

MARTIN YATES, III  
1912-1985

FRANK W. YATES  
1936-1986

S.P. YATES  
1914-2008



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CHIEF OPERATING OFFICER

January 22, 2016

Mr. Jamie Keys or Ms. Kellie Jones  
NMOCD District I  
1625 N. French Dr.  
Hobbs, NM 88240

RE: Bilbrey SWD #1  
30-025-27620  
Section 5, T22S-R32E  
Lea County, New Mexico

Mr. Keys or Ms. Jones,

Yates Petroleum Corporation (Yates) would like to submit the attached plan of work to you regarding the three releases that occurred at the above mentioned facility on April 1, 2015 (IRP-3606), June 2, 2015 (IRP-3669), and August 22, 2015 (IRP-3834).

With NMOCD and BLM 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](mailto:agriffin@yatespetroleum.com).

Thank You,

Amber Griffin  
Environmental Regulatory Agent  
Yates Petroleum Corporation

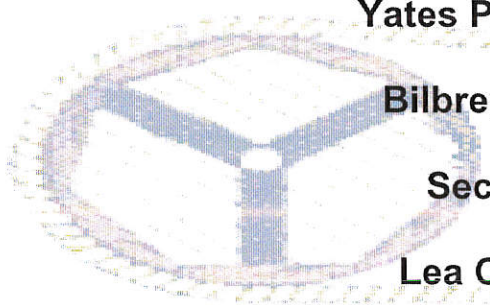
**RECEIVED**

*By JKeyes at 7:19 am, Jan 26, 2016*

**APPROVED**

*By JKeyes at 7:19 am, Jan 26, 2016*

Ensure BLM concurrence/approval.



**Yates Petroleum Corporation**

**Billbrey SWD #1 Work Plan**

**Section 5, T22S-R32E**

**Lea County, New Mexico**

**January 22, 2016**

## **I. Location**

The well is located approximately 31.1 miles east of Carlsbad, NM on Highway 62/180, approximately 9 miles south of Highway 62/180 on Campbell Road (County Road 29) and approximately 2 miles east of Campbell Road (County Road 29) on a lease road.

## **II. Background**

On April 1, 2015, Yates had a release of 180 barrels produced water and 20 barrels crude oil, with 179 barrels produced water and 18 barrels crude oil recovered. The area affected from this release was within the unlined, bermed battery. An initial Form C-141 was submitted, via e-mail, to the NMOCD District I office on April 10, 2015.

On April 15, 2015 personnel returned to the release area and collected initial soil samples from the surface and from the depths of 1' – 2' below surface level using a hand auger. The soil samples were sent to an approved NMOCD laboratory and tested for BTEX 8021B, TPH 8015M, and Chlorides SM4500Cl-B. Yates received the analytical results on April 24, 2015 (Report H501008 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 elevated chloride levels, and Yates determined that further vertical delineation of chlorides was needed within the release area.

On May 12, 2015 personnel returned to the release area and completed further vertical delineation within the battery using a mini-excavator. Yates was able to successfully collect soil samples from the depths of 3' – 10' below surface level. The mini-excavator was not able to safely or effectively pull samples from deeper depths. The soil samples from this sampling event were sent to an approved NMOCD laboratory and tested for Chlorides SM4500Cl-B. Yates received the analytical results May 19 & 20, 2015 (Reports H501241 and H501242 attached to this work plan). The analytical results showed that there were still elevated chloride levels, and Yates determined that further vertical delineation of chlorides was still needed within the release area.

On June 2, 2015 Yates had a second release occur at the site. This release was 20 barrels produced water, with 18 barrels produced water recovered. The area affected was within an unlined, bermed battery (over the April 2015 release) with some overspray to the outside of the battery area, but remaining on the production pad. An initial Form C-141 was submitted, via e-mail, to the NMOCD District I office on June 11, 2015.

Due to the analytical results of the previous sampling events (4/15/15 & 5/12/15) and the second release, Yates made the decision to relocate the tanks of this location from the west side to the east side of the production pad. It was decided that the tanks needed to be in a steel containment with a liner to prevent further environmental issues if more releases occurred at this facility. Production started the process to relocate the tanks into a lined, steel containment system. The tanks also needed to be re-located in order for environmental personnel to be able to safely and effectively complete vertical delineation within the release area.

On August 22, 2015 Yates had a third release occur at the site. This release was 100 barrels produced water, with 90 barrels produced water recovered. The area affected was within the unlined, bermed battery (over the April 2015 and June 2015 releases). An initial Form C-141 was submitted, via e-mail, to the NMOCD District I office on August 27, 2015. At the time

of this release production was still working on the tank relocation and the old tanks were still in use.

On October 28, 2015 environmental personnel were notified that production had finished building the new tank battery on the east side of the production pad and had also dismantled the old tank battery. Environmental could now move forward with further vertical delineation of the release area.

The release area contains mostly sandy soils and these soils would collapse while digging with heavy equipment. The collapsing of soils created personnel safety issues and made it impossible to obtain discrete samples from deeper depths. As a result, it was determined that a hollow stem auger core rig would be needed to complete further vertical delineation within the release area.

