	mg/Kg-dry	1	10/6/2015 04:05 AM
Benzo(a)pyrene	0.016		0.0080	mg/Kg-dry	1	10/6/2015 04:05 AM
Benzo(b)fluoranthene	0.012		0.0080	mg/Kg-dry	1	10/6/2015 04:05 AM
Benzo(g,h,i)perylene	0.014		0.0080	mg/Kg-dry	1	10/6/2015 04:05 AM
Benzo(k)fluoranthene	0.012		0.0080	mg/Kg-dry	1	10/6/2015 04:05 AM
Chrysene	ND		0.0080	mg/Kg-dry	1	10/6/2015 04:05 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp

Date: 07-Oct-15

Client: HRL Compliance Solutions, Inc
 Project: R.L. Bayless - Zimmerman/Chamberlain-1-Pit Closure Work Order: 15091741
 Sample ID: Blowdown Pit Bottom @ 1ft Lab ID: 15091741-01
 Collection Date: 9/28/2015 05:40 PM Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Dibenzo(a,h)anthracene	ND		0.0080	mg/Kg-dry	1	10/6/2015 04:05 AM
Fluoranthene	ND		0.0080	mg/Kg-dry	1	10/6/2015 04:05 AM
Fluorene	ND		0.0080	mg/Kg-dry	1	10/6/2015 04:05 AM
Indeno(1,2,3-cd)pyrene	0.012		0.0080	mg/Kg-dry	1	10/6/2015 04:05 AM
Naphthalene	ND		0.0080	mg/Kg-dry	1	10/6/2015 04:05 AM
Pyrene	ND		0.0080	mg/Kg-dry	1	10/6/2015 04:05 AM
Surr: 2-Fluorobiphenyl	40.7		12-100	%REC	1	10/6/2015 04:05 AM
Surr: 4-Terphenyl-d14	47.3		25-137	%REC	1	10/6/2015 04:05 AM
Surr: Nitrobenzene-d5	43.8		37-107	%REC	1	10/6/2015 04:05 AM
VOLATILE ORGANIC COMPOUNDS			SW8260B	Prep: SW5035 / 9/30/15		Analyst: BG
Benzene	ND		0.036	mg/Kg-dry	1	10/6/2015 04:17 AM
Ethylbenzene	ND		0.036	mg/Kg-dry	1	10/6/2015 04:17 AM
m,p-Xylene	ND		0.072	mg/Kg-dry	1	10/6/2015 04:17 AM
o-Xylene	ND		0.036	mg/Kg-dry	1	10/6/2015 04:17 AM
Toluene	ND		0.036	mg/Kg-dry	1	10/6/2015 04:17 AM
Xylenes, Total	ND		0.11	mg/Kg-dry	1	10/6/2015 04:17 AM
Surr: 1,2-Dichloroethane-d4	112		70-130	%REC	1	10/6/2015 04:17 AM
Surr: 4-Bromofluorobenzene	93.8		70-130	%REC	1	10/6/2015 04:17 AM
Surr: Dibromofluoromethane	105		70-130	%REC	1	10/6/2015 04:17 AM
Surr: Toluene-d8	107		70-130	%REC	1	10/6/2015 04:17 AM
ELECTRICAL CONDUCTIVITY (SAR)			USDA H60 METHO	Prep: USDA Method 20B / 10/5/15		Analyst: JB
Electrical Conductivity @ Saturation	7.2		0.050	mmhos/cm @2	10	10/5/2015 04:30 PM
CHROMIUM, TRIVALENT			CALCULATION			Analyst: MB
Chromium, Trivalent	10		0.60	mg/Kg-dry	1	10/6/2015 02:25 PM
CHROMIUM, HEXAVALENT			SW7196A	Prep: SW3060A / 10/2/15		Analyst: MB
Chromium, Hexavalent	ND		1.3	mg/Kg-dry	1	10/6/2015 09:00 AM
MOISTURE			E160.3M			Analyst: EVB
Moisture	17		0.050	% of sample	1	10/1/2015 09:10 PM
PH			SW9045D	Prep: EXTRACT / 10/2/15		Analyst: JB
pH	8.1		s.u.		1	10/2/2015 02:00 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
a	Not accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
J	Analyte is present at an estimated concentration between the MDL and Report Limit
n	Not offered for accreditation
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and PQL, sample results may exhibit background or reagent contamination at the observed level.

<u>Acronym</u>	<u>Description</u>
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

<u>Units Reported</u>	<u>Description</u>
% of sample	Percent of Sample
mg/Kg-dry	Milligrams per Kilogram Dry Weight
mg/L	Milligrams per Liter
mmhos/cm @25°C	Millimhos-Centimeter at 25 Degrees Celcius
none	
s.u.	Standard Units

ALS Group USA, Corp

Date: 07-Oct-15

Client: HRL Compliance Solutions, Inc

Work Order: 15091741

Project: R.L. Bayless - Zimmerman/Chamberlain-1-Pit Clos

QC BATCH REPORT

Batch ID: **76877**

Instrument ID **GC8**

Method: **SW8015M**

MBLK		Sample ID: DBLKS1-76877-76877				Units: mg/Kg		Analysis Date: 10/2/2015 06:11 PM		
Client ID:		Run ID: GC8_151002A				SeqNo: 3489054		Prep Date: 10/2/2015		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)	ND	5.0								
Surr: 4-Terphenyl-d14	1.451	0	2	0	72.6	39-133		0		

LCS		Sample ID: DLCSS1-76877-76877				Units: mg/Kg		Analysis Date: 10/2/2015 06:41 PM		
Client ID:		Run ID: GC8_151002A				SeqNo: 3489056		Prep Date: 10/2/2015		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)	186.7	5.0	200	0	93.3	61-109		0		
Surr: 4-Terphenyl-d14	1.278	0	2	0	63.9	39-133		0		

