



*EOG Resources, Inc.  
Artesia Division Office  
105 S. 4<sup>th</sup> Street  
Artesia, N. M. 88210*

January 16, 2017

Mr. Mike Bratcher/Ms. Crystal Weaver  
NMOCD District II  
811 S. First St.  
Artesia, NM 88210

Re: Livingston Ridge SWD System  
Section 35, T22S-R31E  
Eddy County, New Mexico  
2RP-3846

Mr. Bratcher/Ms. Weaver,

EOG Y Resources, Inc. is submitting the enclosed work plan for the above captioned well. The plan is being submitted in response to the C-141 report dated August 25, 2016.

**If there are no objections with the scope of work described in the plan, EOG Y Resources, Inc. will have a contractor begin work on or after January 30, 2017.**

If you have any questions, feel free to call me at (575) 748-4171

Thank you.

EOG Y Resources, Inc.

Chase Settle  
Rep Safety & Environmental II

**EOG Y Resources, Inc.**

**Livingston Ridge SWD System Work Plan**

**Section 35, T22S-R31E**

**Eddy County, New Mexico**

**January 16, 2017**

**2RP- 3846**

**I. Location**

Take County Road 29 (Campbell Road) south from HWY 62/180 for 12.4 miles where it turns to Red Road, and continue another 2 miles, site is on the east side of Red Road in the pipeline ROW.

**II. Background**

On August 25, 2016, EOG Y Resources, Inc. submitted to the NMOCD District II office a Form C-141 for the release of 30 B/PW with 5 B/PW recovered. The affected area is approximately 50 feet by 40 feet around the 6" poly produced water flow line. Initial delineation samples were taken (8/25/2016) and sent to a NMOCD approved laboratory (9/08/2016, results enclosed). Based on analytical results of the first samples, further samples were taken (10/17/2016) and sent to a NMOCD approved laboratory (11/3/2016, results enclosed).

**III. Surface and Ground Water**

Area surface geology is Cenozoic Quaternary. The ChevronTexaco Trend Map displays at this location (Section 35, T22S-R31E) that depth to groundwater is approximately 120 feet making the site ranking for this site a zero (0). Watercourses in the area are dry except for infrequent flows in response to major precipitation events.

The ranking for this site is zero (0) based on the as following:

Depth to ground water	> 100'
Wellhead Protection Area	> 1000'
Distance to surface water body	> 1000'

**IV. Soils**

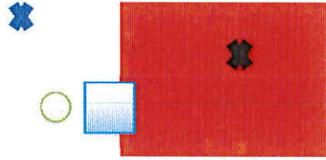
The area consists of soils that are sand based topsoil on top of a caliche layer that is further interspersed with clay seams providing a low permeability barrier to prohibit further migration of contaminants into the subsurface.

**V. Scope of Work**

Based on enclosed analytical results, the depth to groundwater (120'), and a decrease in chlorides, EOG Y Resources, Inc. will excavate four (4) feet in the impacted area, hauling all excavated soils to a NMOCD approved facility for disposal. EOG Y Resources, Inc. will then install a 20 ml synthetic liner and backfill the excavated area with two (2) feet of caliche and two (2) feet of similar topsoil. The site will be reseeded prior to the normally occurring monsoonal season in July with BLM #2 Seed Mix at the recommended rate. The TPH & BTEX are within the RRAL's for BTEX (50 ppm) and TPH (5000 ppm) for the Total Ranking Score of zero (0), no further analytical testing of TPH and/or BTEX will be conducted (all chloride results are for documentation). When remediation work is completed a C-141 Final Report will be submitted to the NMOCD requesting closure of the site.