On November 9, 2015 Yates contacted a company with a hollow stem auger core rig to conduct further vertical delineation of the release area. The hollow stem auger was scheduled for December 16, 2015 and complete vertical delineation of chlorides was completed. Soil samples obtained with the hollow stem auger were sent to an approved NMOCD laboratory and tested for Chlorides 300.0. Yates received the analytical results on January 7, 2016 (Report 1512A78 attached to this work plan). The analytical results showed that Yates had successfully found the bottom of the chloride contamination.

### **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 280 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 following:

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

### **IV. Soils**

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

### **V. Scope of Work**

Based off the analytical reports which show complete vertical delineation, Yates proposes to excavate four (4) feet from the release area. The excavation will be approximately 164' long, 39' wide by 28' long, 27' wide. Once all soils have been excavated, a 20 mil synthetic liner will be placed in the bottom of the excavation. The backfill of the excavation will then be started with caliche (up to 2' below surface level) and finished with 2' of top soil or sand.

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

The backfill material for the excavation will be purchased from the nearest BLM pit.



Once all excavation and backfill work is complete, Yates will submit a Final Form C-141 to NMOCD and BLM requesting closure of these three releases.



Google earth

miles 1  
km 2



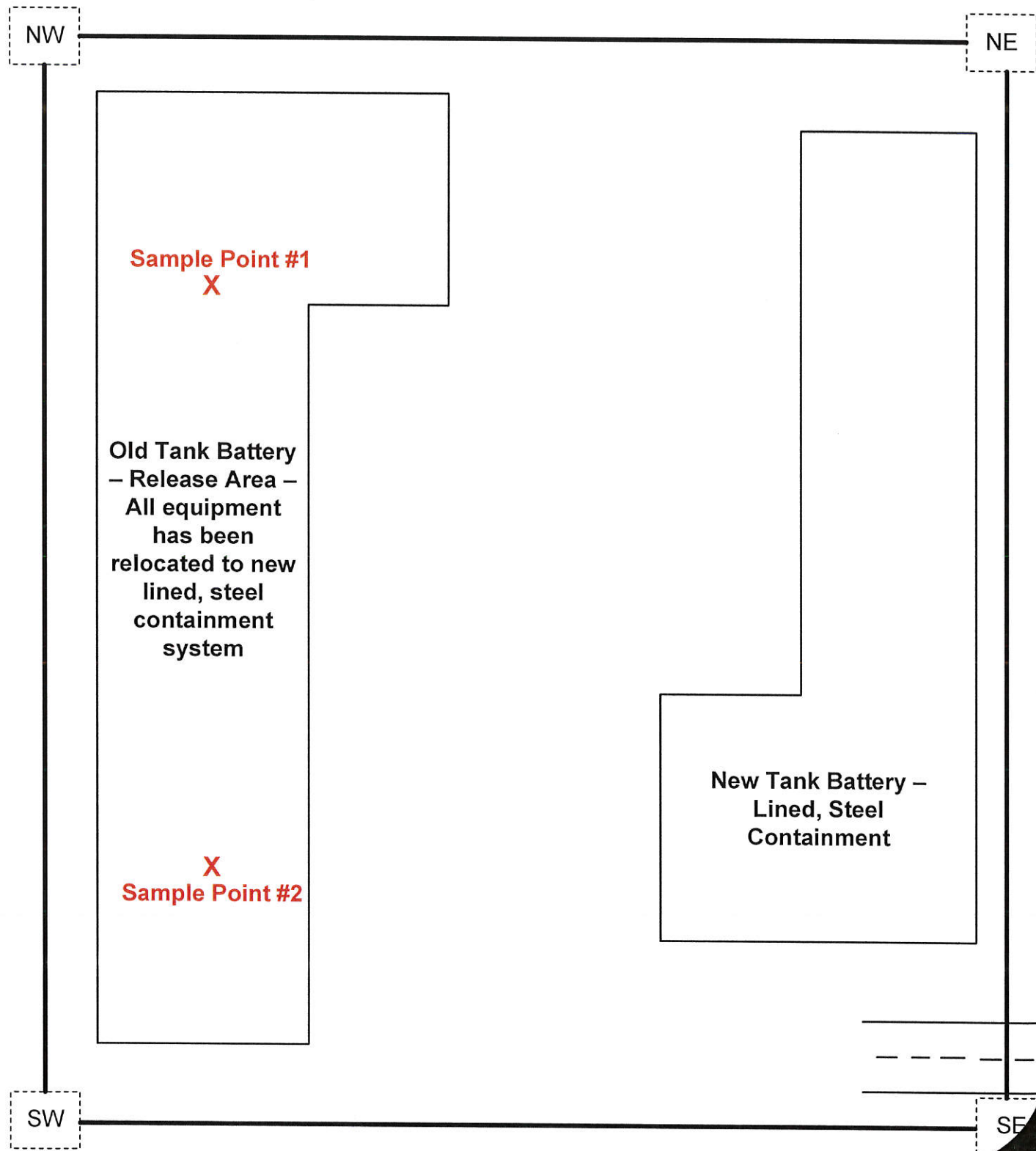


# YATES PETROLEUM CORPORATION

Bilbrey SWD #1  
30-025-27620  
Section 5, T22S-R32E  
Lea County, New Mexico  
1RP-3606, 1RP-3669, 1RP-3834