MS		Sample ID: 15091541-03C MS				Units: mg/Kg		Analysis Date: 10/2/2015 07:11 PM		
Client ID:		Run ID: GC8_151002A				SeqNo: 3489058		Prep Date: 10/2/2015		DF: 10
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)	280	41	165.9	139.6	84.6	48-110		0		
Surr: 4-Terphenyl-d14	1.54	0	1.659	0	92.8	39-133		0		

MSD		Sample ID: 15091541-03C MSD				Units: mg/Kg		Analysis Date: 10/2/2015 07:40 PM		
Client ID:		Run ID: GC8_151002A				SeqNo: 3489059		Prep Date: 10/2/2015		DF: 10
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)	239.5	41	162.9	139.6	61.3	48-110	280	15.6	30	
Surr: 4-Terphenyl-d14	1.078	0	1.629	0	66.2	39-133	1.54	35.3	30	R

The following samples were analyzed in this batch:

15091741-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: HRL Compliance Solutions, Inc
Work Order: 15091741
Project: R.L. Bayless - Zimmerman/Chamberlain-1-Pit Clos

QC BATCH REPORT

Batch ID: **76790** Instrument ID **GC9** Method: **SW8015D**

MBLK		Sample ID: MBLK-76790-76790				Units: µg/Kg		Analysis Date: 9/30/2015 10:11 PM		
Client ID:		Run ID: GC9_150930A				SeqNo: 3485789		Prep Date: 9/30/2015		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	ND	2,500								
Surr: Toluene-d8	4670	0	5000	0	93.4	50-150	0			

LCS		Sample ID: LCS-76790-76790				Units: µg/Kg		Analysis Date: 9/30/2015 09:21 PM		
Client ID:		Run ID: GC9_150930A				SeqNo: 3485788		Prep Date: 9/30/2015		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	531100	2,500	500000	0	106	70-130	0			
Surr: Toluene-d8	5196	0	5000	0	104	50-150	0			

MS		Sample ID: 15091739-01A MS				Units: µg/Kg		Analysis Date: 10/1/2015 01:31 AM		
Client ID:		Run ID: GC9_150930A				SeqNo: 3485795		Prep Date: 9/30/2015		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	625400	2,500	500000	0	125	70-130	0			
Surr: Toluene-d8	5201	0	5000	0	104	50-150	0			

MSD		Sample ID: 15091739-01A MSD				Units: µg/Kg		Analysis Date: 10/1/2015 01:56 AM		
Client ID:		Run ID: GC9_150930A				SeqNo: 3485796		Prep Date: 9/30/2015		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
GRO (C6-C10)	579000	2,500	500000	0	116	70-130	625400	7.71	30	
Surr: Toluene-d8	5150	0	5000	0	103	50-150	5201	0.985	30	

The following samples were analyzed in this batch:

15091741-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: HRL Compliance Solutions, Inc
Work Order: 15091741
Project: R.L. Bayless - Zimmerman/Chamberlain-1-Pit Clos

QC BATCH REPORT

Batch ID: **76899** Instrument ID **HG1** Method: **SW7471B**

MBLK		Sample ID: MBLK-76899-76899				Units: mg/Kg		Analysis Date: 10/6/2015 02:16 PM		
Client ID:		Run ID: HG1_151006A				SeqNo: 3493364		Prep Date: 10/5/2015		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury ND 0.020

LCS		Sample ID: LCS-76899-76899				Units: mg/Kg		Analysis Date: 10/6/2015 02:19 PM		
Client ID:		Run ID: HG1_151006A				SeqNo: 3493365		Prep Date: 10/5/2015		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1775 0.020 0.1665 0 107 80-120 0

MS				Sample ID: 15091741-01AMS				Units: mg/Kg			Analysis Date: 10/6/2015 02:28 PM			
Client ID: Blowdown Pit Bottom @ 1ft				Run ID: HG1_151006A				SeqNo: 3493372			Prep Date: 10/5/2015		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual			

Mercury 0.138 0.013 0.1068 0.02337 107 75-125 0

MSD				Sample ID: 15091741-01AMSD				Units: mg/Kg			Analysis Date: 10/6/2015 02:31 PM			
Client ID: Blowdown Pit Bottom @ 1ft				Run ID: HG1_151006A				SeqNo: 3493373			Prep Date: 10/5/2015		DF: 1	
Analyte				Result		PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.1374 0.013 0.1103 0.02337 103 75-125 0.138 0.4 35

The following samples were analyzed in this batch:

15091741-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: HRL Compliance Solutions, Inc
Work Order: 15091741
Project: R.L. Bayless - Zimmerman/Chamberlain-1-Pit Clos

QC BATCH REPORT

Batch ID: **76771** Instrument ID **SAR** Method: **USDA H60 Metho**

DUP				Sample ID: 15091651-04ADUP				Units: none			Analysis Date: 10/5/2015			
Client ID:				Run ID: SAR_151005A				SeqNo: 3490918			Prep Date: 10/5/2015		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual			
Sodium Adsorption Ratio		0.05216	0.010	0	0	0		0.04793	8.45	50				

The following samples were analyzed in this batch:

15091741-01B	15091741-02A
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: HRL Compliance Solutions, Inc
Work Order: 15091741
Project: R.L. Bayless - Zimmerman/Chamberlain-1-Pit Clos

