

MARTIN YATES, III  
1912-1985

FRANK W. YATES  
1936-1986

S.P. YATES  
1914-2008



JOHN A. YATES SR.  
CHAIRMAN EMERITUS

JOHN A. YATES JR.  
CHAIRMAN OF THE BOARD

DOUGLAS E. BROOKS  
PRESIDENT / CEO

105 SOUTH FOURTH STREET  
ARTESIA, NEW MEXICO 88210-2118  
TELEPHONE (575) 748-1471

September 8, 2016

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

Re: Federal AB #9  
Unit N, Section 32, T18S-R25E  
Eddy County, New Mexico

Dear Mr. Bratcher / Ms. Patterson,

Yates Petroleum Corporation is submitting the enclosed work plan for the above captioned well. The plan is being submitted in response to the C-141 report dated September 11, 2015.

**If there are no objections with the scope of work described in the plan, Yates will have a contractor begin work on or after September 22, 2016.**

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

Thank you.

YATES PETROLEUM CORPORATION

Chase Settle  
Environmental Representative

Enclosure(s)



**Yates Petroleum Corporation**

**Federal AB #9 Work Plan**

**Section 32, T18S-R25E**

**Eddy County, New Mexico**

**September 8, 2016**

**2RP-3254**

## **I. Location**

Take HWY 285 south of Artesia for 9.1 miles, then turn west on West Kincaid Ranch Road and go 6 miles before taking a right at the Y intersection onto the lease road for 1.83 miles, then north for ½ a mile, then turn east for ¼ mile to the site.

## **II. Background**

On September 11, 2015, Yates submitted to the NMOCD District II office a Form C-141 for a release of 10 B/O and 10 B/PW with none recovered. The affected area is approximately 30 feet by 100 feet adjacent to the flow line north of the pumping unit. Initial remediation activities consisted of excavating 3 to 6 inches in the S1 area to the rock plate and approximately 1 to 2 feet in the S2 area, hauling all impacted soils to an NMOCD approved facility for disposal. Initial delineation samples were taken (02/17/2016) and sent to a NMOCD approved laboratory (03/01/2016 and 03/01/2016, results enclosed). Further sampling was conducted (05/03/2016) and sent to a NMOCD approved laboratory (05/12/2016, results enclosed).

## **III. Surface and Ground Water**

Area surface geology is Paleozoic Permian. The ChevronTexaco Trend Map displays at this location (Section 32, T18S-R25E) that depth to groundwater is approximately 235' 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:

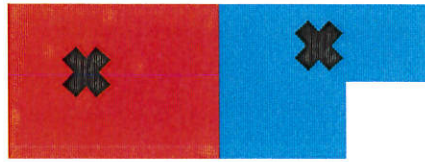
Depth to ground water	> 100'
Wellhead Protection Area	> 1000'
Distance to surface water body	> 1000'

## **IV. Soils**

The release area consists of layered rock plate on the western half, and loamy topsoil interspersed with clay seams on the eastern half.

## **V. Scope of Work**

Based on enclosed analytical results, the depth to ground water (235'), and a decrease in TPH, BTEX, & chloride concentration, Yates Petroleum Corporation proposes to excavate two (2) feet of impacted soil in the S1 release area and four (4) feet within the S2 release area, hauling excavated soils to an NMOCD approved facility for disposal. Yates will then backfill the S1 excavated area with two (2) feet of topsoil. A 20 ml synthetic liner will be installed in the bottom of the S2 excavated area prior to being backfilled with three (3) to four (4) feet of caliche and two (2) feet of topsoil. The remediated release area will then be seeded during Yates seeding schedule with a native grass seed mix developed using surface owner input. With such an extreme depth to groundwater (235') and a synthetic liner installed preventing a further migration of contaminants, no further analytical testing of TPH and/or BTEX will be conducted (all chloride analytical 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.