N



 E Sample Point

 W Sample Point

Livingston Ridge SWD System- Not to Scale

Area	Analysis #	Sample Area	Sample Date	Sample Type	Depth	BTEX	GRO	DRO	Chlorides
E-1'	1608G85	Release Area	8/25/2016	Hand Auger	1'	ND	ND	ND	9600
E-2'	1608G85	Release Area	8/25/2016	Hand Auger	2'	ND	ND	ND	10000
E-3'	1610854	Release Area	10/17/2016	Backhoe	3'				2700
E-4'	1610854	Release Area	10/17/2016	Backhoe	4'				890
E-6'	1610854	Release Area	10/17/2016	Backhoe	6'				18000
E-8'	1610854	Release Area	10/17/2016	Backhoe	8'				430
E-10'	1610854	Release Area	10/17/2016	Backhoe	10'				550
E-11'	1610854	Release Area	10/17/2016	Backhoe	11'				ND
W-1'	1608G85	Release Area	8/25/2016	Hand Auger	1'	ND	ND	ND	43
W-2'	1608G85	Release Area	8/25/2016	Hand Auger	2'	ND	ND	ND	130

Site Ranking is Zero (0). >100' (120', Section 35, T22S-R31E, Trend Map)

All results are ppm. Chlorides for documentation

Released: 30 B/PW ; Recovered: 5 B/PW Release Date: 8/10/2016



Hall Environmental Analysis Laboratory  
4901 Hawkins NE  
Albuquerque, NM 87109  
TEL: 505-345-3975 FAX: 505-345-4107  
Website: [www.hallenvironmental.com](http://www.hallenvironmental.com)

September 08, 2016

Chase Settle

Yates Petroleum Corporation

105 South Fourth Street

Artesia, NM 88210

TEL: (575) 748-4111

FAX

RE: Livingston Ridge SWD System

OrderNo.: 1608G85

Dear Chase Settle:

Hall Environmental Analysis Laboratory received 4 sample(s) on 8/30/2016 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to [www.hallenvironmental.com](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read "Andy Freeman", is written over a light blue horizontal line.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

**Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Yates Petroleum Corporation**Client Sample ID:** E-1'**Project:** Livingston Ridge SWD System**Collection Date:** 8/25/2016 2:12:00 PM**Lab ID:** 1608G85-001**Matrix:** SOIL**Received Date:** 8/30/2016 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	9600	750		mg/Kg	500	9/6/2016 7:00:40 PM	27331
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	9/1/2016 4:32:29 PM	27281
Surr: DNOP	85.0	70-130		%Rec	1	9/1/2016 4:32:29 PM	27281
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	8/31/2016 9:06:07 PM	27243
Surr: BFB	85.8	68.3-144		%Rec	1	8/31/2016 9:06:07 PM	27243
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Methyl tert-butyl ether (MTBE)	ND	0.095		mg/Kg	1	8/31/2016 9:06:07 PM	27243
Benzene	ND	0.024		mg/Kg	1	8/31/2016 9:06:07 PM	27243
Toluene	ND	0.047		mg/Kg	1	8/31/2016 9:06:07 PM	27243
Ethylbenzene	ND	0.047		mg/Kg	1	8/31/2016 9:06:07 PM	27243
Xylenes, Total	ND	0.095		mg/Kg	1	8/31/2016 9:06:07 PM	27243
Surr: 4-Bromofluorobenzene	101	80-120		%Rec	1	8/31/2016 9:06:07 PM	27243

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

**Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Yates Petroleum Corporation

Client Sample ID: E-2'

Project: Livingston Ridge SWD System

Collection Date: 8/25/2016 2:17:00 PM

Lab ID: 1608G85-002

Matrix: SOIL

Received Date: 8/30/2016 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Chloride	10000	750		mg/Kg	500	9/6/2016 7:13:04 PM	27331
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	9/1/2016 4:54:35 PM	27281
Surr: DNOP	92.0	70-130		%Rec	1	9/1/2016 4:54:35 PM	27281
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	8/31/2016 9:29:35 PM	27243
Surr: BFB	85.6	68.3-144		%Rec	1	8/31/2016 9:29:35 PM	27243
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Methyl tert-butyl ether (MTBE)	ND	0.097		mg/Kg	1	8/31/2016 9:29:35 PM	27243
Benzene	ND	0.024		mg/Kg	1	8/31/2016 9:29:35 PM	27243
Toluene	ND	0.049		mg/Kg	1	8/31/2016 9:29:35 PM	27243
Ethylbenzene	ND	0.049		mg/Kg	1	8/31/2016 9:29:35 PM	27243
Xylenes, Total	ND	0.097		mg/Kg	1	8/31/2016 9:29:35 PM	27243
Surr: 4-Bromofluorobenzene	101	80-120		%Rec	1	8/31/2016 9:29:35 PM	27243