QC BATCH REPORT

Batch ID: **76842** Instrument ID **ICP2** Method: **SW846 6010C**

MBLK		Sample ID: MBLK-76842-76842				Units: mg/Kg		Analysis Date: 10/2/2015 03:24 PM		
Client ID:		Run ID: ICP2_151002A				SeqNo: 3489842		Prep Date: 10/1/2015		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	ND	0.25								
Barium	ND	0.25								
Cadmium	ND	0.50								
Chromium	0.02488	0.25								J
Copper	ND	0.50								
Lead	ND	0.25								
Nickel	ND	0.25								
Selenium	ND	0.50								
Silver	0.03494	0.25								J
Zinc	ND	0.50								

LCS		Sample ID: LCS-76842-76842				Units: mg/Kg		Analysis Date: 10/2/2015 03:30 PM		
Client ID:		Run ID: ICP2_151002A				SeqNo: 3489843		Prep Date: 10/1/2015		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	4.817	0.25	5	0	96.3	80-120	0			
Barium	4.648	0.25	5	0	93	80-120	0			
Cadmium	4.861	0.50	5	0	97.2	80-120	0			
Chromium	5.155	0.25	5	0	103	80-120	0			
Copper	4.99	0.50	5	0	99.8	80-120	0			
Lead	4.999	0.25	5	0	100	80-120	0			
Nickel	5.084	0.25	5	0	102	80-120	0			
Selenium	5.096	0.50	5	0	102	80-120	0			
Silver	5.099	0.25	5	0	102	80-120	0			
Zinc	4.935	0.50	5	0	98.7	80-120	0			

MS		Sample ID: 15091737-02AMS				Units: mg/Kg		Analysis Date: 10/2/2015 03:46 PM		
Client ID:		Run ID: ICP2_151002A				SeqNo: 3489846		Prep Date: 10/1/2015		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	9.767	0.37	7.474	1.778	107	75-125	0			
Barium	92	0.37	7.474	76.57	206	75-125	0			SO
Cadmium	7.373	0.75	7.474	0.02708	98.3	75-125	0			
Chromium	16.71	0.37	7.474	7.863	118	75-125	0			
Copper	15.53	0.75	7.474	8.259	97.3	75-125	0			
Lead	12.9	0.37	7.474	5.355	101	75-125	0			
Nickel	15.9	0.37	7.474	7.892	107	75-125	0			
Selenium	8.543	0.75	7.474	0.5261	107	75-125	0			
Silver	7.539	0.37	7.474	-0.1688	103	75-125	0			
Zinc	31.99	0.75	7.474	21.79	136	75-125	0			S

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: HRL Compliance Solutions, Inc
Work Order: 15091741
Project: R.L. Bayless - Zimmerman/Chamberlain-1-Pit Clos

QC BATCH REPORT

Batch ID: **76842** Instrument ID **ICP2** Method: **SW846 6010C**

MSD		Sample ID: 15091737-02AMSD				Units: mg/Kg		Analysis Date: 10/2/2015 03:51 PM		
Client ID:		Run ID: ICP2_151002A				SeqNo: 3489847		Prep Date: 10/1/2015		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	9.497	0.38	7.564	1.778	102	75-125	9.767	2.8	20	
Barium	92.44	0.38	7.564	76.57	210	75-125	92	0.478	20	SO
Cadmium	7.514	0.76	7.564	0.02708	99	75-125	7.373	1.9	20	
Chromium	16.74	0.38	7.564	7.863	117	75-125	16.71	0.148	20	
Copper	15.76	0.76	7.564	8.259	99.2	75-125	15.53	1.45	20	
Lead	12.61	0.38	7.564	5.355	95.9	75-125	12.9	2.26	20	
Nickel	15.9	0.38	7.564	7.892	106	75-125	15.9	0.0139	20	
Selenium	8.342	0.76	7.564	0.5261	103	75-125	8.543	2.37	20	
Silver	7.733	0.38	7.564	-0.1688	104	75-125	7.539	2.53	20	
Zinc	31.54	0.76	7.564	21.79	129	75-125	31.99	1.4	20	S

The following samples were analyzed in this batch:

15091741-01A	15091741-02A	15091741-03A
15091741-04A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: HRL Compliance Solutions, Inc
Work Order: 15091741
Project: R.L. Bayless - Zimmerman/Chamberlain-1-Pit Clos

QC BATCH REPORT

Batch ID: **76884** Instrument ID **SVMS4** Method: **SW846 8270D**

MBLK				Sample ID: SBLKS1-76884-76884			Units: µg/Kg		Analysis Date: 10/2/2015 08:11 PM	
Client ID:				Run ID: SVMS4_151002A			SeqNo: 3490666		Prep Date: 10/2/2015	
									DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	ND	6.7								
Acenaphthylene	ND	6.7								
Anthracene	ND	6.7								
Benzo(a)anthracene	ND	6.7								
Benzo(a)pyrene	ND	6.7								
Benzo(b)fluoranthene	ND	6.7								
Benzo(g,h,i)perylene	ND	6.7								
Benzo(k)fluoranthene	ND	6.7								
Chrysene	ND	6.7								
Dibenzo(a,h)anthracene	ND	6.7								
Fluoranthene	ND	6.7								
Fluorene	ND	6.7								
Indeno(1,2,3-cd)pyrene	ND	6.7								
Naphthalene	ND	6.7								
Pyrene	ND	6.7								
<i>Surr: 2-Fluorobiphenyl</i>	1393	0	1667	0	83.6	12-100	0			
<i>Surr: 4-Terphenyl-d14</i>	1723	0	1667	0	103	25-137	0			
<i>Surr: Nitrobenzene-d5</i>	1310	0	1667	0	78.6	37-107	0			