Federal AB #9- Not To Scale



S1 Release Area



S2 Release Area

Area	Analysis Report	Sample Date	Sample Type	Depth	BTEX	GRO	DRO	Chlorides
S1-1'	1602859	2/17/2016	Backhoe	1'	562	3400	18000	960
S1-2'	1602859	2/17/2016	Backhoe	2'	912	5800	27000	68
S1-3'	1602859	2/17/2016	Backhoe	3'	5.62	60	270	38
S1-4'	1602859	2/17/2016	Backhoe	4'	ND	ND	ND	42
S2-1'	1602859	2/17/2016	Backhoe	1'	149.2	1200	12000	9600
S2-2'	1602859	2/17/2016	Backhoe	2'	284.7	2000	12000	8400
S2-3'	1602859	2/17/2016	Backhoe	3'	311	2500	15000	9900
S2-4'	1602859	2/17/2016	Backhoe	4'	269	1900	12000	9100
S2-5'	H600447	2/17/2016	Backhoe	5'	117	1150	4360	9400
S2-7'	H600447	2/17/2016	Backhoe	7'	111	1030	3500	12000
S2-9'	H600447	2/17/2016	Backhoe	9'	136	1040	3390	4080
S2-11'	H600447	2/17/2016	Backhoe	11'	0.809	15	109	2560
S2-13'	1605292	5/3/2016	Backhoe	13'	N/A	N/A	N/A	410
S2-15'	1605292	5/3/2016	Backhoe	15'	N/A	N/A	N/A	180
S2-17'	1605292	5/3/2016	Backhoe	17'	N/A	N/A	N/A	810
S2-19'	1605292	5/3/2016	Backhoe	19'	N/A	N/A	N/A	210
S2-20'	1605292	5/3/2016	Backhoe	20'	N/A	N/A	N/A	84

Site Ranking is Zero (0). >100' (235', Section 32, T18S-R25E, Trend Map

All results are ppm. Chlorides for documentation

Released: 10 B/O & 10 B/PW; Recovered: 0 B/O & 0 B/PW Release Date: 09/01/2015





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)

March 01, 2016

Chase Settle

Yates Petroleum Corporation

105 South Fourth Street

Artesia, NM 88210

TEL: (575) 748-4111

FAX

RE: Federal AB #9

OrderNo.: 1602859

Dear Chase Settle:

Hall Environmental Analysis Laboratory received 8 sample(s) on 2/19/2016 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 horizontal line.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

## Analytical Report

Lab Order 1602859

Date Reported: 3/1/2016

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Yates Petroleum Corporation

Client Sample ID: S1-1'

Project: Federal AB #9

Collection Date: 2/17/2016 8:12:00 AM

Lab ID: 1602859-001

Matrix: SOIL

Received Date: 2/19/2016 9:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>LGT</b>
Chloride	960	30		mg/Kg	20	2/24/2016 10:27:36 PM	23934
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>KJH</b>
Diesel Range Organics (DRO)	18000	1000		mg/Kg	100	2/24/2016 1:01:45 PM	23859
Surr: DNOP	0	70-130	S	%Rec	100	2/24/2016 1:01:45 PM	23859
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	3400	96		mg/Kg	20	2/23/2016 10:22:49 AM	23866
Surr: BFB	447	66.2-112	S	%Rec	20	2/23/2016 10:22:49 AM	23866
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	32	0.96		mg/Kg	20	2/23/2016 10:22:49 AM	23866
Toluene	210	2.4		mg/Kg	50	2/24/2016 1:16:47 AM	23866
Ethylbenzene	130	2.4		mg/Kg	50	2/24/2016 1:16:47 AM	23866
Xylenes, Total	190	1.9		mg/Kg	20	2/23/2016 10:22:49 AM	23866
Surr: 4-Bromofluorobenzene	187	80-120	S	%Rec	20	2/23/2016 10:22:49 AM	23866

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 1602859

Date Reported: 3/1/2016

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Yates Petroleum Corporation

Client Sample ID: S1-2'

