

MARTIN YATES, III
1912-1985

FRANK W. YATES
1936-1986

S.P. YATES
1914-2000



105 SOUTH FOURTH STREET
ARTESIA, NEW MEXICO 88210-2118

TELEPHONE (575) 748-1471

www.yatespetroleum.com

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January 26, 2016

Mr. Mike Bratcher or Ms. Heather Patterson
NMOCD District II
811 South First
Artesia, NM 88210

RE: Woodchuck ABW State #3
30-015-39155
Section 13, T17S-R28E
Eddy County, New Mexico

Mr. Bratcher or Ms. Patterson,

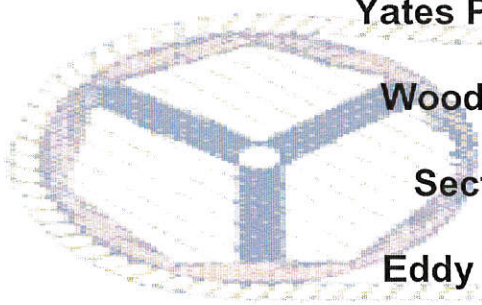
Yates Petroleum Corporation would like to submit the following plan of work to you regarding the release that occurred at the above mentioned facility on August 22, 2014 (2RP-2470). The release was 10 barrels of produced water and 5 barrels of crude oil released, with 0 barrels of produced water and 0 barrels of crude oil recovered.

With NMOCD and NMSLO approval of this work plan, Yates will hold a bid meeting allowing several contractors the opportunity to submit bids on this remediation project. Bids that are received will be forwarded to Yates Management for review. Once Yates Management reviews the bids and gives approval, the remediation project will be awarded to a contractor for work to commence.

If you have any questions or concerns, I can be reached at (575) 748-4111 or by email at agriffin@yatespetroleum.com.

Thank You,

Amber Griffin
Environmental Regulatory Agent
Yates Petroleum Corporation



Yates Petroleum Corporation

Woodchuck ABW State #3

Section 13, T17S-R28E

Eddy County, New Mexico

January 26, 2016

I. Location

The release area is located approximately 15.2 miles east of Artesia, NM on Highway 82, approximately 1.9 miles north of Highway 82 on Turkey Track Road (County Road 209) and approximately 0.5 miles east of Turkey Track Road (County Road 209) on a lease road.

II. Background

On August 22, 2014, Yates had a release of 10 barrels produced water and 5 barrels of crude oil, with 0 barrels produced water and 0 barrels of crude oil recovered. The area affected from this release was on the production pad for the well. An initial Form C-141 was submitted, via e-mail, to the NMOCD District II on September 2, 2014.

On August 28, 2014 Yates returned to the site and collected initial soil samples from the surface using a shovel. The hardness of the caliche on the pad prevented further sampling. The surface soil sample was sent to an approved NMOCD laboratory and tested for BTEX 8021B, TPH 8015M, and Chlorides SM4500Cl-B. Yates received the analytical results on September 11, 2014 (Report H402740 attached to this work plan). The analytical results showed that both BTEX and TPH were at levels above NMOCD RRAL's. The analytical results also showed elevated chloride levels, and Yates determined that further vertical delineation of BTEX, TPH and chlorides was needed.

On December 8, 2015 Yates returned to the site and collected further soil samples from the depths of 1' – 3' below the surface level with a backhoe. The soil samples were sent to an approved NMOCD laboratory and tested for BTEX 8021B, TPH 8015M, and Chlorides 300.0. Yates received the analytical results on December 28, 2015 (Report 1512604 attached to this work plan). The analytical results showed that both BTEX and TPH had delineated to levels below NMOCD RRAL's. The analytical results also showed that chloride levels had delineated.

III. Surface and Ground Water

Area surface geology is Cenozoic. The ChevronTexaco depth to ground water map shows the depth to groundwater to be approximately 50-75 feet making the site ranking for this site a ten (10). Watercourses in the area are dry except for infrequent flows in response to major precipitation events.