LCS				Sample ID: SLCSS1-76884-76884			Units: µg/Kg		Analysis Date: 10/2/2015 08:37 PM	
Client ID:				Run ID: SVMS4_151002A			SeqNo: 3490667		Prep Date: 10/2/2015	
									DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	600.7	6.7	666.7	0	90.1	45-110	0			
Acenaphthylene	606	6.7	666.7	0	90.9	45-105	0			
Anthracene	700	6.7	666.7	0	105	55-105	0			
Benzo(a)anthracene	652.7	6.7	666.7	0	97.9	50-110	0			
Benzo(a)pyrene	687	6.7	666.7	0	103	50-110	0			
Benzo(b)fluoranthene	687.7	6.7	666.7	0	103	45-115	0			
Benzo(g,h,i)perylene	753.7	6.7	666.7	0	113	40-125	0			
Benzo(k)fluoranthene	684.3	6.7	666.7	0	103	45-115	0			
Chrysene	684.7	6.7	666.7	0	103	55-110	0			
Dibenzo(a,h)anthracene	683.3	6.7	666.7	0	102	40-125	0			
Fluoranthene	703	6.7	666.7	0	105	55-115	0			
Fluorene	633	6.7	666.7	0	94.9	50-110	0			
Indeno(1,2,3-cd)pyrene	746	6.7	666.7	0	112	40-120	0			
Naphthalene	592	6.7	666.7	0	88.8	40-105	0			
Pyrene	769.3	6.7	666.7	0	115	45-125	0			
<i>Surr: 2-Fluorobiphenyl</i>	1559	0	1667	0	93.6	12-100	0			
<i>Surr: 4-Terphenyl-d14</i>	1677	0	1667	0	101	25-137	0			
<i>Surr: Nitrobenzene-d5</i>	1503	0	1667	0	90.2	37-107	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: HRL Compliance Solutions, Inc
Work Order: 15091741
Project: R.L. Bayless - Zimmerman/Chamberlain-1-Pit Clos

QC BATCH REPORT

Batch ID: **76884** Instrument ID **SVMS4** Method: **SW846 8270D**

MS				Sample ID: 1510111-02B MS			Units: µg/Kg		Analysis Date: 10/2/2015 11:25 PM	
Client ID:		Run ID: SVMS4_151002A		SeqNo: 3490671		Prep Date: 10/2/2015		DF: 5		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	630.3	33	665.3	53.88	86.6	45-110	0			
Acenaphthylene	627	33	665.3	57.15	85.7	45-105	0			
Anthracene	715.1	33	665.3	84.91	94.7	55-105	0			
Benzo(a)anthracene	706.8	33	665.3	135.5	85.9	50-110	0			
Benzo(a)pyrene	794.9	33	665.3	161.7	95.2	50-110	0			
Benzo(b)fluoranthene	781.6	33	665.3	182.9	90	45-115	0			
Benzo(g,h,i)perylene	663.6	33	665.3	111	83.1	40-125	0			
Benzo(k)fluoranthene	670.2	33	665.3	63.68	91.2	45-115	0			
Chrysene	681.9	33	665.3	171.5	76.7	55-110	0			
Dibenzo(a,h)anthracene	562.1	33	665.3	0	84.5	40-125	0			
Fluoranthene	856.5	33	665.3	238.4	92.9	55-115	0			
Fluorene	653.6	33	665.3	35.92	92.8	50-110	0			
Indeno(1,2,3-cd)pyrene	725.1	33	665.3	97.97	94.3	40-120	0			
Naphthalene	475.6	33	665.3	27.76	67.3	40-105	0			
Pyrene	949.6	33	665.3	313.5	95.6	45-125	0			
Surr: 2-Fluorobiphenyl	1334	0	1663	0	80.2	12-100	0			
Surr: 4-Terphenyl-d14	1452	0	1663	0	87.3	25-137	0			
Surr: Nitrobenzene-d5	1279	0	1663	0	76.9	37-107	0			

MSD				Sample ID: 1510111-02B MSD			Units: µg/Kg		Analysis Date: 10/2/2015 11:51 PM	
Client ID:		Run ID: SVMS4_151002A		SeqNo: 3490672		Prep Date: 10/2/2015		DF: 5		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Acenaphthene	578.1	33	658.9	53.88	79.6	45-110	630.3	8.64	30	
Acenaphthylene	556.7	33	658.9	57.15	75.8	45-105	627	11.9	30	
Anthracene	691.8	33	658.9	84.91	92.1	55-105	715.1	3.32	30	
Benzo(a)anthracene	665.4	33	658.9	135.5	80.4	50-110	706.8	6.03	30	
Benzo(a)pyrene	757.7	33	658.9	161.7	90.5	50-110	794.9	4.8	30	
Benzo(b)fluoranthene	731.3	33	658.9	182.9	83.2	45-115	781.6	6.65	30	
Benzo(g,h,i)perylene	637.4	33	658.9	111	79.9	40-125	663.6	4.02	30	
Benzo(k)fluoranthene	642.4	33	658.9	63.68	87.8	45-115	670.2	4.24	30	
Chrysene	665.4	33	658.9	171.5	75	55-110	681.9	2.44	30	
Dibenzo(a,h)anthracene	536.9	33	658.9	0	81.5	40-125	562.1	4.58	30	
Fluoranthene	872.9	33	658.9	238.4	96.3	55-115	856.5	1.9	30	
Fluorene	591.3	33	658.9	35.92	84.3	50-110	653.6	10	30	
Indeno(1,2,3-cd)pyrene	688.5	33	658.9	97.97	89.6	40-120	725.1	5.18	30	
Naphthalene	416.7	33	658.9	27.76	59	40-105	475.6	13.2	30	
Pyrene	940.5	33	658.9	313.5	95.2	45-125	949.6	0.967	30	
Surr: 2-Fluorobiphenyl	1128	0	1647	0	68.5	12-100	1334	16.7	40	
Surr: 4-Terphenyl-d14	1357	0	1647	0	82.4	25-137	1452	6.74	40	
Surr: Nitrobenzene-d5	1141	0	1647	0	69.3	37-107	1279	11.4	40	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: HRL Compliance Solutions, Inc
Work Order: 15091741
Project: R.L. Bayless - Zimmerman/Chamberlain-1-Pit Clos