Project: Federal AB #9

Collection Date: 2/17/2016 8:16:00 AM

Lab ID: 1602859-002

Matrix: SOIL

Received Date: 2/19/2016 9:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>LGT</b>
Chloride	68	30		mg/Kg	20	2/24/2016 10:40:00 PM	23934
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>KJH</b>
Diesel Range Organics (DRO)	27000	1000		mg/Kg	100	2/24/2016 1:23:36 PM	23859
Surr: DNOP	0	70-130	S	%Rec	100	2/24/2016 1:23:36 PM	23859
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	5800	240		mg/Kg	50	2/23/2016 10:46:16 AM	23866
Surr: BFB	366	66.2-112	S	%Rec	50	2/23/2016 10:46:16 AM	23866
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	52	2.4		mg/Kg	50	2/23/2016 10:46:16 AM	23866
Toluene	280	9.4		mg/Kg	200	2/24/2016 1:40:20 AM	23866
Ethylbenzene	200	2.4		mg/Kg	50	2/23/2016 10:46:16 AM	23866
Xylenes, Total	380	4.7		mg/Kg	50	2/23/2016 10:46:16 AM	23866
Surr: 4-Bromofluorobenzene	179	80-120	S	%Rec	50	2/23/2016 10:46:16 AM	23866

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 1602859

Date Reported: 3/1/2016

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Yates Petroleum Corporation

Client Sample ID: S1-3'

Project: Federal AB #9

Collection Date: 2/17/2016 8:19:00 AM

Lab ID: 1602859-003

Matrix: SOIL

Received Date: 2/19/2016 9:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>LGT</b>
Chloride	38	30		mg/Kg	20	2/24/2016 11:17:14 PM	23934
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>KJH</b>
Diesel Range Organics (DRO)	270	9.2		mg/Kg	1	2/24/2016 11:56:45 AM	23860
Surr: DNOP	121	70-130		%Rec	1	2/24/2016 11:56:45 AM	23860
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	60	4.8		mg/Kg	1	2/24/2016 2:03:44 AM	23866
Surr: BFB	461	66.2-112	S	%Rec	1	2/24/2016 2:03:44 AM	23866
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	ND	0.048		mg/Kg	1	2/24/2016 2:03:44 AM	23866
Toluene	0.62	0.048		mg/Kg	1	2/24/2016 2:03:44 AM	23866
Ethylbenzene	1.5	0.048		mg/Kg	1	2/24/2016 2:03:44 AM	23866
Xylenes, Total	3.5	0.096		mg/Kg	1	2/24/2016 2:03:44 AM	23866
Surr: 4-Bromofluorobenzene	157	80-120	S	%Rec	1	2/24/2016 2:03:44 AM	23866

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 1602859

Date Reported: 3/1/2016

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Yates Petroleum Corporation

Client Sample ID: S1-4'

Project: Federal AB #9

Collection Date: 2/17/2016 8:22:00 AM

Lab ID: 1602859-004

Matrix: SOIL

Received Date: 2/19/2016 9:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: LGT
Chloride	42	30		mg/Kg	20	2/24/2016 11:29:39 PM	23934
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: KJH
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	2/24/2016 12:00:56 AM	23860
Surr: DNOP	105	70-130		%Rec	1	2/24/2016 12:00:56 AM	23860
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	2/24/2016 2:27:11 AM	23866
Surr: BFB	100	66.2-112		%Rec	1	2/24/2016 2:27:11 AM	23866
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: NSB
Benzene	ND	0.049		mg/Kg	1	2/24/2016 2:27:11 AM	23866
Toluene	ND	0.049		mg/Kg	1	2/24/2016 2:27:11 AM	23866
Ethylbenzene	ND	0.049		mg/Kg	1	2/24/2016 2:27:11 AM	23866
Xylenes, Total	ND	0.098		mg/Kg	1	2/24/2016 2:27:11 AM	23866
Surr: 4-Bromofluorobenzene	112	80-120		%Rec	1	2/24/2016 2:27:11 AM	23866