The ranking for this site is ten (10) based on the following:

Depth to ground water	50-99'
Wellhead Protection Area	> 1000'
Distance to surface water body	> 1000'

IV. Soils

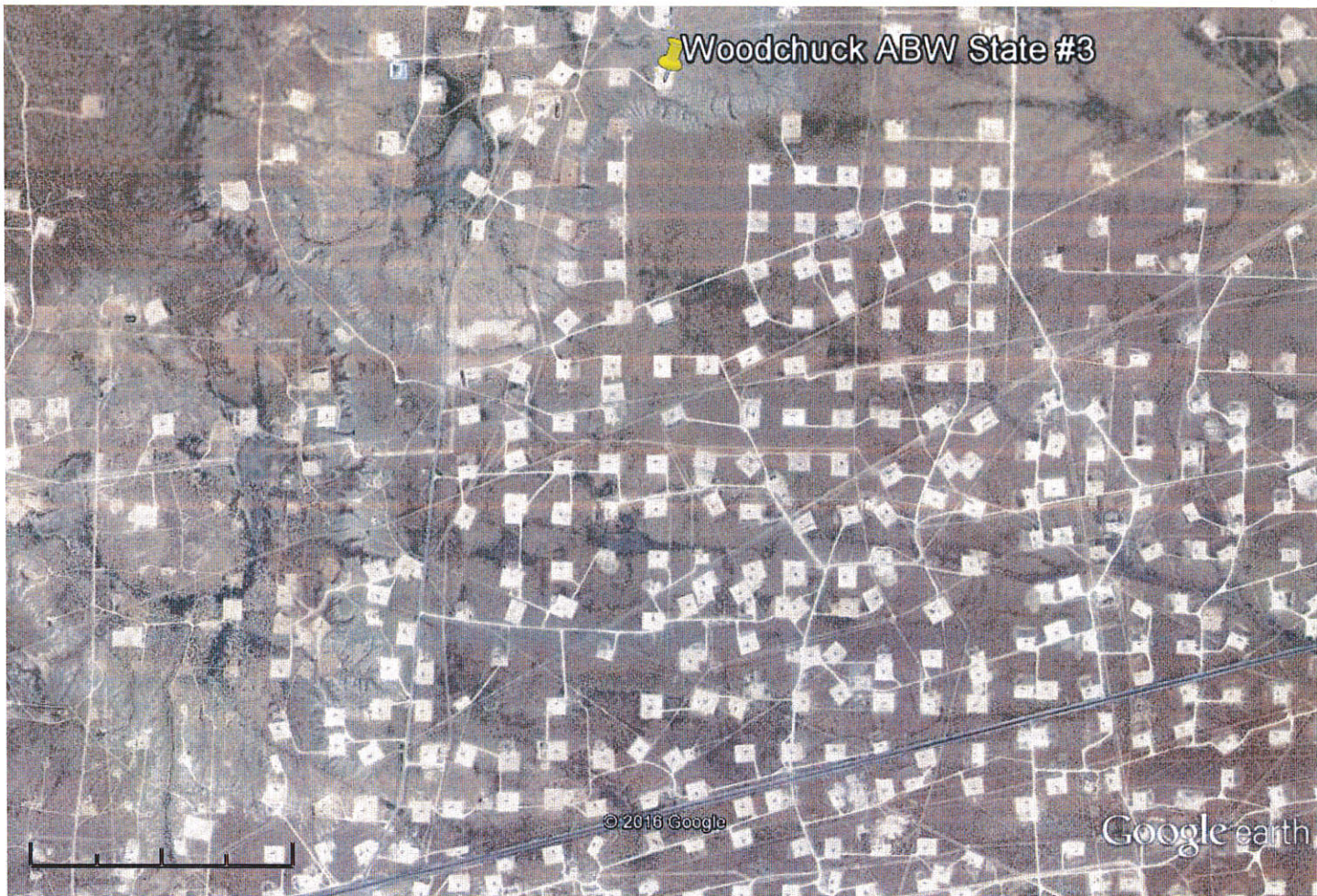
The area consists of soils that are caliche and clay seams.

V. Scope of Work

Based off the analytical reports which show complete vertical delineation, Yates proposes to excavate 1.5' from the release area. The excavation will be approximately 50' long, 4' wide. Once all soils have been excavated the excavation will be backfilled with caliche.

Contaminated soils that are excavated will be hauled to a NMOCD approved disposal facility, The Lea Land, Inc. Landfill.