QC BATCH REPORT

Batch ID: **76884** Instrument ID **SVMS4** Method: **SW846 8270D**

The following samples were analyzed in this batch:

15091741- 01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: HRL Compliance Solutions, Inc
Work Order: 15091741
Project: R.L. Bayless - Zimmerman/Chamberlain-1-Pit Clos

QC BATCH REPORT

Batch ID: **76791** Instrument ID **VMS6** Method: **SW8260B**

MBLK				Sample ID: MBLK-76791-76791				Units: µg/Kg			Analysis Date: 10/1/2015 12:06 PM		
Client ID:			Run ID: VMS6_151001A				SeqNo: 3487317		Prep Date: 9/30/2015		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual			
Benzene	ND	30											
Ethylbenzene	ND	30											
m,p-Xylene	ND	60											
o-Xylene	ND	30											
Toluene	ND	30											
Xylenes, Total	ND	90											
Surr: 1,2-Dichloroethane-d4	1066	0	1000	0	107	70-130		0					
Surr: 4-Bromofluorobenzene	959.5	0	1000	0	96	70-130		0					
Surr: Dibromofluoromethane	1026	0	1000	0	103	70-130		0					
Surr: Toluene-d8	1027	0	1000	0	103	70-130		0					

LCS				Sample ID: LCS-76791-76791				Units: µg/Kg			Analysis Date: 10/1/2015 10:47 AM			
Client ID:				Run ID: VMS6_151001A				SeqNo: 3487316			Prep Date: 9/30/2015		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual				
Benzene	1022	30	1000	0	102	75-125	0							
Ethylbenzene	937	30	1000	0	93.7	75-125	0							
m,p-Xylene	1888	60	2000	0	94.4	80-125	0							
o-Xylene	901.5	30	1000	0	90.2	75-125	0							
Toluene	976	30	1000	0	97.6	70-125	0							
Xylenes, Total	2789	90	3000	0	93	75-125	0							
Surr: 1,2-Dichloroethane-d4	1032	0	1000	0	103	70-130	0							
Surr: 4-Bromofluorobenzene	1010	0	1000	0	101	70-130	0							
Surr: Dibromofluoromethane	987	0	1000	0	98.7	70-130	0							
Surr: Toluene-d8	983	0	1000	0	98.3	70-130	0							

MS				Sample ID: 15091739-01A MS		Units: µg/Kg		Analysis Date: 10/6/2015 06:53 AM		
Client ID:			Run ID: VMS6_151005A		SeqNo: 3492326		Prep Date: 9/30/2015		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	787	30	1000	0	78.7	75-125	0			
Ethylbenzene	899	30	1000	18	88.1	75-125	0			
m,p-Xylene	1900	60	2000	104	89.8	80-125	0			
o-Xylene	889.5	30	1000	25.5	86.4	75-125	0			
Toluene	959	30	1000	92	86.7	70-125	0			
Xylenes, Total	2790	90	3000	126	88.8	75-125	0			
Surr: 1,2-Dichloroethane-d4	1084	0	1000	0	108	70-130	0			
Surr: 4-Bromofluorobenzene	981.5	0	1000	0	98.2	70-130	0			
Surr: Dibromofluoromethane	1030	0	1000	0	103	70-130	0			
Surr: Toluene-d8	1093	0	1000	0	109	70-130	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: HRL Compliance Solutions, Inc
Work Order: 15091741
Project: R.L. Bayless - Zimmerman/Chamberlain-1-Pit Clos

QC BATCH REPORT

Batch ID: **76791** Instrument ID **VMS6** Method: **SW8260B**

MSD				Sample ID: 15091739-01A MSD			Units: µg/Kg		Analysis Date: 10/6/2015 07:19 AM	
Client ID:				Run ID: VMS6_151005A			SeqNo: 3492327		Prep Date: 9/30/2015	
									DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	806.5	30	1000	0	80.6	75-125	787	2.45	30	
Ethylbenzene	913.5	30	1000	18	89.6	75-125	899	1.6	30	
m,p-Xylene	1908	60	2000	104	90.2	80-125	1900	0.394	30	
o-Xylene	883	30	1000	25.5	85.8	75-125	889.5	0.733	30	
Toluene	937	30	1000	92	84.5	70-125	959	2.32	30	
Xylenes, Total	2791	90	3000	126	88.8	75-125	2790	0.0358	30	
Surr: 1,2-Dichloroethane-d4	1112	0	1000	0	111	70-130	1084	2.6	30	
Surr: 4-Bromofluorobenzene	975	0	1000	0	97.5	70-130	981.5	0.664	30	
Surr: Dibromofluoromethane	1042	0	1000	0	104	70-130	1030	1.25	30	
Surr: Toluene-d8	1098	0	1000	0	110	70-130	1093	0.502	30	

The following samples were analyzed in this batch:

15091741-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: HRL Compliance Solutions, Inc
Work Order: 15091741
Project: R.L. Bayless - Zimmerman/Chamberlain-1-Pit Clos

QC BATCH REPORT

Batch ID: **76771** Instrument ID **WETCHEM** Method: **USDA H60 Metho**

DUP		Sample ID: 15091651-04A DUP				Units: mmhos/cm @25°		Analysis Date: 10/5/2015 04:30 PM		
Client ID:		Run ID: WETCHEM_151005M				SeqNo: 3491316		Prep Date: 10/5/2015		DF: 10
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Electrical Conductivity @ Saturation	0.311	0.050	0	0	0		0.305	1.95	50	