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 1602859

Date Reported: 3/1/2016

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Yates Petroleum Corporation

Client Sample ID: S2-1'

Project: Federal AB #9

Collection Date: 2/17/2016 9:00:00 AM

Lab ID: 1602859-005

Matrix: SOIL

Received Date: 2/19/2016 9:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>LGT</b>
Chloride	9600	750		mg/Kg	500	2/26/2016 1:14:13 AM	23934
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>KJH</b>
Diesel Range Organics (DRO)	12000	930		mg/Kg	100	2/24/2016 1:45:24 PM	23860
Surr: DNOP	0	70-130	S	%Rec	100	2/24/2016 1:45:24 PM	23860
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	1200	48		mg/Kg	10	2/23/2016 11:33:18 AM	23866
Surr: BFB	530	66.2-112	S	%Rec	10	2/23/2016 11:33:18 AM	23866
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	4.2	0.48		mg/Kg	10	2/23/2016 11:33:18 AM	23866
Toluene	39	0.48		mg/Kg	10	2/23/2016 11:33:18 AM	23866
Ethylbenzene	39	0.48		mg/Kg	10	2/23/2016 11:33:18 AM	23866
Xylenes, Total	67	0.97		mg/Kg	10	2/23/2016 11:33:18 AM	23866
Surr: 4-Bromofluorobenzene	187	80-120	S	%Rec	10	2/23/2016 11:33:18 AM	23866

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 1602859

Date Reported: 3/1/2016

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Yates Petroleum Corporation

Client Sample ID: S2-2'

Project: Federal AB #9

Collection Date: 2/17/2016 9:01:00 AM

Lab ID: 1602859-006

Matrix: SOIL

Received Date: 2/19/2016 9:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: LGT
Chloride	8400	750		mg/Kg	500	2/26/2016 1:26:37 AM	23934
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: KJH
Diesel Range Organics (DRO)	12000	1000		mg/Kg	100	2/24/2016 2:07:12 PM	23860
Surr: DNOP	0	70-130	S	%Rec	100	2/24/2016 2:07:12 PM	23860
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: NSB
Gasoline Range Organics (GRO)	2000	250		mg/Kg	50	2/23/2016 11:56:50 AM	23866
Surr: BFB	232	66.2-112	S	%Rec	50	2/23/2016 11:56:50 AM	23866
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: NSB
Benzene	5.7	2.5		mg/Kg	50	2/23/2016 11:56:50 AM	23866
Toluene	79	2.5		mg/Kg	50	2/23/2016 11:56:50 AM	23866
Ethylbenzene	70	2.5		mg/Kg	50	2/23/2016 11:56:50 AM	23866
Xylenes, Total	130	4.9		mg/Kg	50	2/23/2016 11:56:50 AM	23866
Surr: 4-Bromofluorobenzene	141	80-120	S	%Rec	50	2/23/2016 11:56:50 AM	23866

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 1602859

Date Reported: 3/1/2016

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Yates Petroleum Corporation

Client Sample ID: S2-3'

Project: Federal AB #9

Collection Date: 2/17/2016 9:04:00 AM

Lab ID: 1602859-007

Matrix: SOIL

Received Date: 2/19/2016 9:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>LGT</b>
Chloride	9900	750		mg/Kg	500	2/26/2016 1:39:01 AM	23934
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: <b>KJH</b>
Diesel Range Organics (DRO)	15000	960		mg/Kg	100	2/24/2016 2:28:53 PM	23860
Surr: DNOP	0	70-130	S	%Rec	100	2/24/2016 2:28:53 PM	23860
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	2500	93		mg/Kg	20	2/23/2016 12:20:37 PM	23866
Surr: BFB	633	66.2-112	S	%Rec	20	2/23/2016 12:20:37 PM	23866
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: <b>NSB</b>
Benzene	10	0.93		mg/Kg	20	2/23/2016 12:20:37 PM	23866
Toluene	87	0.93		mg/Kg	20	2/23/2016 12:20:37 PM	23866
Ethylbenzene	74	0.93		mg/Kg	20	2/23/2016 12:20:37 PM	23866
Xylenes, Total	140	1.9		mg/Kg	20	2/23/2016 12:20:37 PM	23866
Surr: 4-Bromofluorobenzene	181	80-120	S	%Rec	20	2/23/2016 12:20:37 PM	23866