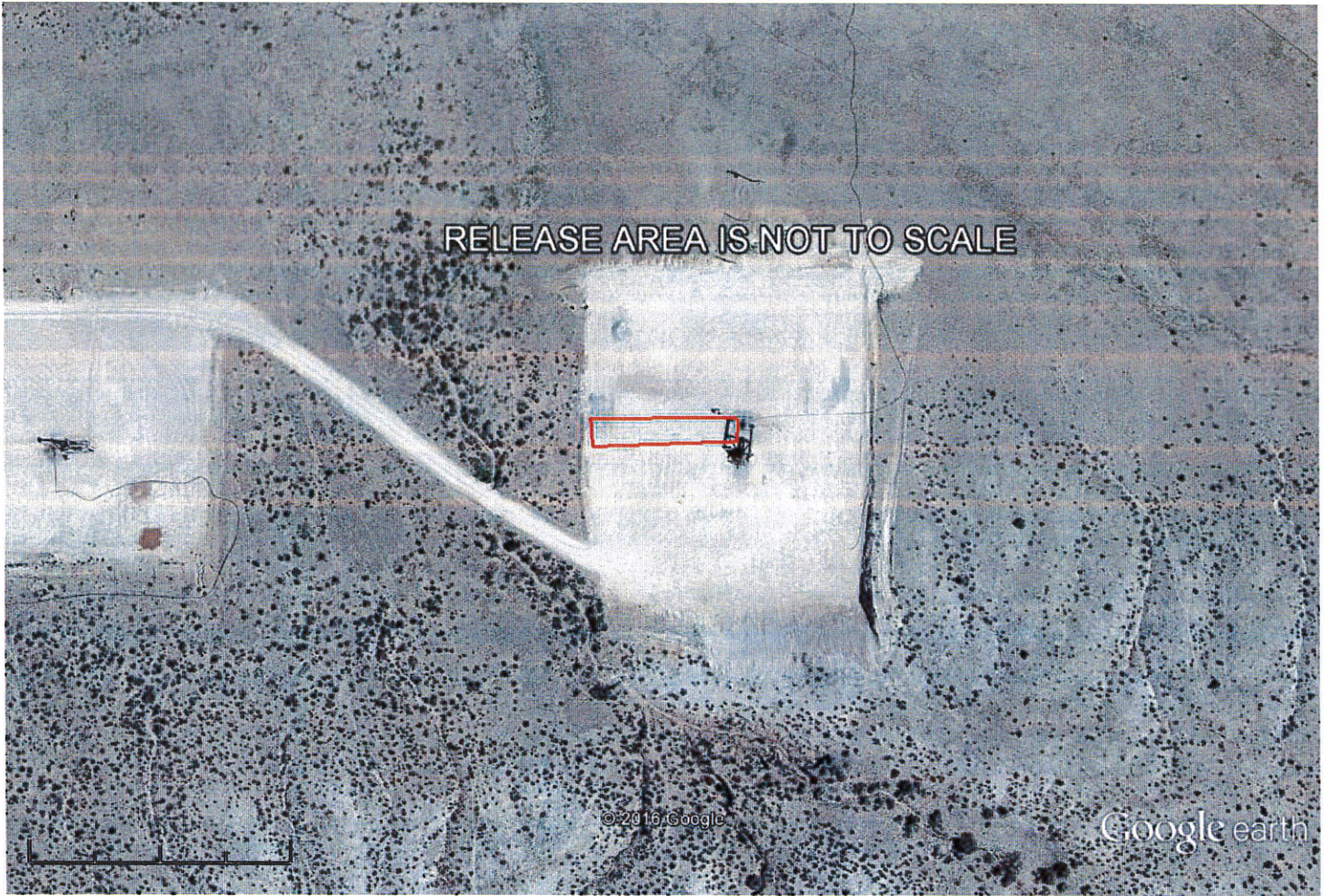
Once all excavation and backfill work is complete, Yates will submit a Final Form C-141 to NMOCD and NMSLO requesting closure of this release.



