



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

June 21, 2016

Amber Griffin

Yates Petroleum Corporation
105 South Fourth Street
Artesia, NM 88210
TEL: (575) 748-4195
FAX

RE: Satchmo SWD State 1

OrderNo.: 1606764

Dear Amber Griffin:

Hall Environmental Analysis Laboratory received 5 sample(s) on 6/14/2016 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 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 in a cursive style.

Andy Freeman

Laboratory Manager

4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1606764

Date Reported: 6/21/2016

CLIENT: Yates Petroleum Corporation

Client Sample ID: Off Pad-2'

Project: Satchmo SWD State 1

Collection Date: 6/9/2016 12:30:00 PM

Lab ID: 1606764-001

Matrix: SOIL

Received Date: 6/14/2016 10:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: JME
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	6/16/2016 1:09:02 PM	25855
Surr: DNOP	85.8	70-130		%Rec	1	6/16/2016 1:09:02 PM	25855
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	6/17/2016 2:11:29 AM	25868
Surr: BFB	105	80-120		%Rec	1	6/17/2016 2:11:29 AM	25868
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	6/17/2016 2:11:29 AM	25868
Toluene	ND	0.048		mg/Kg	1	6/17/2016 2:11:29 AM	25868
Ethylbenzene	ND	0.048		mg/Kg	1	6/17/2016 2:11:29 AM	25868
Xylenes, Total	ND	0.097		mg/Kg	1	6/17/2016 2:11:29 AM	25868
Surr: 4-Bromofluorobenzene	102	80-120		%Rec	1	6/17/2016 2:11:29 AM	25868

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	Page 1 of 8
	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.

Analytical Report

Lab Order 1606764

Date Reported: 6/21/2016

CLIENT: Yates Petroleum Corporation

Client Sample ID: Off Pad-3'

Project: Satchmo SWD State 1

Collection Date: 6/9/2016 12:35:00 PM

Lab ID: 1606764-002

Matrix: SOIL

Received Date: 6/14/2016 10:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: JME
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	6/16/2016 7:30:59 PM	25855
Surr: DNOP	89.1	70-130		%Rec	1	6/16/2016 7:30:59 PM	25855
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	6/17/2016 2:34:54 AM	25868
Surr: BFB	107	80-120		%Rec	1	6/17/2016 2:34:54 AM	25868
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	6/17/2016 2:34:54 AM	25868
Toluene	ND	0.048		mg/Kg	1	6/17/2016 2:34:54 AM	25868
Ethylbenzene	ND	0.048		mg/Kg	1	6/17/2016 2:34:54 AM	25868
Xylenes, Total	ND	0.096		mg/Kg	1	6/17/2016 2:34:54 AM	25868
Surr: 4-Bromofluorobenzene	104	80-120		%Rec	1	6/17/2016 2:34:54 AM	25868

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.

Analytical Report

Lab Order 1606764

Date Reported: 6/21/2016

CLIENT: Yates Petroleum Corporation

Client Sample ID: Pad 1-Surface

Project: Satchmo SWD State 1

Collection Date: 6/9/2016 12:42:00 PM

Lab ID: 1606764-003

Matrix: SOIL

Received Date: 6/14/2016 10:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: JME
Diesel Range Organics (DRO)	42	9.9		mg/Kg	1	6/16/2016 7:59:46 PM	25855
Surr: DNOP	86.2	70-130		%Rec	1	6/16/2016 7:59:46 PM	25855
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	6/17/2016 2:58:26 AM	25868
Surr: BFB	107	80-120		%Rec	1	6/17/2016 2:58:26 AM	25868
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	6/17/2016 2:58:26 AM	25868
Toluene	ND	0.047		mg/Kg	1	6/17/2016 2:58:26 AM	25868
Ethylbenzene	ND	0.047		mg/Kg	1	6/17/2016 2:58:26 AM	25868
Xylenes, Total	ND	0.094		mg/Kg	1	6/17/2016 2:58:26 AM	25868
Surr: 4-Bromofluorobenzene	102	80-120		%Rec	1	6/17/2016 2:58:26 AM	25868

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	Page 3 of 8
	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.

Analytical Report

Lab Order 1606764

Date Reported: 6/21/2016

CLIENT: Yates Petroleum Corporation

Client Sample ID: Pad 2-Surface

Project: Satchmo SWD State 1

Collection Date: 6/9/2016 12:44:00 PM

Lab ID: 1606764-004

Matrix: SOIL

Received Date: 6/14/2016 10:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: JME
Diesel Range Organics (DRO)	62	10		mg/Kg	1	6/16/2016 8:28:09 PM	25855
Surr: DNOP	110	70-130		%Rec	1	6/16/2016 8:28:09 PM	25855
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	6/17/2016 4:32:26 AM	25868
Surr: BFB	107	80-120		%Rec	1	6/17/2016 4:32:26 AM	25868
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.023		mg/Kg	1	6/17/2016 4:32:26 AM	25868
Toluene	ND	0.046		mg/Kg	1	6/17/2016 4:32:26 AM	25868
Ethylbenzene	ND	0.046		mg/Kg	1	6/17/2016 4:32:26 AM	25868
Xylenes, Total	ND	0.093		mg/Kg	1	6/17/2016 4:32:26 AM	25868
Surr: 4-Bromofluorobenzene	101	80-120		%Rec	1	6/17/2016 4:32:26 AM	25868

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	Page 4 of 8
	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.