The following samples were analyzed in this batch:

15091741-01B	15091741-02A
--------------	--------------

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: HRL Compliance Solutions, Inc
Work Order: 15091741
Project: R.L. Bayless - Zimmerman/Chamberlain-1-Pit Clos

QC BATCH REPORT

Batch ID: **76888** Instrument ID **WETCHEM** Method: **SW9045D**

LCS		Sample ID: LCS-76888-76888				Units: s.u.		Analysis Date: 10/2/2015 02:00 PM		
Client ID:		Run ID: WETCHEM_151002L				SeqNo: 3488690		Prep Date: 10/2/2015		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

pH 3.97 0 4 0 99.2 90-110 0

DUP		Sample ID: 1510067-07B DUP				Units: s.u.		Analysis Date: 10/2/2015 02:00 PM		
Client ID:		Run ID: WETCHEM_151002L				SeqNo: 3488703		Prep Date: 10/2/2015		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

pH 8.24 0 0 0 0 0-0 8.26 0.242 20

DUP				Sample ID: 1510089-01A DUP				Units: s.u.			Analysis Date: 10/2/2015 02:00 PM			
Client ID:				Run ID: WETCHEM_151002L				SeqNo: 3488708			Prep Date: 10/2/2015		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual				

pH 6.84 0 0 0 0 0-0 6.92 1.16 20

The following samples were analyzed in this batch:

15091741-01A	15091741-02A
--------------	--------------

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: HRL Compliance Solutions, Inc
Work Order: 15091741
Project: R.L. Bayless - Zimmerman/Chamberlain-1-Pit Clos

QC BATCH REPORT

Batch ID: **76925** Instrument ID **WETCHEM** Method: **SW7196A**

MBLK		Sample ID: MBLK-76925-76925				Units: mg/Kg		Analysis Date: 10/6/2015 09:00 AM		
Client ID:		Run ID: WETCHEM_151006J				SeqNo: 3492862		Prep Date: 10/2/2015		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent ND 1.0

LCS		Sample ID: LCS-76925-76925				Units: mg/Kg		Analysis Date: 10/6/2015 09:00 AM		
Client ID:		Run ID: WETCHEM_151006J				SeqNo: 3492861		Prep Date: 10/2/2015		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 4.55 1.0 5 0 91 80-120 0

MS		Sample ID: 15091677-05B MSI				Units: mg/Kg		Analysis Date: 10/6/2015 09:00 AM		
Client ID:		Run ID: WETCHEM_151006J				SeqNo: 3492850		Prep Date: 10/2/2015		DF: 100
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 1754 100 1804 0 97.2 75-125 0

MS		Sample ID: 15091677-05BMS				Units: mg/Kg		Analysis Date: 10/6/2015 09:00 AM		
Client ID:		Run ID: WETCHEM_151006J				SeqNo: 3492852		Prep Date: 10/2/2015		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 1.158 1.1 5.263 0 22 75-125 0 S

MSD		Sample ID: 15091677-05BMSD				Units: mg/Kg		Analysis Date: 10/6/2015 09:00 AM		
Client ID:		Run ID: WETCHEM_151006J				SeqNo: 3492853		Prep Date: 10/2/2015		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 1.241 0.93 4.63 0 26.8 75-125 1.158 6.91 20 S

The following samples were analyzed in this batch:

15091741-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: HRL Compliance Solutions, Inc
Work Order: 15091741
Project: R.L. Bayless - Zimmerman/Chamberlain-1-Pit Clos

QC BATCH REPORT

Batch ID: **R172917** Instrument ID **MOIST** Method: **E160.3M**

MBLK		Sample ID: WBLKS-R172917				Units: % of sample		Analysis Date: 10/1/2015 09:10 PM		
Client ID:		Run ID: MOIST_151001C				SeqNo: 3488240		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture ND 0.050

LCS		Sample ID: LCS-R172917				Units: % of sample		Analysis Date: 10/1/2015 09:10 PM		
Client ID:		Run ID: MOIST_151001C				SeqNo: 3488239		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 99.99 0.050 100 0 100 99.5-100.5 0

DUP		Sample ID: 1510030-01A DUP				Units: % of sample		Analysis Date: 10/1/2015 09:10 PM		
Client ID:		Run ID: MOIST_151001C				SeqNo: 3488235		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 6.54 0.050 0 0 0 6.4 2.16 20

DUP		Sample ID: 1510039-01A DUP				Units: % of sample		Analysis Date: 10/1/2015 09:10 PM		
Client ID:		Run ID: MOIST_151001C				SeqNo: 3488237		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 20.73 0.050 0 0 0 19.44 6.42 20

The following samples were analyzed in this batch:

15091741-01A	15091741-02A	15091741-03A
15091741-04A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.



ALS Laboratory Group

3352 128th Avenue, Holland, MI 49424
TF: (616) 399-6070 FX: (616) 399-6185

Chain-of-Custody

Form 282r6

WORKORDER
#

15091741

PAGE

1 of 1

DISPOSAL

By Lab or Return to Client

PROJECT NAME

R.L. Bayless - Zimmerman/Chamberlin - 1 - Pit Closure

SAMPLER

Jordan Carlo

DATE

9/29/2015

SITE ID

Zimmerman/Chamberlin - 1

TURNAROUND

Standard (5-day)

PROJECT No.

EDD FORMAT

PURCHASE ORDER

COMPANY NAME

HRL Compliance Solutions, Inc.

BILL TO COMPANY

HRL Compliance Solutions, Inc.