**DRAWING IS NOT TO  
SCALE**

Friday, January 22, 2016



# Bilbrey SWD #1

	Sample Area	Sample Date	Analytical Report	Sample Type	Depth	BTEX	GRO	DRO	TOTAL	Chlorides
1-Surface	Release area	4/15/2015	H501008	Grab/Auger	Surface	42.1	880	9,720	10,600	21,400
1-1'	Release area	4/15/2015	H501008	Grab/Auger	1'	ND	ND	57	57	9,330
1-2'	Release area	4/15/2015	H501008	Grab/Auger	2'	ND	10	114	124	7,330
3'	Release area	5/12/2015	H501241	Grab/Mini-Excavator	3'	-	-	-	-	4,000
4'	Release area	5/12/2015	H501241	Grab/Mini-Excavator	4'	-	-	-	-	1,960
5'	Release area	5/12/2015	H501242	Grab/Mini-Excavator	5'	-	-	-	-	3,920
6'	Release area	5/12/2015	H501242	Grab/Mini-Excavator	6'	-	-	-	-	10,400
7'	Release area	5/12/2015	H501242	Grab/Mini-Excavator	7'	-	-	-	-	11,200
8'	Release area	5/12/2015	H501242	Grab/Mini-Excavator	8'	-	-	-	-	5,440
9'	Release area	5/12/2015	H501242	Grab/Mini-Excavator	9'	-	-	-	-	4,800
10'	Release area	5/12/2015	H501242	Grab/Mini-Excavator	10'	-	-	-	-	5,280
1-15'	Release area	12/16/2015	1512A78	Hollow Stem Auger	15'	-	-	-	-	12,000
1-20'	Release area	12/16/2015	1512A78	Hollow Stem Auger	20'	-	-	-	-	7,200
1-25'	Release area	12/16/2015	1512A78	Hollow Stem Auger	25'	-	-	-	-	5,900
1-30'	Release area	12/16/2015	1512A78	Hollow Stem Auger	30'	-	-	-	-	1,600
1-35'	Release area	12/16/2015	1512A78	Hollow Stem Auger	35'	-	-	-	-	1,400
1-40'	Release area	12/16/2015	1512A78	Hollow Stem Auger	40'	-	-	-	-	3,000
1-45'	Release area	12/16/2015	1512A78	Hollow Stem Auger	45'	-	-	-	-	2,800
1-50'	Release area	12/16/2015	1512A78	Hollow Stem Auger	50'	-	-	-	-	410
1-55'	Release area	12/16/2015	1512A78	Hollow Stem Auger	55'	-	-	-	-	170
2-Surface	Release area	4/15/2015	H501008	Grab/Auger	Surface	25.7	541	13900	14441	25,200
2-1'	Release area	4/15/2015	H501008	Grab/Auger	1'	46.9	913	2910	3823	11,900
2-2'	Release area	4/15/2015	H501008	Grab/Auger	2'	6.49	78.6	491	569.6	9,600
2-5'	Release area	12/16/2015	1512A78	Hollow Stem Auger	5'	-	-	-	-	210
2-10'	Release area	12/16/2015	1512A78	Hollow Stem Auger	10'	-	-	-	-	540
2-15'	Release area	12/16/2015	1512A78	Hollow Stem Auger	15'	-	-	-	-	4,200
2-20'	Release area	12/16/2015	1512A78	Hollow Stem Auger	20'	-	-	-	-	7,400
2-25'	Release area	12/16/2015	1512A78	Hollow Stem Auger	25'	-	-	-	-	4,700
2-30'	Release area	12/16/2015	1512A78	Hollow Stem Auger	30'	-	-	-	-	43
2-35'	Release area	12/16/2015	1512A78	Hollow Stem Auger	35'	-	-	-	-	170

**Site Ranking is ZERO (0).** Depth to Ground Water >100' (approx. 280', per Chevron/Texaco trend map).

All results are ppm.Chlorides for documentation.

Released: 180 B/PW, 20 B/O; Recovered: 179 B/PW, 18 B/O. Release Date: 4/1/2015, 1RP-3606

Released: 20 B/PW; Recovered: 18 B/PW. Release Date: 6/2/2015, 1RP-3669

Released: 100 B/PW; Recovered: 90 B/PW. Release Date: 8/22/2015, 1RP-3834

April 24, 2015

AMBER CANNON

YATES PETROLEUM CORPORATION

105 S 4th Street

Artesia, NM 88210

RE: BILBREY SWD #1

Enclosed are the results of analyses for samples received by the laboratory on 04/17/15 11:07.