Analytical Report

Lab Order 1606764

Date Reported: 6/21/2016

CLIENT: Yates Petroleum Corporation

Client Sample ID: Pad 3-Surface

Project: Satchmo SWD State 1

Collection Date: 6/9/2016 12:46:00 PM

Lab ID: 1606764-005

Matrix: SOIL

Received Date: 6/14/2016 10:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: JME
Diesel Range Organics (DRO)	670	99		mg/Kg	10	6/17/2016 8:59:05 AM	25855
Surr: DNOP	0	70-130	S	%Rec	10	6/17/2016 8:59:05 AM	25855
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/17/2016 4:55:55 AM	25868
Surr: BFB	123	80-120	S	%Rec	1	6/17/2016 4:55:55 AM	25868
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	6/17/2016 4:55:55 AM	25868
Toluene	ND	0.049		mg/Kg	1	6/17/2016 4:55:55 AM	25868
Ethylbenzene	ND	0.049		mg/Kg	1	6/17/2016 4:55:55 AM	25868
Xylenes, Total	ND	0.097		mg/Kg	1	6/17/2016 4:55:55 AM	25868
Surr: 4-Bromofluorobenzene	105	80-120		%Rec	1	6/17/2016 4:55:55 AM	25868

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1606764

21-Jun-16

Client: Yates Petroleum Corporation

Project: Satchmo SWD State 1

Sample ID MB-25855	SampType: MBLK		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: PBS	Batch ID: 25855		RunNo: 34958							
Prep Date: 6/15/2016	Analysis Date: 6/16/2016		SeqNo: 1080384		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	9.2		10.00		92.4	70	130			

Sample ID LCS-25855	SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: LCSS	Batch ID: 25855		RunNo: 34958							
Prep Date: 6/15/2016	Analysis Date: 6/16/2016		SeqNo: 1080386		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	10	50.00	0	93.0	62.6	124			
Surr: DNOP	4.2		5.000		84.9	70	130			

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 |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1606764

21-Jun-16

Client: Yates Petroleum Corporation

Project: Satchmo SWD State 1

Sample ID MB-25868	SampType: MBLK		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: PBS	Batch ID: 25868		RunNo: 34963							
Prep Date: 6/15/2016	Analysis Date: 6/16/2016		SeqNo: 1080626		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	1100		1000		106	80	120			

Sample ID LCS-25868	SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: LCSS	Batch ID: 25868		RunNo: 34963							
Prep Date: 6/15/2016	Analysis Date: 6/16/2016		SeqNo: 1080627		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	98.8	80	120			
Surr: BFB	1200		1000		117	80	120			

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 |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1606764

21-Jun-16

Client: Yates Petroleum Corporation

Project: Satchmo SWD State 1

Sample ID MB-25868	SampType: MBLK		TestCode: EPA Method 8021B: Volatiles							
Client ID: PBS	Batch ID: 25868		RunNo: 34963							
Prep Date: 6/15/2016	Analysis Date: 6/16/2016		SeqNo: 1080654		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.0		1.000		102	80	120			

Sample ID LCS-25868	SampType: LCS		TestCode: EPA Method 8021B: Volatiles							
Client ID: LCSS	Batch ID: 25868		RunNo: 34963							
Prep Date: 6/15/2016	Analysis Date: 6/16/2016		SeqNo: 1080655		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	1.000	0	102	75.3	123			
Toluene	0.93	0.050	1.000	0	93.1	80	124			
Ethylbenzene	0.90	0.050	1.000	0	89.8	82.8	121			
Xylenes, Total	2.7	0.10	3.000	0	89.8	83.9	122			
Surr: 4-Bromofluorobenzene	1.1		1.000		106	80	120			

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 |

Sample Log-In Check List

Client Name: **Yates Petroleum Corporat** Work Order Number: **1606764** RcptNo: **1**

Received by/date: *[Signature]* *06/14/16*
 Logged By: **Lindsay Mangin** **6/14/2016 10:00:00 AM** *[Signature]*
 Completed By: **Lindsay Mangin** **6/14/2016 3:13:22 PM** *[Signature]*
 Reviewed By: *[Signature]* *06/15/16*

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?
(Note discrepancies on chain of custody) 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?
(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)

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

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

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.7	Good	Yes			