Google earth

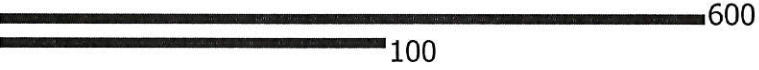
miles 1
km 2





Google earth

feet
meters



Woodchuck ABW State #3

Cardinal Laboratories

	Analytical Report	Sample Area	Sample Date	Sample Type	Depth	BTEX	GRO	DRO	TOTAL	Chlorides
SURFACE	H402740	Release Area	8/28/2014	Grab/Shovel	Surface	55.9	761	8380	9141	12,900
1'	1512604	Release Area	12/8/2015	Grab/Backhoe	1'	ND	ND	25	25	1,300
2'	1512604	Release Area	12/8/2015	Grab/Backhoe	2'	ND	ND	ND	ND	430
3'	1512604	Release Area	12/8/2015	Grab/Backhoe	3'	ND	ND	ND	ND	40

Site Ranking is TEN (10). Depth to Ground Water 50'-75' per Chevron/Texaco Trend Map

All results are ppm. Chlorides for documentation.

Released: 10 B/PW, 5 B/O; Recovered: 0 B/PW, 0 B/O. Release Date: 8/22/2014. 2RP-2470



PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

September 11, 2014

AMBER CANNON

YATES PETROLEUM CORPORATION

105 S 4th Street

Artesia, NM 88210

RE: WOODCHUCK ABW STATE #3

Enclosed are the results of analyses for samples received by the laboratory on 09/04/14 10:15.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-13-5. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accredited through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Lab Director/Quality Manager

Analytical Results For:

YATES PETROLEUM CORPORATION
AMBER CANNON
105 S 4th Street
Artesia NM, 88210
Fax To: (505) 748-4635

Received:	09/04/2014	Sampling Date:	08/28/2014
Reported:	09/11/2014	Sampling Type:	Soil
Project Name:	WOODCHUCK ABW STATE #3	Sampling Condition:	Cool & Intact
Project Number:	30-015-39155	Sample Received By:	Kathy Perez
Project Location:	EDDY COUNTY, NM		

Sample ID: SURFACE (H402740-01)

BTEX 8021B		mg/kg		Analyzed By: MS				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.500	0.500	09/10/2014	ND	2.04	102	2.00	3.90	
Toluene*	9.00	0.500	09/10/2014	ND	1.83	91.4	2.00	3.90	
Ethylbenzene*	14.0	0.500	09/10/2014	ND	1.70	84.8	2.00	3.77	
Total Xylenes*	32.8	1.50	09/10/2014	ND	5.15	85.8	6.00	3.51	
Total BTEX	55.9	3.00	09/10/2014	ND					

Surrogate: 4-Bromofluorobenzene (PIC) 150 % 89.4-126

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	12900	16.0	09/10/2014	ND	400	100	400	7.69	

TPH 8015M		mg/kg		Analyzed By: ms				S-06	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	761	100	09/06/2014	ND	180	90.1	200	0.353	
DRO >C10-C28	8380	100	09/06/2014	ND	213	107	200	0.664	

Surrogate: 1-Chlorooctane 191 % 65.2-140

Surrogate: 1-Chlorooctadecane 228 % 63.6-154

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Notes and Definitions

- S-06 The recovery of this surrogate is outside control limits due to sample dilution required from high analyte concentration and/or matrix interference's.
- S-04 The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
- ND Analyte NOT DETECTED at or above the reporting limit
- RPD Relative Percent Difference
- ** Samples not received at proper temperature of 6°C or below.
- *** Insufficient time to reach temperature.
- Chloride by SM4500Cl-B does not require samples be received at or below 6°C
- Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Project Manager: Amber Cannon

Company Name Yates Petroleum Corporation

Company Address: 105 South 4th Street

City/State/Zip: Artesia, NM 88210

Telephone No: 575-748-4111 or 575-513-8799

Sampler Signature: Imber Lannon

e-mail:

acannon@yatespetroleum.com

Project Name: Woodchuck ABV State #3

Project #: 30-015-39155

Project Loc: Eddy County

PO #: 205-2020

Report Format: ☒ Standard

☐ Standard☐ TRR☐ NPDES

Page 4 of 4

ORDER #: H400740																																		
(lab use only)	LAB # (lab use only)	FIELD CODE	Beginning Depth	Ending Depth	Date Sampled	Time Sampled	Field Filtered	Total #. of Containers	Ice	HNO ₃	HCl	H ₂ SO ₄	NaOH	Na ₂ S ₂ O ₃	None	Other (Specify)	DW=Drinking Water SL=Sludge GW = Groundwater S=Soil/Solid NP=Non-Potable Specify Other	TPH:	418.1	8015M	8015B	Cations (Ca, Mg, Na, K)	Anions (Cl, SO ₄ , Alkalinity)	SAR / ESP / CEC	Metals: As Ag Ba Cd Cr Pb Hg Se	Volatiles	Semivolatiles	BTEX 8021B /5030 or BTEX 8260	RCI	N.O.R.M.	Chlorides	SAR	RUSH TAT (Pre-Schedule) 24, 48, 72 hrs	Standard TAT
Reinquired by:	Date	Time	Received by:	Date	Time	Temperature Upon Receipt:	Laboratory Comments:	Sample Containers Intact?	VOC's Free of Headspace?	Labels on container(s)	Custody seals on container(s)	Custody seals on cooler(s)	Sample Hand Delivered by Sampler/Client Rep.? UPS DHL FedEx Lone Star	Y N Y N Y N Y N Y N Y N Y N Y N Y N Y N																				
Reinquired by:	Date	Time	Received by:	Date	Time	Temperature Upon Receipt:	Laboratory Comments:	Sample Containers Intact?	VOC's Free of Headspace?	Labels on container(s)	Custody seals on container(s)	Custody seals on cooler(s)	Sample Hand Delivered by Sampler/Client Rep.? UPS DHL FedEx Lone Star	Y N Y N Y N Y N Y N Y N Y N Y N Y N Y N																				
Reinquired by:	Date	Time	Received by:	Date	Time	Temperature Upon Receipt:	Laboratory Comments:	Sample Containers Intact?	VOC's Free of Headspace?	Labels on container(s)	Custody seals on container(s)	Custody seals on cooler(s)	Sample Hand Delivered by Sampler/Client Rep.? UPS DHL FedEx Lone Star	Y N Y N Y N Y N Y N Y N Y N Y N Y N Y N																				
Reinquired by:	Date	Time	Received by:	Date	Time	Temperature Upon Receipt:	Laboratory Comments:	Sample Containers Intact?	VOC's Free of Headspace?	Labels on container(s)	Custody seals on container(s)	Custody seals on cooler(s)	Sample Hand Delivered by Sampler/Client Rep.? UPS DHL FedEx Lone Star	Y N Y N Y N Y N Y N Y N Y N Y N Y N Y N																				



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

December 28, 2015

Amber Griffin

Yates Petroleum Corporation
105 South Fourth Street
Artesia, NM 88210
TEL: (575) 748-4111
FAX

RE: Woodchuck ABW State #3

OrderNo.: 1512604

Dear Amber Griffin:

Hall Environmental Analysis Laboratory received 3 sample(s) on 12/11/2015 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 over a light blue horizontal line.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report

Lab Order 1512604

Date Reported: 12/28/2015

Hall Environmental Analysis Laboratory, Inc.**CLIENT:** Yates Petroleum Corporation**Client Sample ID:** 1'**Project:** Woodchuck ABW State #3**Collection Date:** 12/8/2015 9:58:00 AM**Lab ID:** 1512604-001**Matrix:** SOIL**Received Date:** 12/11/2015 9:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: JME
Diesel Range Organics (DRO)	25	10		mg/Kg	1	12/16/2015 12:36:09 PM	22788
Surr: DNOP	109	70-130		%REC	1	12/16/2015 12:36:09 PM	22788
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/16/2015 3:23:20 AM	22788
Surr: BFB	88.5	66.2-112		%REC	1	12/16/2015 3:23:20 AM	22788
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.049		mg/Kg	1	12/16/2015 3:23:20 AM	22788
Toluene	ND	0.049		mg/Kg	1	12/16/2015 3:23:20 AM	22788
Ethylbenzene	ND	0.049		mg/Kg	1	12/16/2015 3:23:20 AM	22788
Xylenes, Total	ND	0.097		mg/Kg	1	12/16/2015 3:23:20 AM	22788
Surr: 4-Bromofluorobenzene	115	80-120		%REC	1	12/16/2015 3:23:20 AM	22788

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		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Yates Petroleum Corporation

Client Sample ID: 2'