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

Received: 04/17/2015  
Reported: 04/24/2015  
Project Name: BILBREY SWD #1  
Project Number: 1RP-3606  
Project Location: LEA COUNTY, NM

Sampling Date: 04/15/2015  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: 1-SURFACE (H501008-01)**

BTEX 8021B	mg/kg	Analyzed By: ms							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	0.766	0.500	04/20/2015	ND	2.01	101	2.00	0.0320	
Toluene*	11.1	0.500	04/20/2015	ND	1.81	90.7	2.00	1.79	
Ethylbenzene*	6.09	0.500	04/20/2015	ND	1.69	84.7	2.00	0.715	
Total Xylenes*	24.2	1.50	04/20/2015	ND	5.51	91.8	6.00	0.577	
Total BTEX	42.1	3.00	04/20/2015	ND					

Surrogate: 4-Bromofluorobenzene (PIE) 132 % 61-154

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	880	100	04/18/2015	ND	187	93.6	200	1.51	
DRO >C10-C28	9720 10000	100	04/18/2015	ND	220	110	200	1.61	

Surrogate: 1-Chlorooctane 179 % 47.2-157

Surrogate: 1-Chlorooctadecane 227 % 52.1-176

Cardinal Laboratories

\* = Accredited Analyte

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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: 04/17/2015  
 Reported: 04/24/2015  
 Project Name: BILBREY SWD #1  
 Project Number: 1RP-3606  
 Project Location: LEA COUNTY, NM

 Sampling Date: 04/15/2015  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: 1-1' (H501008-02)**

BTEX 8021B			mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	04/20/2015	ND	2.01	101	2.00	0.0320		
<b>Toluene*</b>	<b>0.071</b>	0.050	04/20/2015	ND	1.81	90.7	2.00	1.79		
Ethylbenzene*	<0.050	0.050	04/20/2015	ND	1.69	84.7	2.00	0.715		
Total Xylenes*	<0.150	0.150	04/20/2015	ND	5.51	91.8	6.00	0.577		
Total BTEX	<0.300	0.300	04/20/2015	ND						

Surrogate: 4-Bromofluorobenzene (PIC) 111 % 61-154

TPH 8015M			mg/kg							Analyzed By: MS	
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier		
GRO C6-C10	<10.0	10.0	04/18/2015	ND	187	93.6	200	1.51			
<b>DRO &gt;C10-C28</b>	<b>57.0</b>	10.0	04/18/2015	ND	220	110	200	1.61			

Surrogate: 1-Chlorooctane 107 % 47.2-157

Surrogate: 1-Chlorooctadecane 111 % 52.1-176

Cardinal Laboratories

\*=Accredited Analyte

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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: 04/17/2015  
Reported: 04/24/2015  
Project Name: BILBREY SWD #1  
Project Number: 1RP-3606  
Project Location: LEA COUNTY, NM

Sampling Date: 04/15/2015  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: 1-2' (H501008-03)**

BTEx 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	04/20/2015	ND	2.01	101	2.00	0.0320	
Toluene*	<0.050	0.050	04/20/2015	ND	1.81	90.7	2.00	1.79	
Ethylbenzene*	<0.050	0.050	04/20/2015	ND	1.69	84.7	2.00	0.715	
<b>Total Xylenes*</b>	<b>0.196</b>	0.150	04/20/2015	ND	5.51	91.8	6.00	0.577	
Total BTEx	<0.300	0.300	04/20/2015	ND					

Surrogate: 4-Bromofluorobenzene (PIE) 114 % 61-154

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	10.0	10.0	04/18/2015	ND	187	93.6	200	1.51	
DRO >C10-C28	114	10.0	04/18/2015	ND	220	110	200	1.61	

Surrogate: 1-Chlorooctane 107 % 47.2-157

Surrogate: 1-Chlorooctadecane 110 % 52.1-176

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\*=Accredited Analyte

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

Received: 04/17/2015  
Reported: 04/24/2015  
Project Name: BILBREY SWD #1  
Project Number: 1RP-3606  
Project Location: LEA COUNTY, NM

Sampling Date: 04/15/2015  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: 2-SURFACE (H501008-04)**

BTEX 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
<b>Benzene*</b>	<b>0.287</b>	0.200	04/20/2015	ND	2.01	101	2.00	0.0320	
<b>Toluene*</b>	<b>4.05</b>	0.200	04/20/2015	ND	1.81	90.7	2.00	1.79	
<b>Ethylbenzene*</b>	<b>3.83</b>	0.200	04/20/2015	ND	1.69	84.7	2.00	0.715	
<b>Total Xylenes*</b>	<b>17.5</b>	0.600	04/20/2015	ND	5.51	91.8	6.00	0.577	
<b>Total BTEX</b>	<b>25.7</b>	1.20	04/20/2015	ND					