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 1602859

Date Reported: 3/1/2016

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Yates Petroleum Corporation

Client Sample ID: S2-4'

Project: Federal AB #9

Collection Date: 2/17/2016 9:07:00 AM

Lab ID: 1602859-008

Matrix: SOIL

Received Date: 2/19/2016 9:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: LGT
Chloride	9100	750		mg/Kg	500	2/26/2016 1:51:26 AM	23934
<b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b>							Analyst: KJH
Diesel Range Organics (DRO)	12000	1000		mg/Kg	100	2/24/2016 2:50:44 PM	23860
Surr: DNOP	0	70-130	S	%Rec	100	2/24/2016 2:50:44 PM	23860
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: NSB
Gasoline Range Organics (GRO)	1900	48		mg/Kg	10	2/23/2016 12:44:11 PM	23866
Surr: BFB	652	66.2-112	S	%Rec	10	2/23/2016 12:44:11 PM	23866
<b>EPA METHOD 8021B: VOLATILES</b>							Analyst: NSB
Benzene	11	0.48		mg/Kg	10	2/23/2016 12:44:11 PM	23866
Toluene	85	2.4		mg/Kg	50	2/24/2016 2:50:30 AM	23866
Ethylbenzene	63	2.4		mg/Kg	50	2/24/2016 2:50:30 AM	23866
Xylenes, Total	110	0.96		mg/Kg	10	2/23/2016 12:44:11 PM	23866
Surr: 4-Bromofluorobenzene	215	80-120	S	%Rec	10	2/23/2016 12:44:11 PM	23866

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#: 1602859

01-Mar-16

Client: Yates Petroleum Corporation

Project: Federal AB #9

Sample ID	MB-23934	SampType	MBLK	TestCode	EPA Method 300.0: Anions					
Client ID	PBS	Batch ID	23934	RunNo	32385					
Prep Date	2/24/2016	Analysis Date	2/24/2016	SeqNo	990234	Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	LCS-23934	SampType	LCS	TestCode	EPA Method 300.0: Anions					
Client ID	LCSS	Batch ID	23934	RunNo	32385					
Prep Date	2/24/2016	Analysis Date	2/24/2016	SeqNo	990235	Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	95.9	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 |



# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1602859

01-Mar-16

Client: Yates Petroleum Corporation

Project: Federal AB #9

Sample ID	LCS-23859		SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range Organics					
Client ID:	LCSS		Batch ID: 23859		RunNo: 32327					
Prep Date:	2/22/2016		Analysis Date: 2/23/2016		SeqNo: 988166		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	43	10	50.00	0	86.5	65.8	136			
Surr: DNOP	4.8		5.000		95.8	70	130			

Sample ID	LCS-23860		SampType: LCS		TestCode: EPA Method 8015M/D: Diesel Range Organics					
Client ID:	LCSS		Batch ID: 23860		RunNo: 32327					
Prep Date:	2/22/2016		Analysis Date: 2/23/2016		SeqNo: 988167		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	10	50.00	0	90.5	65.8	136			
Surr: DNOP	5.0		5.000		99.1	70	130			

Sample ID	MB-23859		SampType:	MBLK		TestCode:	EPA Method 8015M/D: Diesel Range Organics				
Client ID:	PBS		Batch ID:	23859		RunNo:	32327				
Prep Date:	2/22/2016		Analysis Date:	2/23/2016		SeqNo:	988168		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	8.7		10.00		87.0	70	130				