Project: Woodchuck ABW State #3

Collection Date: 12/8/2015 10:00:00 AM

Lab ID: 1512604-002

Matrix: SOIL

Received Date: 12/11/2015 9:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: JME
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	12/16/2015 12:57:52 PM	22788
Surr: DNOP	112	70-130		%REC	1	12/16/2015 12:57:52 PM	22788
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	12/16/2015 3:47:35 AM	22788
Surr: BFB	90.4	66.2-112		%REC	1	12/16/2015 3:47:35 AM	22788
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.050		mg/Kg	1	12/16/2015 3:47:35 AM	22788
Toluene	ND	0.050		mg/Kg	1	12/16/2015 3:47:35 AM	22788
Ethylbenzene	ND	0.050		mg/Kg	1	12/16/2015 3:47:35 AM	22788
Xylenes, Total	ND	0.10		mg/Kg	1	12/16/2015 3:47:35 AM	22788
Surr: 4-Bromofluorobenzene	118	80-120		%REC	1	12/16/2015 3:47:35 AM	22788

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		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1512604

Date Reported: 12/28/2015

CLIENT: Yates Petroleum Corporation

Client Sample ID: 3'

Project: Woodchuck ABW State #3

Collection Date: 12/8/2015 10:03:00 AM

Lab ID: 1512604-003

Matrix: SOIL

Received Date: 12/11/2015 9:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: JME
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	12/16/2015 1:19:43 PM	22788
Surr: DNOP	85.9	70-130		%REC	1	12/16/2015 1:19:43 PM	22788
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	12/16/2015 4:12:12 AM	22788
Surr: BFB	86.6	66.2-112		%REC	1	12/16/2015 4:12:12 AM	22788
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.048		mg/Kg	1	12/16/2015 4:12:12 AM	22788
Toluene	ND	0.048		mg/Kg	1	12/16/2015 4:12:12 AM	22788
Ethylbenzene	ND	0.048		mg/Kg	1	12/16/2015 4:12:12 AM	22788
Xylenes, Total	ND	0.096		mg/Kg	1	12/16/2015 4:12:12 AM	22788
Surr: 4-Bromofluorobenzene	112	80-120		%REC	1	12/16/2015 4:12:12 AM	22788

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		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1512604

28-Dec-15

Client: Yates Petroleum Corporation

Project: Woodchuck ABW State #3

Sample ID	MB-22768	SampType:	MBLK	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	PBS	Batch ID:	22768	RunNo:	30855					
Prep Date:	12/14/2015	Analysis Date:	12/15/2015	SeqNo:	943423	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	9.5		10.00		94.9	70	130			

Sample ID	LCS-22768	SampType:	LCS	TestCode:	EPA Method 8015M/D: Diesel Range Organics					
Client ID:	LCSS	Batch ID:	22768	RunNo:	30855					
Prep Date:	12/14/2015	Analysis Date:	12/15/2015	SeqNo:	943438	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	49	10	50.00	0	97.1	65.8	136			
Surr: DNOP	4.5		5.000		89.9	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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1512604

28-Dec-15

Client: Yates Petroleum Corporation

Project: Woodchuck ABW State #3

Sample ID	MB-22788	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBS	Batch ID:	22788	RunNo:	30861					
Prep Date:	12/14/2015	Analysis Date:	12/15/2015	SeqNo:	943137	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	960		1000		95.8	66.2	112			

Sample ID	LCS-22788	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSS	Batch ID:	22788	RunNo:	30861					
Prep Date:	12/14/2015	Analysis Date:	12/15/2015	SeqNo:	943138	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	93.0	79.6	122			
Surr: BFB	1100		1000		107	66.2	112			

Sample ID	MB-22811	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBS	Batch ID:	22811	RunNo:	30888					
Prep Date:	12/15/2015	Analysis Date:	12/16/2015	SeqNo:	944120	Units:	%REC			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	830		1000		82.7	66.2	112			

Sample ID	LCS-22811	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSS	Batch ID:	22811	RunNo:	30888					
Prep Date:	12/15/2015	Analysis Date:	12/16/2015	SeqNo:	944121	Units:	%REC			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	1000		1000		101	66.2	112			

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 | |

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1512604

28-Dec-15

Client: Yates Petroleum Corporation

Project: Woodchuck ABW State #3

Sample ID	MB-22788	SampType: MBLK		TestCode: EPA Method 8021B: Volatiles						
Client ID:	PBS	Batch ID: 22788		RunNo: 30861						
Prep Date:	12/14/2015	Analysis Date: 12/15/2015		SeqNo: 943176		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.050								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.3		1.000		126	80	120			S