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:			
*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

**Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Yates Petroleum Corporation

Client Sample ID: W-1'

Project: Livingston Ridge SWD System

Collection Date: 8/25/2016 2:25:00 PM

Lab ID: 1608G85-003

Matrix: SOIL

Received Date: 8/30/2016 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>LGT</b>
Chloride	43	30		mg/Kg	20	9/2/2016 1:35:17 PM	27331
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	9/1/2016 5:16:47 PM	27281
Surr: DNOP	102	70-130		%Rec	1	9/1/2016 5:16:47 PM	27281
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	8/31/2016 9:53:07 PM	27243
Surr: BFB	84.6	68.3-144		%Rec	1	8/31/2016 9:53:07 PM	27243
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Methyl tert-butyl ether (MTBE)	ND	0.10		mg/Kg	1	8/31/2016 9:53:07 PM	27243
Benzene	ND	0.025		mg/Kg	1	8/31/2016 9:53:07 PM	27243
Toluene	ND	0.050		mg/Kg	1	8/31/2016 9:53:07 PM	27243
Ethylbenzene	ND	0.050		mg/Kg	1	8/31/2016 9:53:07 PM	27243
Xylenes, Total	ND	0.10		mg/Kg	1	8/31/2016 9:53:07 PM	27243
Surr: 4-Bromofluorobenzene	98.3	80-120		%Rec	1	8/31/2016 9:53:07 PM	27243

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:			
*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Yates Petroleum Corporation      **Client Sample ID:** W-2'  
**Project:** Livingston Ridge SWD System      **Collection Date:** 8/25/2016 2:29:00 PM  
**Lab ID:** 1608G85-004      **Matrix:** SOIL      **Received Date:** 8/30/2016 9:30:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>LGT</b>
Chloride	130	30		mg/Kg	20	9/2/2016 1:47:42 PM	27331
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>TOM</b>
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	9/1/2016 5:38:57 PM	27281
Surr: DNOP	99.7	70-130		%Rec	1	9/1/2016 5:38:57 PM	27281
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	8/31/2016 10:16:37 PM	27243
Surr: BFB	85.2	68.3-144		%Rec	1	8/31/2016 10:16:37 PM	27243
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Methyl tert-butyl ether (MTBE)	ND	0.096		mg/Kg	1	8/31/2016 10:16:37 PM	27243
Benzene	ND	0.024		mg/Kg	1	8/31/2016 10:16:37 PM	27243
Toluene	ND	0.048		mg/Kg	1	8/31/2016 10:16:37 PM	27243
Ethylbenzene	ND	0.048		mg/Kg	1	8/31/2016 10:16:37 PM	27243
Xylenes, Total	ND	0.096		mg/Kg	1	8/31/2016 10:16:37 PM	27243
Surr: 4-Bromofluorobenzene	99.5	80-120		%Rec	1	8/31/2016 10:16:37 PM	27243

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	R RPD outside accepted recovery limits	RL Reporting Detection Limit
	S % Recovery outside of range due to dilution or matrix	W Sample container temperature is out of limit as specified

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1608G85

08-Sep-16

**Client:** Yates Petroleum Corporation

**Project:** Livingston Ridge SWD System

Sample ID	MB-27331	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBS	Batch ID:	27331	RunNo:	36994					
Prep Date:	9/2/2016	Analysis Date:	9/2/2016	SeqNo:	1146344	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	LCS-27331	SampType:	LCS	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSS	Batch ID:	27331	RunNo:	36994					
Prep Date:	9/2/2016	Analysis Date:	9/2/2016	SeqNo:	1146345	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.3	90	110			

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

# QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608G85

08-Sep-16

**Client:** Yates Petroleum Corporation  
**Project:** Livingston Ridge SWD System

Sample ID	LCS-27281	SampType:	LCS	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	LCSS	Batch ID:	27281	RunNo:	36922					
Prep Date:	8/31/2016	Analysis Date:	9/1/2016	SeqNo:	1144520	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	41	10	50.00	0	81.4	62.6	124			
Surr: DNOP	3.9		5.000		77.1	70	130			