SEND REPORT TO

HRL - Kris Rowe, Jordan Carlo

INVOICE ATTN TO

Missy Derose, Kim Cass, Staci Knob

ADDRESS

2385 F 1/2 Road

ADDRESS

2385 F1/2 Road

CITY/STATE/ZIP

Grand Junction, CO, 81505

CITY/STATE/ZIP

Grand Junction, CO 81505

PHONE

970-243-3271

PHONE

970-243-3271

FAX

970-243-3280

FAX

E-MAIL

krowe@hrlcomp.com, jcario@hrlcomp.com

E-MAIL

mderose@hrlcomp.com,
kcass@hrlcomp.com,
sknob@hrlcomp.com

Lab ID

Field ID

Matrix

Sample Date

Sample Time

Bottles

Pres.

QC

1

Blowdown Pit Bottom @1 ft

S

9/28/2015

17:40

2

8

X

X

X

X

X

X

X

2

Background 1

S

9/28/2015

17:50

1

8

X

X

3

Background 2

S

9/28/2015

17:55

1

8

X

4

Background 3

S

9/28/2015

18:00

1

8

X

*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:

* Please see attached analytical table (COGCC Table 910-1)

2.0°C

QC PACKAGE (check below)

LEVEL II (Standard QC)

LEVEL III (Std QC + forms)

LEVEL IV (Std QC + forms + raw data)

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

SIGNATURE

PRINTED NAME

DATE

TIME

RELINQUISHED BY

Jordan Carlo

9/29/2015

10:00

RECEIVED BY

W

9/29/15

1201

RELINQUISHED BY

W

9/29/15

1200

RECEIVED BY

W

9/30/15

900

RELINQUISHED BY

KEITH WIERENKA

9/30/15

0900

RECEIVED BY

**Table 910-1
CONCENTRATION LEVELS¹**

Contaminant of Concern	Concentrations
Organic Compounds in Soil	
TPH (total volatile and extractable petroleum hydrocarbons)	500 mg/kg
Benzene	0.17 mg/kg ²
Toluene	85 mg/kg ²
Ethylbenzene	100 mg/kg ²
Xylenes (total)	175 mg/kg ²
Acenaphthene	1,000 mg/kg ²
Anthracene	1,000 mg/kg ²
Benz(a)anthracene	0.22 mg/kg ²
Benzo(b)fluoranthene	0.22 mg/kg ²
Benzo(k)fluoranthene	2.2 mg/kg ²
Benzo(a)pyrene	0.022 mg/kg ²
Chrysene	22 mg/kg ²
Dibenzo(a,h)anthracene	0.022 mg/kg ²
Fluoranthene	1,000 mg/kg ²
Fluorene	1,000 mg/kg ²
Indeno(1,2,3,c,d)pyrene	0.22 mg/kg ²
Naphthalene	23 mg/kg ²
Pyrene	1,000 mg/kg ²
Organic Compounds in Ground Water	
Benzene	5 µg/l ³
Toluene	560 to 1,000 µg/l ³
Ethylbenzene	700 µg/l ³
Xylenes (Total)	1,400 to 10,000 µg/l ^{3,4}
Inorganics in Soils	
Electrical Conductivity (EC)	<4 mmhos/cm or 2x background
Sodium Adsorption Ratio (SAR)	<12 ⁵
pH	6-9
Inorganics in Ground Water	
Total Dissolved Solids (TDS)	<1.25 x background ³
Chlorides	<1.25 x background ³
Sulfates	<1.25 x background ³
Metals in Soils	
Arsenic	0.39 mg/kg ²
Barium (LDNR True Total Barium)	15,000 mg/kg ²
Boron (Hot Water Soluble)	2 mg/l ³
Cadmium	70 mg/kg ^{3,6}
Chromium (III)	120,000 mg/kg ²
Chromium (VI)	23 mg/kg ^{2,6}
Copper	3,100 mg/kg ²
Lead (inorganic)	400 mg/kg ²
Mercury	23 mg/kg ²
Nickel (soluble salts)	1,600 mg/kg ^{2,8}
Selenium	390 mg/kg ^{2,6}
Silver	390 mg/kg ²
Zinc	23,000 mg/kg ^{2,6}
Liquid Hydrocarbons in Soils and Ground Water	
Liquid hydrocarbons including condensate and oil	Below detection level

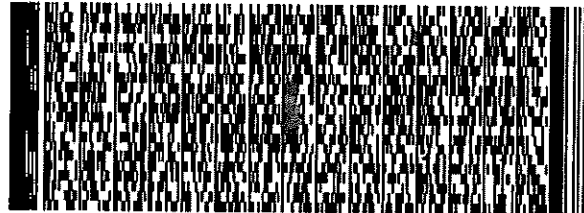
ORIGIN ID: RLA (616) 298-1033
 NICK MARTINEZ
 ALS ENVIRONMENTAL PARACHUTE
 PARACHUTE SERVICE CENTER
 127 EAST 1ST ST
 PARACHUTE, CO 81635
 UNITED STATES US

SHIP DATE: 28SEP15
 ACTWGT: 56.00 LB
 CAD: 2204840/NET3870
 DIMS: 14x28x15 IN
 BILL SENDER

TO **SAMPLE RECEIVING**
ALS ENVIRONMENTAL HOLLAND LAB
3352 128TH AVE

HOLLAND MI 49424

(616) 399-6070 REF: 092915-4
 INV
 PO: PARACHUTE DEPT:



FedEx
 Express



REL#
 3785348

1 of 3

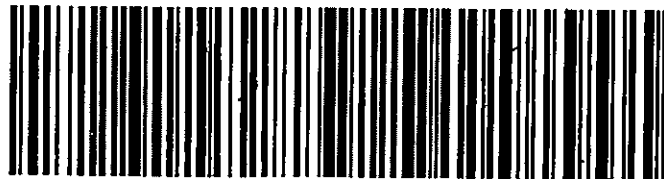
TRK# 7746 2588 3786
 0201

MASTER

XX HLMA

WED - 30 SEP 10:30A
 PRIORITY OVERNIGHT

49424
 MI-US GRR



539.297075100

After printing this label:

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

Warning: Use only the printed original label for additional billing charges, along with the package. Use of this system constitutes your agreement. We will not be responsible for any claim in excess of the information, unless you declare a higher value found in the current FedEx Service Guide applicable to sales, income interest, profit, attorney's fees, costs, and expenses. Recovery cannot exceed the declared value. The maximum recovery for loss of or damage to the contents of a package is limited to the greater of \$100 or the authorized declared value. For jewelry, precious metals, and other items, see current FedEx Service Guide. Claims must be filed within strict time limits.

ALS Parachute/Storage Seal

Time/Date: 9/29/15

Name: [Signature]

Shipping purposes is fraudulent and could result in additional billing charges, along with the package. Use of this system constitutes your agreement. We will not be responsible for any claim in excess of the information, unless you declare a higher value found in the current FedEx Service Guide applicable to sales, income interest, profit, attorney's fees, costs, and expenses. Recovery cannot exceed the declared value. The maximum recovery for loss of or damage to the contents of a package is limited to the greater of \$100 or the authorized declared value. For jewelry, precious metals, and other items, see current FedEx Service Guide. Claims must be filed within strict time limits.

Sample Receipt Checklist

Client Name: **HRL**

Date/Time Received: **30-Sep-15 09:00**

Work Order: **15091741**

Received by: **KRW**

Checklist completed by Keith Wurenga
eSignature

30-Sep-15
Date

Reviewed by: Lee Arnold
eSignature

30-Sep-15
Date

Matrices: **Soil**

Carrier name: **FedEx**

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample(s) received on ice?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temperature(s)/Thermometer(s):	<u>2.0/2.0 C</u>		<u>SR2</u>
Cooler(s)/Kit(s):	<u></u>		
Date/Time sample(s) sent to storage:	<u>9/30/2015 1:10:15 PM</u>		
Water - VOA vials have zero headspace?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input checked="" type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input checked="" type="checkbox"/>
pH adjusted by:	<u>-</u>		

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:

APPENDIX 2: BACKGROUND RAW ANALYTICAL DATA

ALS Group USA, Corp

Date: 07-Oct-15

Client:	HRL Compliance Solutions, Inc		Work Order:	15091741
Project:	R.L. Bayless - Zimmerman/Chamberlain-1-Pit Closure		Lab ID:	15091741-02
Sample ID:	Background 1		Matrix:	SOIL
Collection Date:	9/28/2015 05:50 PM			

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
METALS ANALYSIS BY ICP						
Arsenic	7.4		SW846 6010C 0.37	mg/Kg-dry	Prep: SW3050B / 10/1/15 1	Analyst: RH 10/2/2015 04:40 PM
SOLUBLE CATIONS FOR SAR						
Calcium	140		SW846 6010C 5.0	mg/L	Prep: USDA Method 20B / 10/5/15 10	Analyst: JEC 10/5/2015 01:11 PM
Magnesium	41		2.0	mg/L	10	10/5/2015 01:11 PM
Sodium	14		2.0	mg/L	10	10/5/2015 01:11 PM
SODIUM ADSORPTION RATIO						
Sodium Adsorption Ratio	0.26		USDA H60 METHO 0.010	none	Prep: USDA Method 20B / 10/5/15 1	Analyst: JEC 10/5/2015
ELECTRICAL CONDUCTIVITY (SAR)						
Electrical Conductivity @ Saturation	1.1		USDA H60 METHO 0.050	mmhos/cm @2	Prep: USDA Method 20B / 10/5/15 10	Analyst: JB 10/5/2015 04:30 PM
MOISTURE						
Moisture	9.5		E160.3M 0.050	% of sample	1	Analyst: EVB 10/1/2015 09:10 PM
PH						
pH	8.2		SW9045D	s.u.	Prep: EXTRACT / 10/2/15 1	Analyst: JB 10/2/2015 02:00 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp**Date:** 07-Oct-15

Client:	HRL Compliance Solutions, Inc	
Project:	R.L. Bayless - Zimmerman/Chamberlain-1-Pit Closure	Work Order: 15091741
Sample ID:	Background 2	Lab ID: 15091741-03
Collection Date:	9/28/2015 05:55 PM	Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<hr/>						
METALS ANALYSIS BY ICP			SW846 6010C		Prep: SW3050B / 10/1/15	Analyst: RH
Arsenic	7.1		0.44	mg/Kg-dry	1	10/2/2015 04:46 PM
MOISTURE			E160.3M			Analyst: EVB
Moisture	9.8		0.050	% of sample	1	10/1/2015 09:10 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group USA, Corp**Date:** 07-Oct-15

Client: HRL Compliance Solutions, Inc
Project: R.L. Bayless - Zimmerman/Chamberlain-1-Pit Closure
Sample ID: Background 3
Collection Date: 9/28/2015 06:00 PM

Work Order: 15091741
Lab ID: 15091741-04
Matrix: SOIL

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<hr/>						
METALS ANALYSIS BY ICP			SW846 6010C		Prep: SW3050B / 10/1/15	Analyst: RH
Arsenic	8.3		0.39	mg/Kg-dry	1	10/2/2015 04:51 PM
MOISTURE			E160.3M			Analyst: EVB
Moisture	9.8		0.050	% of sample	1	10/1/2015 09:10 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.