Sample ID	MB-23860		SampType:	MBLK		TestCode:	EPA Method 8015M/D: Diesel Range Organics				
Client ID:	PBS		Batch ID:	23860		RunNo:	32327				
Prep Date:	2/22/2016		Analysis Date:	2/23/2016		SeqNo:	988169		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	9.1		10.00		90.6	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#: 1602859

01-Mar-16

Client: Yates Petroleum Corporation

Project: Federal AB #9

Sample ID	MB-23866	SampType:	MBLK	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	PBS	Batch ID:	23866	RunNo:	32332					
Prep Date:	2/22/2016	Analysis Date:	2/23/2016	SeqNo:	988952	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	950		1000		95.4	66.2	112			

Sample ID	LCS-23866	SampType:	LCS	TestCode:	EPA Method 8015D: Gasoline Range					
Client ID:	LCSS	Batch ID:	23866	RunNo:	32332					
Prep Date:	2/22/2016	Analysis Date:	2/23/2016	SeqNo:	988963	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	29	5.0	25.00	0	114	79.6	122			
Surr: BFB	1100		1000		113	66.2	112			S

## 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#: 1602859

01-Mar-16

Client: Yates Petroleum Corporation

Project: Federal AB #9

Sample ID	MB-23866	SampType: MBLK		TestCode: EPA Method 8021B: Volatiles						
Client ID:	PBS	Batch ID: 23866		RunNo: 32332						
Prep Date:	2/22/2016	Analysis Date: 2/23/2016		SeqNo: 989021		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	1.1		1.000		113	80	120			

Sample ID	LCS-23866	SampType: LCS			TestCode: EPA Method 8021B: Volatiles					
Client ID:	LCSS	Batch ID: 23866			RunNo: 32332					
Prep Date:	2/22/2016	Analysis Date: 2/23/2016			SeqNo: 989022		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.050	1.000	0	105	80	120			
Toluene	1.0	0.050	1.000	0	105	80	120			
Ethylbenzene	1.1	0.050	1.000	0	106	80	120			
Xylenes, Total	3.2	0.10	3.000	0	108	80	120			
Surr: 4-Bromofluorobenzene	1.1		1.000		115	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 |



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 Corpora

Work Order Number: 1602859

RcptNo: 1

Received by/date:

Logged By:

Ashley Gallegos

2/19/2016 9:00:00 AM

Completed By:

Ashley Gallegos

2/19/2016 3:34:28 PM

Reviewed By:

AS 02/22/16

### 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  $>0^{\circ}\text{C}$  to  $6.0^{\circ}\text{C}$ ? 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	4.1	Good	Yes			





March 01, 2016

CHASE SETTLE

YATES PETROLEUM CORPORATION

105 S 4th Street

Artesia, NM 88210

RE: FEDERAL AB #9

Enclosed are the results of analyses for samples received by the laboratory on 02/29/16 14:25.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-15-7. 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](http://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  
CHASE SETTLE  
105 S 4th Street  
Artesia NM, 88210  
Fax To: (505) 748-4635

Received: 02/29/2016  
Reported: 03/01/2016  
Project Name: FEDERAL AB #9  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 02/17/2016  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: S2-5' (H600447-01)**

BTX 8021B			mg/kg		Analyzed By: MS				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	3.04	1.00	02/29/2016	ND	1.87	93.6	2.00	0.351	
Toluene*	31.5	1.00	02/29/2016	ND	1.81	90.3	2.00	0.547	
Ethylbenzene*	27.0	1.00	02/29/2016	ND	1.63	81.4	2.00	1.12	
Total Xylenes*	55.5	3.00	02/29/2016	ND	5.01	83.6	6.00	1.30	
Total BTX	117	6.00	02/29/2016	ND					

Surrogate: 4-Bromofluorobenzene (PIE) 102 % 73.6-140

Chloride, SM4500Cl-B			mg/kg		Analyzed By: AP				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	9400	16.0	03/01/2016	ND	448	112	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS				S-04	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	1150	10.0	02/29/2016	ND	197	98.4	200	2.97	
DRO >C10-C28	4360	10.0	02/29/2016	ND	223	112	200	10.2	