Surrogate: 4-Bromofluorobenzene (PIE) 119 % 61-154

TPH 8015M		mg/kg		Analyzed By: MS						S-06
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
<b>GRO C6-C10</b>	<b>541</b>	100	04/18/2015	ND	187	93.6	200	1.51		
<b>DRO &gt;C10-C28</b>	<b>13900</b> 14941	100	04/18/2015	ND	220	110	200	1.61		

Surrogate: 1-Chlorooctane 161 % 47.2-157

Surrogate: 1-Chlorooctadecane 334 % 52.1-176

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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

 Received: 04/17/2015  
 Reported: 04/24/2015  
 Project Name: BILBREY SWD #1  
 Project Number: 1RP-3606  
 Project Location: LEA COUNTY, NM

 Sampling Date: 04/15/2015  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: 2-1' (H501008-05)**

BTEX 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	0.921	0.500	04/20/2015	ND	2.01	101	2.00	0.0320	
Toluene*	13.4	0.500	04/20/2015	ND	1.81	90.7	2.00	1.79	
Ethylbenzene*	6.81	0.500	04/20/2015	ND	1.69	84.7	2.00	0.715	
Total Xylenes*	25.8	1.50	04/20/2015	ND	5.51	91.8	6.00	0.577	
Total BTEX	46.9	3.00	04/20/2015	ND					

Surrogate: 4-Bromofluorobenzene (PIE) 135 % 61-154

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	913	50.0	04/18/2015	ND	187	93.6	200	1.51	
DRO >C10-C28	2910 3823	50.0	04/18/2015	ND	220	110	200	1.61	

Surrogate: 1-Chlorooctane 154 % 47.2-157

Surrogate: 1-Chlorooctadecane 145 % 52.1-176

Cardinal Laboratories

\*=Accredited Analyte

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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: 04/17/2015  
 Reported: 04/24/2015  
 Project Name: BILBREY SWD #1  
 Project Number: 1RP-3606  
 Project Location: LEA COUNTY, NM

 Sampling Date: 04/15/2015  
 Sampling Type: Soil  
 Sampling Condition: Cool & Intact  
 Sample Received By: Jodi Henson

**Sample ID: 2-2' (H501008-06)**

BTEX 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	04/20/2015	ND	2.01	101	2.00	0.0320	
Toluene*	1.10	0.050	04/20/2015	ND	1.81	90.7	2.00	1.79	
Ethylbenzene*	1.03	0.050	04/20/2015	ND	1.69	84.7	2.00	0.715	
Total Xylenes*	4.36	0.150	04/20/2015	ND	5.51	91.8	6.00	0.577	
Total BTEX	6.49	0.300	04/20/2015	ND					

Surrogate: 4-Bromofluorobenzene (PIE) 121 % 61-154

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10	78.6	10.0	04/18/2015	ND	187	93.6	200	1.51	
DRO >C10-C28	491 509.6	10.0	04/18/2015	ND	220	110	200	1.61	

Surrogate: 1-Chlorooctane 113 % 47.2-157

Surrogate: 1-Chlorooctadecane 124 % 52.1-176

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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.
- 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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---

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 Cannon

Fax No: 575-748-4131

e-mail: [acannon@yatespetroleum.com](mailto:acannon@yatespetroleum.com)

Project Name: Bilbrey SWD #1

Project #: 1RP-3606

Project Loc: 5-22S-32E, Lea County

PO #: 205-2020

Report Format: ☒ Standard ☐ TRRP ☐ NPDES

[illegible]

April 24, 2015

AMBER CANNON

YATES PETROLEUM CORPORATION

105 S 4th Street

Artesia, NM 88210

RE: BILBREY SWD #1

Enclosed are the results of analyses for samples received by the laboratory on 04/17/15 11:07.

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/ga/lab\\_accred\\_certif.html](http://www.tceq.texas.gov/field/ga/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: 04/17/2015  
Reported: 04/24/2015  
Project Name: BILBREY SWD #1  
Project Number: 1RP-3606  
Project Location: LEA COUNTY, NM

Sampling Date: 04/15/2015  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Jodi Henson

**Sample ID: 1-SURFACE (H501008-01)**

Chloride, SM4500Cl-B		mg/kg	Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	21400	16.0	04/20/2015	ND	432	108	400	7.69	

**Sample ID: 1-1' (H501008-02)**

Chloride, SM4500Cl-B		mg/kg	Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	9330	16.0	04/20/2015	ND	432	108	400	7.69	

**Sample ID: 1-2' (H501008-03)**

Chloride, SM4500Cl-B		mg/kg	Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	7330	16.0	04/21/2015	ND	416	104	400	3.92	

**Sample ID: 2-SURFACE (H501008-04)**

Chloride, SM4500Cl-B		mg/kg	Analyzed By: AP						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	25200	16.0	04/21/2015	ND	416	104	400	3.92	

Cardinal Laboratories

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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:	04/17/2015	Sampling Date:	04/15/2015
Reported:	04/24/2015	Sampling Type:	Soil
Project Name:	BILBREY SWD #1	Sampling Condition:	Cool & Intact
Project Number:	1RP-3606	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