Sample ID	LCS-22788		SampType: LCS		TestCode: EPA Method 8021B: Volatiles					
Client ID:	LCSS		Batch ID: 22788		RunNo: 30861					
Prep Date:	12/14/2015		Analysis Date: 12/15/2015		SeqNo: 943177		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.99	0.050	1.000	0	99.4	80	120			
Toluene	0.99	0.050	1.000	0	98.7	80	120			
Ethylbenzene	1.1	0.050	1.000	0	105	80	120			
Xylenes, Total	3.0	0.10	3.000	0	101	80	120			
Surr: 4-Bromofluorobenzene	1.4		1.000		142	80	120			S

Sample ID	MB-22811		SampType:	MBLK		TestCode:	EPA Method 8021B: Volatiles				
Client ID:	PBS		Batch ID:	22811		RunNo:	30888				
Prep Date:	12/15/2015		Analysis Date:	12/16/2015		SeqNo:	944175		Units: %REC		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Surr: 4-Bromofluorobenzene	1.0		1.000		104	80	120				

Sample ID	LCS-22811		SampType: LCS		TestCode: EPA Method 8021B: Volatiles					
Client ID:	LCSS		Batch ID: 22811		RunNo: 30888					
Prep Date:	12/15/2015		Analysis Date: 12/16/2015		SeqNo: 944176		Units: %REC			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.2		1.000		119	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



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: 1512604

RcptNo: 1

Received by/date:

JA 12/14/15

Logged By: Lindsay Mangin

12/11/2015 9:40:00 AM

Completed By: Lindsay Mangin

12/14/2015 8:52:33 AM

Reviewed By:

JA

12/14/15

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 $>0^{\circ}\text{C}$ 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:

Date:

By Whom:

Via:

☐ eMail

☐ Phone

☐ Fax

☐ In Person

Regarding:

Client Instructions:

17. Additional remarks:

18. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.3	Good	Yes			



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
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December 28, 2015

Amber Griffin

Yates Petroleum Corporation

105 South Fourth Street

Artesia, NM 88210

TEL: (575) 748-4111

FAX

RE: Woodchuck ABW State #3

OrderNo.: 1512604

Dear Amber Griffin:

Hall Environmental Analysis Laboratory received 3 sample(s) on 12/11/2015 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 over a horizontal dashed line.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order: 1512604

Date Reported: 12/28/2015

CLIENT: Yates Petroleum Corporation
Project: Woodchuck ABW State #3

Lab Order: 1512604**Lab ID:** 1512604-001**Collection Date:** 12/8/2015 9:58:00 AM**Client Sample ID:** 1'**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: LGT
Chloride	1300	75		mg/Kg	50	12/17/2015 5:05:11 PM	22840

Lab ID: 1512604-002**Collection Date:** 12/8/2015 10:00:00 AM**Client Sample ID:** 2'**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: JRR
Chloride	430	30		mg/Kg	20	12/16/2015 8:02:40 PM	22840

Lab ID: 1512604-003**Collection Date:** 12/8/2015 10:03:00 AM**Client Sample ID:** 3'**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							Analyst: JRR
Chloride	40	30		mg/Kg	20	12/16/2015 8:15:04 PM	22840

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 1 of 2
	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		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1512604

28-Dec-15

Client: Yates Petroleum Corporation

Project: Woodchuck ABW State #3

Sample ID	MB-22840	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBS	Batch ID:	22840	RunNo:	30906					
Prep Date:	12/16/2015	Analysis Date:	12/16/2015	SeqNo:	944949	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	LCS-22840	SampType:	LCS	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSS	Batch ID:	22840	RunNo:	30906					
Prep Date:	12/16/2015	Analysis Date:	12/16/2015	SeqNo:	944950	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.1	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 | |



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Sample Log-In Check List

Client Name: Yates Petroleum Corporat

Work Order Number: 1512604

RcptNo: 1

Received by/date:

JA 12/11/15

Logged By: Lindsay Mangin

12/11/2015 9:40:00 AM

Completed By: Lindsay Mangin

12/14/2015 8:52:33 AM

Reviewed By:

JA

12/14/15

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 ☐

(Note discrepancies on chain of custody)

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 ☐

(If no, notify customer for authorization.)

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	2.3	Good	Yes			

**HALL ENVIRONMENTAL
ANALYSIS LABORATORY**

4901 Hawkins NE - Albuquerque, NM 87109

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

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

Analysis Request

[illegible]

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.