Sample ID	MB-27281	SampType:	MBLK	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	PBS	Batch ID:	27281	RunNo:	36922					
Prep Date:	8/31/2016	Analysis Date:	9/1/2016	SeqNo:	1144521	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Surr: DNOP	8.2		10.00		82.1	70	130			

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

# QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1608G85

08-Sep-16

**Client:** Yates Petroleum Corporation  
**Project:** Livingston Ridge SWD System

Sample ID	MB-27243	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBS	Batch ID:	27243	RunNo:	36893					
Prep Date:	8/30/2016	Analysis Date:	8/31/2016	SeqNo:	1143738	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	850		1000		84.6	68.3	144			

Sample ID	LCS-27243	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSS	Batch ID:	27243	RunNo:	36893					
Prep Date:	8/30/2016	Analysis Date:	8/31/2016	SeqNo:	1143739	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	5.0	25.00	0	97.3	80	120			
Surr: BFB	930		1000		93.0	68.3	144			

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1608G85

08-Sep-16

**Client:** Yates Petroleum Corporation  
**Project:** Livingston Ridge SWD System

Sample ID: <b>MB-27243</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8021B: Volatiles</b>								
Client ID: <b>PBS</b>	Batch ID: <b>27243</b>	RunNo: <b>36893</b>								
Prep Date: <b>8/30/2016</b>	Analysis Date: <b>8/31/2016</b>	SeqNo: <b>1143786</b>	Units: <b>mg/Kg</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	0.10								
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.0		1.000		101	80	120			

Sample ID: <b>LCS-27243</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 8021B: Volatiles</b>								
Client ID: <b>LCSS</b>	Batch ID: <b>27243</b>	RunNo: <b>36893</b>								
Prep Date: <b>8/30/2016</b>	Analysis Date: <b>8/31/2016</b>	SeqNo: <b>1143787</b>	Units: <b>mg/Kg</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	0.87	0.10	1.000	0	87.4	61	143			
Benzene	0.93	0.025	1.000	0	92.6	75.3	123			
Toluene	0.90	0.050	1.000	0	90.3	80	124			
Ethylbenzene	0.92	0.050	1.000	0	92.0	82.8	121			
Xylenes, Total	2.8	0.10	3.000	0	92.6	83.9	122			
Surr: 4-Bromofluorobenzene	1.1		1.000		108	80	120			

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified



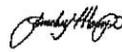
Hall Environmental Analysis Laboratory  
 4901 Hawkins NE  
 Albuquerque, NM 87109  
 TEL: 505-345-3975 FAX: 505-345-4107  
 Website: www.hallenvironmental.com

# Sample Log-In Check List

Client Name: Yates Petroleum Corporat

Work Order Number: 1608G85

RcptNo: 1

Received by/date:    
 Logged By: Lindsay Mangin 8/30/2016 9:30:00 AM    
 Completed By: Lindsay Mangin 8/30/2016 10:22:56 AM    
 Reviewed By: JC 08/30/16

**Chain of Custody**

- 1. Custody seals intact on sample bottles? Yes  No  Not Present
- 2. Is Chain of Custody complete? Yes  No  Not Present
- 3. How was the sample delivered? Courier

**Log In**

- 4. Was an attempt made to cool the samples? Yes  No  NA
  - 5. Were all samples received at a temperature of >0° C to 6.0°C Yes  No  NA
  - 6. Sample(s) in proper container(s)? Yes  No
  - 7. Sufficient sample volume for indicated test(s)? Yes  No
  - 8. Are samples (except VOA and ONG) properly preserved? Yes  No
  - 9. Was preservative added to bottles? Yes  No  NA
  - 10. VOA vials have zero headspace? Yes  No  No VOA Vials
  - 11. Were any sample containers received broken? Yes  No
  - 12. Does paperwork match bottle labels? Yes  No
  - 13. Are matrices correctly identified on Chain of Custody? Yes  No
  - 14. Is it clear what analyses were requested? Yes  No
  - 15. Were all holding times able to be met? Yes  No
- # of preserved bottles checked for pH:   
 (<2 or >12 unless noted)   
 Adjusted?   
 Checked by:

**Special Handling (if applicable)**

- 16. Was client notified of all discrepancies with this order? Yes  No  NA

Person Notified: \_\_\_\_\_ Date: \_\_\_\_\_  
 By Whom: \_\_\_\_\_ Via:  eMail  Phone  Fax  In Person  
 Regarding: \_\_\_\_\_  
 Client Instructions: \_\_\_\_\_

17. Additional remarks:

**18. Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	4.8	Good	Yes			

# Chain-of-Custody Record

Client: Yates Petroleum Corporation

Mailing Address:

105 South 4th Street Artesia, NM 88210

Phone #: 575-703-6537

email or Fax#: csettle@yatespetroleum.com

Q/AQC Package:  
 Standard  Level 4 (Full Validation)

Accreditation:

NELAP  Other

EDD (Type)

Project Manager:

Chase Settle  
 PO # 205. 0750

Sampler: Chase Settle

On Ice:  Yes  No

Sample Temperature: 48

Container Type and #

1 - 4oz. ICE  
 1 - 4oz. ICE  
 1 - 4oz. ICE  
 1 - 4oz. ICE

Preservative Type

ICE  
 ICE  
 ICE  
 ICE

HEAL No.

1108685  
 -001  
 -002  
 -003  
 -004

Date Time Matrix Sample Request ID

8/25/2016 2:12P Soil E-1'  
 8/25/2016 2:17P Soil E-2'  
 8/25/2016 2:25P Soil W-1'  
 8/25/2016 2:29P Soil W-2'

Turn-Around Time:

Standard  Rush

Project Name:

Livingston Ridge SWD System

Project #:

# HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

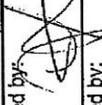
4901 Hawkins NE - Albuquerque, NM 87109

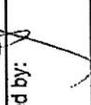
Tel. 505-345-3975 Fax 505-345-4107

## Analysis Request

BTEX + MTBE + TMBs (8021)	X
BTEX + MTBE + TPH (Gas only)	X
TPH Method 8015B (Gas/Diesel)	X
TPH (Method 418.1)	
EDB (Method 504.1)	
8310 (PMA or PAH)	
RCRA & Metals	
Anions (F, Cl, NO <sub>3</sub> , NO <sub>2</sub> , PO <sub>4</sub> , SO <sub>4</sub> )	X
8081 Pesticides / 8082 PCBs	
8260B (VOA)	
8270 (Semi-VOA)	
Air Bubbles (Y or N)	

Remarks:

Received by:  Date: 08/20/16 Time: 09:30

Received by:  Date: 08/20/16 Time: 09:30

Date: 8/29/16 Time: 8:15

Date: Relinquished by:  Time: Relinquished by:

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.



Hall Environmental Analysis Laboratory  
4901 Hawkins NE  
Albuquerque, NM 87109  
TEL: 505-345-3975 FAX: 505-345-4107  
Website: [www.hallenvironmental.com](http://www.hallenvironmental.com)

November 03, 2016

Chase Settle  
EOG  
105 South Fourth Street  
Artesia, NM 88210  
TEL: (575) 748-4111  
FAX

RE: Livingston Ridge SWD System

OrderNo.: 1610854

Dear Chase Settle:

Hall Environmental Analysis Laboratory received 6 sample(s) on 10/18/2016 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to [www.hallenvironmental.com](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read "Andy Freeman", is written over a light blue horizontal line.

Andy Freeman  
Laboratory Manager  
4901 Hawkins NE  
Albuquerque, NM 87109

Analytical Report

Lab Order: 1610854

Date Reported: 11/3/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: EOG
Project: Livingston Ridge SWD System

Lab Order: 1610854

Lab ID: 1610854-001 Collection Date: 10/17/2016 8:09:00 AM
Client Sample ID: E-3' Matrix: SOIL

Table with 7 columns: Analyses, Result, PQL, Qual, Units, DF, Date Analyzed, Batch ID. Row 1: EPA METHOD 300.0: ANIONS, Analyst: LGT. Row 2: Chloride, 2700, 150, mg/Kg, 100, 10/29/2016 12:11:29 AM, 28304.