**Sample ID: 2-1' (H501008-05)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	11900	16.0	04/21/2015	ND	416	104	400	3.92	

**Sample ID: 2-2' (H501008-06)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	9600	16.0	04/21/2015	ND	416	104	400	3.92	

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Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

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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Celey D. Keene, Lab Director/Quality Manager



**ARDINAL LABORATORIES**  
101 East Marland, Hobbs, NM 88240

(505) 393-2326 FAX (505) 393-2476

**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: Amber Cannon

Fax No: 575-748-4131  
e-mail: acannon@yatespetroleum.com

Project Name: Bilbrey SWD #1

Project #: 1RP-3606

Project Loc: 5-22S-32E, Lea County

PO #: 205-2020

Report Format: ☒ Standard ☐ TRRP ☐ NPDES

(lab use only)  
ORDER #: H501008

LAB # (lab use only)	FIELD CODE	Beginning Depth	Ending Depth	Date Sampled	Time Sampled	Field Filtered	Total #. of Containers	Ice	HNO <sub>3</sub>	HCl	H <sub>2</sub> SO <sub>4</sub>	NaOH	Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	None	Other (Specify)	DW=Drinking Water SL=Sludge	GW = Groundwater S=Soil/Solid	NP=Non-Potable Specify Other	TPH: 418.1 8015M 8015	TPH: TX 1005 TX 1006	Cations (Ca, Mg, Na, K)	Anions (Cl, SO <sub>4</sub> , 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
1	1-Surface	Sur	Sur	4/15/2015	10:15 AM		1	X																									
2	1-1'	1'	1'	4/15/2015	10:35 AM		1	X																									
3	1-2'	2'	2'	4/15/2015	10:52 AM		1	X																									
4	2-Surface	Sur	Sur	4/15/2015	10:20 AM		1	X																									
5	2-1'	1'	1'	4/15/2015	11:16 AM		1	X																									
6	2-2'	2'	2'	4/15/2015	11:24 AM		1	X																									

Special instructions: **TPH: 8015B, BTEX: 8021B.** Please show BTEX results as mg/kg. **Please put chlorides on a separate report.** Thank you.

Laboratory Comments: ☒ Sample Containers Intact? ☒ VOCs Free of Headspace? ☒ Labels on container(s) ☒ Custody seals on container(s) ☒ Custody seals on cooler(s) ☒ Sample Hand Delivered by Sampler/Client Rep. ? ☒ by Courier? ☒ UPS ☒ DHL ☒ FedEx ☒ Lone Star

Relinquished by: Amber Cannon Date: 4/17/15 Time: 11:07 Received by: Michael Henderson Date: 4/17/15 Time: 11:07

Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Received by: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

Relinquished by: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_ Received by: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

Temperature Upon Receipt: 2.8 °C



May 20, 2015

AMBER CANNON

YATES PETROLEUM CORPORATION

105 S 4th Street

Artesia, NM 88210

RE: BILBREY SWD #1

Enclosed are the results of analyses for samples received by the laboratory on 05/14/15 14:20.

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](http://www.tceq.texas.gov/field/qa/lab_accred_certif.html).

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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:	05/14/2015	Sampling Date:	05/12/2015
Reported:	05/20/2015	Sampling Type:	Soil
Project Name:	BILBREY SWD #1	Sampling Condition:	** (See Notes)
Project Number:	1RP-3606	Sample Received By:	Jodi Henson
Project Location:	5-22S-32E, LEA COUNTY, NM		

**Sample ID: 3' (H501241-01)**

Chloride, SM4500Cl-B	mg/kg	Analyzed By: AP							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	4000	16.0	05/18/2015	ND	400	100	400	3.92	

**Sample ID: 4' (H501241-02)**

Chloride, SM4500Cl-B	mg/kg	Analyzed By: AP							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1960	16.0	05/18/2015	ND	400	100	400	3.92	

Cardinal Laboratories

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Celey D. Keene, Lab Director/Quality Manager



**Notes and Definitions**

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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---

Celey D. Keene, Lab Director/Quality Manager

## CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST

Project Name: Bilbrey SWD #1

Project #: 1RP-3606

Project Loc: 5-22S-32E, Lea County

PO #: 205-2020

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

Fax No: 575-748-4131

Report Format: ☒ Standard ☐ TRRP ☐ NPDES

Sampler Signature:

e-mail: [acannon@yatespetroleum.com](mailto:acannon@yatespetroleum.com)

**(lab use only)**

ORDER #: 1501261

(lab use only)		ORDER #:	
LAB # (lab use only)	1	H501241	
FIELD CODE	3'	Beginning Depth	3'
	4'	Ending Depth	4'
		Date Sampled	5/12/2015
		Time Sampled	9:50 AM
		Field Filtered	
		Total #. of Containers	1
		Ice	
		HNO <sub>3</sub>	
		HCl	
		H <sub>2</sub> SO <sub>4</sub>	
		NaOH	
		Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	
		None	
		Other ( Specify)	
		Matrix	S
		DW=Drinking Water SL=Sludge GW = Groundwater S=Soil/Solid NP=Non-Potable Specify Other	
		TPH: 418.1 8015M 8015	
		TPH: TX 1005 TX 1006	
		Cations (Ca, Mg, Na, K)	
		Anions (Cl, SO <sub>4</sub> , 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	