Surrogate: 1-Chlorooctane 170 % 35-147

Surrogate: 1-Chlorooctadecane 137 % 28-171

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

 Received: 02/29/2016  
 Reported: 03/01/2016  
 Project Name: FEDERAL AB #9  
 Project Number: NONE GIVEN  
 Project Location: NOT GIVEN

 Sampling Date: 02/17/2016  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: S2-7' (H600447-02)**

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Benzene*</b>	<b>3.58</b>	1.00	02/29/2016	ND	1.87	93.6	2.00	0.351	
<b>Toluene*</b>	<b>33.0</b>	1.00	02/29/2016	ND	1.81	90.3	2.00	0.547	
<b>Ethylbenzene*</b>	<b>25.0</b>	1.00	02/29/2016	ND	1.63	81.4	2.00	1.12	
<b>Total Xylenes*</b>	<b>49.2</b>	3.00	02/29/2016	ND	5.01	83.6	6.00	1.30	
<b>Total BTEX</b>	<b>111</b>	6.00	02/29/2016	ND					

Surrogate: 4-Bromofluorobenzene (PIL) 103 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>12000</b>	16.0	03/01/2016	ND	400	100	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS						S-04
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>GRO C6-C10</b>	<b>1030</b>	10.0	02/29/2016	ND	197	98.4	200	2.97		
<b>DRO &gt;C10-C28</b>	<b>3500</b>	10.0	02/29/2016	ND	223	112	200	10.2		

Surrogate: 1-Chlorooctane 151 % 35-147

Surrogate: 1-Chlorooctadecane 120 % 28-171

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Analytical Results For:**

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

 Received: 02/29/2016  
 Reported: 03/01/2016  
 Project Name: FEDERAL AB #9  
 Project Number: NONE GIVEN  
 Project Location: NOT GIVEN

 Sampling Date: 02/17/2016  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: S2-9' (H600447-03)**

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	3.97	1.00	03/01/2016	ND	1.87	93.6	2.00	0.351	
Toluene*	39.7	1.00	03/01/2016	ND	1.81	90.3	2.00	0.547	
Ethylbenzene*	30.8	1.00	03/01/2016	ND	1.63	81.4	2.00	1.12	
Total Xylenes*	61.8	3.00	03/01/2016	ND	5.01	83.6	6.00	1.30	
Total BTEX	136	6.00	03/01/2016	ND					

Surrogate: 4-Bromofluorobenzene (PIL) 105 % 73.6-140

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	4080	16.0	03/01/2016	ND	400	100	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS						S-04
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10	1040	10.0	02/29/2016	ND	197	98.4	200	2.97		
DRO >C10-C28	3390	10.0	02/29/2016	ND	223	112	200	10.2		

Surrogate: 1-Chlorooctane 155 % 35-147

Surrogate: 1-Chlorooctadecane 124 % 28-171

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



**Analytical Results For:**

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

 Received: 02/29/2016  
 Reported: 03/01/2016  
 Project Name: FEDERAL AB #9  
 Project Number: NONE GIVEN  
 Project Location: NOT GIVEN

 Sampling Date: 02/17/2016  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: S2-11' (H600447-04)**

BTX 8021B			mg/kg		Analyzed By: MS				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Benzene*</b>	<b>0.052</b>	0.050	03/01/2016	ND	1.87	93.6	2.00	0.351	
<b>Toluene*</b>	<b>0.229</b>	0.050	03/01/2016	ND	1.81	90.3	2.00	0.547	
<b>Ethylbenzene*</b>	<b>0.140</b>	0.050	03/01/2016	ND	1.63	81.4	2.00	1.12	
<b>Total Xylenes*</b>	<b>0.387</b>	0.150	03/01/2016	ND	5.01	83.6	6.00	1.30	
<b>Total BTX</b>	<b>0.809</b>	0.300	03/01/2016	ND					