Lab ID: 1610854-002 Collection Date: 10/17/2016 8:10:00 AM
Client Sample ID: E-4' Matrix: SOIL

Table with 7 columns: Analyses, Result, PQL, Qual, Units, DF, Date Analyzed, Batch ID. Row 1: EPA METHOD 300.0: ANIONS, Analyst: LGT. Row 2: Chloride, 890, 30, mg/Kg, 20, 10/26/2016 2:18:09 PM, 28304.

Lab ID: 1610854-003 Collection Date: 10/17/2016 8:14:00 AM
Client Sample ID: E-6' Matrix: SOIL

Table with 7 columns: Analyses, Result, PQL, Qual, Units, DF, Date Analyzed, Batch ID. Row 1: EPA METHOD 300.0: ANIONS, Analyst: LGT. Row 2: Chloride, 18000, 750, mg/Kg, 500, 10/29/2016 12:23:54 AM, 28304.

Lab ID: 1610854-004 Collection Date: 10/17/2016 8:18:00 AM
Client Sample ID: E-8' Matrix: SOIL

Table with 7 columns: Analyses, Result, PQL, Qual, Units, DF, Date Analyzed, Batch ID. Row 1: EPA METHOD 300.0: ANIONS, Analyst: LGT. Row 2: Chloride, 430, 30, mg/Kg, 20, 10/26/2016 2:42:58 PM, 28304.

Lab ID: 1610854-005 Collection Date: 10/17/2016 8:28:00 AM
Client Sample ID: E-10' Matrix: SOIL

Table with 7 columns: Analyses, Result, PQL, Qual, Units, DF, Date Analyzed, Batch ID. Row 1: EPA METHOD 300.0: ANIONS, Analyst: LGT. Row 2: Chloride, 550, 30, mg/Kg, 20, 10/26/2016 2:55:23 PM, 28304.

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

- Qualifiers: \* Value exceeds Maximum Contaminant Level. B Analyte detected in the associated Method Blank
D Sample Diluted Due to Matrix E Value above quantitation range
H Holding times for preparation or analysis exceeded J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit P Sample pH Not In Range
R RPD outside accepted recovery limits RL Reporting Detection Limit
S % Recovery outside of range due to dilution or matrix W Sample container temperature is out of limit as specified

Analytical Report

Lab Order: 1610854

Date Reported: 11/3/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: EOG
Project: Livingston Ridge SWD System

Lab Order: 1610854

Lab ID: 1610854-006

Collection Date: 10/17/2016 8:38:00 AM

Client Sample ID: E-11'

Matrix: SOIL

Table with columns: Analyses, Result, PQL, Qual, Units, DF, Date Analyzed, Batch ID. Row 1: EPA METHOD 300.0: ANIONS, Chloride, ND, 30, mg/Kg, 20, 10/26/2016 3:07:48 PM, 28304. Analyst: LGT

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Table with 2 columns: Qualifiers and descriptions. Includes codes like \*, D, H, ND, R, S, B, E, J, P, RL, W and their corresponding meanings.

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1610854

03-Nov-16

**Client:** EOG  
**Project:** Livingston Ridge SWD System

Sample ID	MB-28304	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBS	Batch ID:	28304	RunNo:	38270					
Prep Date:	10/26/2016	Analysis Date:	10/26/2016	SeqNo:	1194460	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	LCS-28304	SampType:	LCS	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSS	Batch ID:	28304	RunNo:	38270					
Prep Date:	10/26/2016	Analysis Date:	10/26/2016	SeqNo:	1194461	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	15	1.5	15.00	0	97.6	90	110			

**Qualifiers:**

- |   |   |
|---|---|
| * Value exceeds Maximum Contaminant Level.              | B Analyte detected in the associated Method Blank           |
| D Sample Diluted Due to Matrix                          | E Value above quantitation range                            |
| H Holding times for preparation or analysis exceeded    | J Analyte detected below quantitation limits                |
| ND Not Detected at the Reporting Limit                  | P Sample pH Not In Range                                    |
| R RPD outside accepted recovery limits                  | RL Reporting Detection Limit                                |
| S % Recovery outside of range due to dilution or matrix | W Sample container temperature is out of limit as specified |