**Special Instructions:**

Relinquished by:

Relinquished by:

Relinquished by:

Date \_\_\_\_\_

Date \_\_\_\_\_

Date \_\_\_\_\_

Time

Time

Time

Received by:

Received by:

Received by ELOT:

Date \_\_\_\_\_

Date \_\_\_\_\_

Date \_\_\_\_\_

time

Time

time

**Laboratory Comments:**  
Sample Containers Intact?  
VOCs Free of Headspace?  
Labels on container(s)  
Custody seals on container

Sample Hand Delivered  
by Sampler/Client Rep ?

by Courier? UPS DHL FedEx Lone Star

Temperature Upon Receipt:

2014

၇

#54

24.4



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

May 19, 2015

AMBER CANNON

YATES PETROLEUM CORPORATION

105 S 4th Street

Artesia, NM 88210

RE: BILBREY SWD #1

Enclosed are the results of analyses for samples received by the laboratory on 05/14/15 14:20.

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/ga/lab/accred/certif.html](http://www.tceq.texas.gov/field/ga/lab/accred/certif.html).

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

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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:	05/14/2015	Sampling Date:	05/12/2015
Reported:	05/19/2015	Sampling Type:	Soil
Project Name:	BILBREY SWD #1	Sampling Condition:	** (See Notes)
Project Number:	1RP-3606	Sample Received By:	Jodi Henson
Project Location:	LEA COUNTY, NM		

**Sample ID: 5' (H501242-01)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	3920	16.0	05/18/2015	ND	400	100	400	3.92	

**Sample ID: 6' (H501242-02)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	10400	16.0	05/18/2015	ND	400	100	400	3.92	

**Sample ID: 7' (H501242-03)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	11200	16.0	05/18/2015	ND	400	100	400	3.92	

**Sample ID: 8' (H501242-04)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	5440	16.0	05/18/2015	ND	400	100	400	3.92	

Cardinal Laboratories

\*=Accredited Analyte

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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: 05/14/2015  
Reported: 05/19/2015  
Project Name: BILBREY SWD #1  
Project Number: 1RP-3606  
Project Location: LEA COUNTY, NM

Sampling Date: 05/12/2015  
Sampling Type: Soil  
Sampling Condition: \*\* (See Notes)  
Sample Received By: Jodi Henson

**Sample ID: 9' (H501242-05)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	4800	16.0	05/18/2015	ND	400	100	400	3.92	

**Sample ID: 10' (H501242-06)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AP					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	5280	16.0	05/18/2015	ND	400	100	400	3.92	

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

**Notes and Definitions**

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)

January 07, 2016

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

RE: Bilbery SWD #1

OrderNo.: 1512A78

Dear Amber Griffin:

Hall Environmental Analysis Laboratory received 16 sample(s) on 12/23/2015 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](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,

Andy Freeman  
Laboratory Manager  
4901 Hawkins NE  
Albuquerque, NM 87109

## Analytical Report

Lab Order: 1512A78

Date Reported: 1/7/2016

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Yates Petroleum Corporation  
Project: Bilbery SWD #1

Lab Order: 1512A78

Lab ID: 1512A78-001

Collection Date: 12/16/2015 9:53:00 AM

Client Sample ID: 1-15'

Matrix: SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS Analyst: LGT							
Chloride	12000	750		mg/Kg	500	12/31/2015 10:48:58 PM	23018

Lab ID: 1512A78-002

Collection Date: 12/16/2015 10:03:00 AM

Client Sample ID: 1-20'

Matrix: SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS Analyst: LGT							
Chloride	7200	300		mg/Kg	200	12/31/2015 11:01:22 PM	23018

Lab ID: 1512A78-003

Collection Date: 12/16/2015 10:15:00 AM

Client Sample ID: 1-25'

Matrix: SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS Analyst: LGT							
Chloride	5900	300		mg/Kg	200	12/31/2015 11:13:47 PM	23018

Lab ID: 1512A78-004

Collection Date: 12/16/2015 10:28:00 AM

Client Sample ID: 1-30'

Matrix: SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS Analyst: LGT							
Chloride	1600	75		mg/Kg	50	12/31/2015 11:26:11 PM	23018

Lab ID: 1512A78-005

Collection Date: 12/16/2015 10:50:00 AM

Client Sample ID: 1-35'

Matrix: SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
EPA METHOD 300.0: ANIONS Analyst: LGT							
Chloride	1400	75		mg/Kg	50	12/31/2015 11:38:36 PM	23018

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		



## Analytical Report

Lab Order: 1512A78

Date Reported: 1/7/2016

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Yates Petroleum Corporation  
**Project:** Bilbery SWD #1