Surrogate: 4-Bromofluorobenzene (PIL) 100 % 73.6-140

Chloride, SM4500Cl-B			mg/kg		Analyzed By: AP				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Chloride</b>	<b>2560</b>	16.0	03/01/2016	ND	400	100	400	0.00	

TPH 8015M			mg/kg		Analyzed By: MS				
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>GRO C6-C10</b>	<b>15.0</b>	10.0	02/29/2016	ND	197	98.4	200	2.97	
<b>DRO &gt;C10-C28</b>	<b>109</b>	10.0	02/29/2016	ND	223	112	200	10.2	

Surrogate: 1-Chlorooctane 96.6 % 35-147

Surrogate: 1-Chlorooctadecane 97.5 % 28-171

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



### Notes and Definitions

- S-04 The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
- QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
- 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

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Cardinal Laboratories

\*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.



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Celey D. Keene, Lab Director/Quality Manager





*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)*

May 12, 2016

Chase Settle

Yates Petroleum Corporation

105 South Fourth Street

Artesia, NM 88210

TEL: (575) 748-4111

FAX

RE: Federal AB 9

OrderNo.: 1605292

Dear Chase Settle:

Hall Environmental Analysis Laboratory received 5 sample(s) on 5/6/2016 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 horizontal line.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order: 1605292

Date Reported: 5/12/2016

**CLIENT:** Yates Petroleum Corporation  
**Project:** Federal AB 9

**Lab Order:** 1605292

**Lab ID:** 1605292-001

**Collection Date:** 5/3/2016 12:03:00 PM

**Client Sample ID:** S2-13'

**Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							
Chloride	410	30		mg/Kg	20	5/11/2016 6:52:24 PM	25270

Analyst: LGT

**Lab ID:** 1605292-002

**Collection Date:** 5/3/2016 12:15:00 PM

**Client Sample ID:** S2-15'

**Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							
Chloride	180	30		mg/Kg	20	5/11/2016 7:04:48 PM	25270

Analyst: LGT

**Lab ID:** 1605292-003

**Collection Date:** 5/3/2016 12:31:00 PM

**Client Sample ID:** S2-17'

**Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							
Chloride	810	30		mg/Kg	20	5/11/2016 7:17:13 PM	25270

Analyst: LGT

**Lab ID:** 1605292-004

**Collection Date:** 5/3/2016 12:41:00 PM

**Client Sample ID:** S2-19'

**Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							
Chloride	210	30		mg/Kg	20	5/11/2016 7:29:38 PM	25270

Analyst: LGT

**Lab ID:** 1605292-005

**Collection Date:** 5/3/2016 12:56:00 PM

**Client Sample ID:** S2-20'

**Matrix:** SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS							
Chloride	84	30		mg/Kg	20	5/11/2016 7:42:02 PM	25270

Analyst: LGT

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#: 1605292

12-May-16

Client: Yates Petroleum Corporation

Project: Federal AB 9

Sample ID	MB-25270	SampType:	mblk		TestCode:	EPA Method 300.0: Anions				
Client ID:	PBS	Batch ID:	25270		RunNo:	34141				
Prep Date:	5/11/2016	Analysis Date:	5/11/2016		SeqNo:	1052628	Units:	mg/Kg		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	LCS-25270	SampType:	lcs	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSS	Batch ID:	25270	RunNo:	34141					
Prep Date:	5/11/2016	Analysis Date:	5/11/2016	SeqNo:	1052629	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	95.1	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 | 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 Corpora

Work Order Number: 1605292

RcptNo: 1

Received by/date:

Logged By: Ashley Gallegos

5/6/2016 10:35:00 AM

Completed By: Ashley Gallegos

5/6/2016 11:17:48 AM

Reviewed By:

### 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  $6.0^{\circ}\text{C}$ ? 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 ☐ # of preserved bottles checked for pH: ☐  
( $<2$  or  $>12$  unless noted)
13. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐ Adjusted? ☐
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 ☐ 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	1.0	Good	Yes			