Hall Environmental Analysis Laboratory  
 4901 Hawkins NE  
 Albuquerque, NM 87109  
 TEL: 505-345-3975 FAX: 505-345-4107  
 Website: www.hallenvironmental.com

# Sample Log-In Check List

Client Name: EOG/Yates      Work Order Number: 1610854      RptNo: 1

Received by/date:	<i>AG</i>	<i>10/18/16</i>
Logged By:	Ashley Gallegos	10/18/2016 9:35:00 AM <i>AG</i>
Completed By:	Ashley Gallegos	10/18/2016 11:44:25 AM <i>AG</i>
Reviewed By:	<i>JD</i>	<i>10/18/16</i>

### Chain of Custody

- Custody seals intact on sample bottles? Yes  No  Not Present
- Is Chain of Custody complete? Yes  No  Not Present
- How was the sample delivered? Courier

### Log In

- Was an attempt made to cool the samples? Yes  No  NA
- Were all samples received at a temperature of >0° C to 6.0°C? Yes  No  NA
- Sample(s) in proper container(s)? Yes  No
- Sufficient sample volume for Indicated test(s)? Yes  No
- Are samples (except VOA and ONG) properly preserved? Yes  No
- Was preservative added to bottles? Yes  No  NA
- VOA vials have zero headspace? Yes  No  No VOA Vials
- Were any sample containers received broken? Yes  No
- Does paperwork match bottle labels?  
(Note discrepancies on chain of custody) Yes  No
- Are matrices correctly identified on Chain of Custody? Yes  No
- Is it clear what analyses were requested? Yes  No
- Were all holding times able to be met?  
(If no, notify customer for authorization.) Yes  No

# of preserved bottles checked for pH: \_\_\_\_\_  
 (<2 or >12 unless noted)

Adjusted? \_\_\_\_\_

Checked by: \_\_\_\_\_

### Special Handling (if applicable)

- Was client notified of all discrepancies with this order? Yes  No  NA

Person Notified:	_____	Date:	_____
By Whom:	_____	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	_____		
Client Instructions:	_____		

17. Additional remarks:

### 18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.8	Good	Yes			

# Chain-of-Custody Record

Client: Yates Petroleum Corporation **EOG**

Mailing Address:

105 South 4th Street Artesia, NM 88210

Phone #: 575-703-6537

email or Fax#: [csettle@yatespetroleum.com](mailto:csettle@yatespetroleum.com)

QA/QC Package:

Standard  Level 4 (Full Validation)

Accreditation:

NELAP  Other

EDD (Type)

Project Manager:

Chase Settle

PO # 205. 0750

Sampler: Chase Settle

On Ice:  Yes  No

Sample Temperature: 2-8

Date Time Matrix Sample Request ID

10/17/16 #####	8:09A	Soil	E-3'	1 - 4oz.	None	HEAL No. 11210854 -001
#####	8:10A	Soil	E-4'	1 - 4oz.	None	-002
#####	8:14A	Soil	E-6'	1 - 4oz.	None	-003
#####	8:18A	Soil	E-8'	1 - 4oz.	None	-004
#####	8:28A	Soil	E-10'	1 - 4oz.	None	-005
#####	8:38A	Soil	E-11'	1 - 4oz.	None	-004

Date: 10-17-16

Time: 2:00pm

Date: 10-17-16

Time: 2:00pm

Relinquished by:

Chase Settle

Received by:

Landrey Concha

Date

Time

Date

Time

Remarks:

# HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

## Analysis Request

BTEX + MTBE + TMBs (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PMA or PAH)	RCRA 8 Metals	Anions (F <sup>-</sup> , Cl <sup>-</sup> , NO <sub>3</sub> <sup>-</sup> , NO <sub>2</sub> <sup>-</sup> , PO <sub>4</sub> <sup>-</sup> , SO <sub>4</sub> <sup>-</sup> )	8081 Pesticides / 8082 PCB's	8260B (VCA)	8270 (Semi-VOA)	Air Bubbles (Y or N)
							X				
							X				
							X				
							X				
							X				
							X				

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.