**Lab Order:** 1512A78

**Lab ID:** 1512A78-006

**Collection Date:** 12/16/2015 11:20:00 AM

**Client Sample ID:** 1-40'

**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 300.0: ANIONS</b>							
Chloride	3000	150		mg/Kg	100	12/31/2015 11:51:00 PM	23018

Analyst: LGT

**Lab ID:** 1512A78-007

**Collection Date:** 12/16/2015 11:48:00 AM

**Client Sample ID:** 1-45'

**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 300.0: ANIONS</b>							
Chloride	2800	150		mg/Kg	100	1/1/2016 12:03:25 AM	23018

Analyst: LGT

**Lab ID:** 1512A78-008

**Collection Date:** 12/16/2015 12:46:00 PM

**Client Sample ID:** 1-50'

**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 300.0: ANIONS</b>							
Chloride	410	30		mg/Kg	20	12/31/2015 12:43:59 AM	23018

Analyst: LGT

**Lab ID:** 1512A78-009

**Collection Date:** 12/16/2015 1:20:00 PM

**Client Sample ID:** 1-55'

**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 300.0: ANIONS</b>							
Chloride	170	30		mg/Kg	20	12/31/2015 1:05:40 PM	23025

Analyst: LGT

**Lab ID:** 1512A78-010

**Collection Date:** 12/16/2015 7:15:00 AM

**Client Sample ID:** 2-5'

**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 300.0: ANIONS</b>							
Chloride	210	30		mg/Kg	20	12/31/2015 1:42:54 PM	23025

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	

## Analytical Report

Lab Order: 1512A78

Date Reported: 1/7/2016

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Yates Petroleum Corporation  
**Project:** Bilbery SWD #1

**Lab Order:** 1512A78

**Lab ID:** 1512A78-011

**Collection Date:** 12/16/2015 7:21:00 AM

**Client Sample ID:** 2-10'

**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 300.0: ANIONS</b>							
Chloride	540	30		mg/Kg	20	12/31/2015 1:55:19 PM	23025

Analyst: LGT

**Lab ID:** 1512A78-012

**Collection Date:** 12/16/2015 7:30:00 AM

**Client Sample ID:** 2-15'

**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 300.0: ANIONS</b>							
Chloride	4200	150		mg/Kg	100	1/4/2016 9:55:32 PM	23025

Analyst: LGT

**Lab ID:** 1512A78-013

**Collection Date:** 12/16/2015 8:00:00 AM

**Client Sample ID:** 2-20'

**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 300.0: ANIONS</b>							
Chloride	7400	300		mg/Kg	200	1/4/2016 10:07:56 PM	23025

Analyst: LGT

**Lab ID:** 1512A78-014

**Collection Date:** 12/16/2015 8:12:00 AM

**Client Sample ID:** 2-25'

**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 300.0: ANIONS</b>							
Chloride	4700	150		mg/Kg	100	1/4/2016 10:20:20 PM	23025

Analyst: LGT

**Lab ID:** 1512A78-015

**Collection Date:** 12/16/2015 8:36:00 AM

**Client Sample ID:** 2-30'

**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 300.0: ANIONS</b>							
Chloride	43	30		mg/Kg	20	12/31/2015 3:09:47 PM	23025

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	

**Analytical Report**

Lab Order: 1512A78

Date Reported: 1/7/2016

**Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Yates Petroleum Corporation  
**Project:** Bilbery SWD #1**Lab Order:** 1512A78**Lab ID:** 1512A78-016**Collection Date:** 12/16/2015 9:03:00 AM**Client Sample ID:** 2-35'**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: LGT
Chloride	170	30		mg/Kg	20	12/31/2015 3:22:11 PM	23025

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	Page 4 of 5
	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#: 1512A78

07-Jan-16

Client: Yates Petroleum Corporation

Project: Bilbery SWD #1

Sample ID	MB-23018	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBS	Batch ID:	23018	RunNo:	31168					
Prep Date:	12/30/2015	Analysis Date:	12/30/2015	SeqNo:	954183	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	LCS-23018	SampType:	LCS	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSS	Batch ID:	23018	RunNo:	31168					
Prep Date:	12/30/2015	Analysis Date:	12/30/2015	SeqNo:	954184	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.7	90	110			

Sample ID	MB-23025	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBS	Batch ID:	23025	RunNo:	31195					
Prep Date:	12/31/2015	Analysis Date:	12/31/2015	SeqNo:	955233	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	LCS-23025	SampType:	LCS	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSS	Batch ID:	23025	RunNo:	31195					
Prep Date:	12/31/2015	Analysis Date:	12/31/2015	SeqNo:	955234	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.0	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 |   |



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: 1512A78

RcptNo: 1

Received by/date:

*AK*

12/23/15

Logged By: Lindsay Mangin

12/23/2015 9:40:00 AM

*Lindsay Mangin*

Completed By: Lindsay Mangin

12/23/2015 10:43:06 AM

*Lindsay Mangin*

Reviewed By:

CS

12/23/15

### 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  $6.0^{\circ}\text{C}$ ? 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? 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	9.8	Good	Yes			







