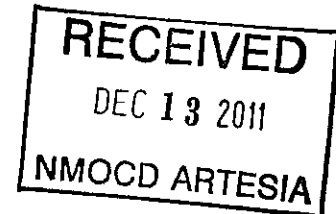


December 13, 2011

Mr. Mike Bratcher  
Oil Conservation Division  
Artesia, NM

Re: Federal 'AB' #13H  
30-015-37211  
Section 32, T18S-R25E  
Eddy County, New Mexico



Dear Mr. Bratcher:

Yates Petroleum Corp. would like to submit for your consideration the enclosed work plan for the above captioned well. The plan is being submitted in response to the C-141 report dated October 24, 2011.

**If there are no objections with the scope of work described in the plan, Yates will have a contractor begin work on or after the week of December 19, 2011.**

If you have any questions call me at 575-748-4311

Thank you.

Yates Petroleum Corporation

Jeremy Haass  
Environmental Regulatory Agent

Enclosure(s):

Map to location  
Analytical Report 430929  
Analytical Report 430930  
Approval Letter from Jim Amos (BLM)

**Yates Petroleum Corporation**

**Federal 'AB' #13H Work Plan**

**Section 32, T18S-R25E**

**Eddy County, New Mexico**

**December 13, 2011**

**I. Location**

Go south of Artesia on Hwy 285 for approx. 9 miles to Kincaid Ranch Rd. Turn right on Kincaid Ranch Rd. and go approx. 3.5 miles to end of pavement. Continue on dirt existing part of Kincaid Ranch Rd. for approx. 2.3 miles to a locked gate on a cattle guard on the right. Cross cattle guard follow the existing lease road for approx. 2 miles. Turn right crossing a cattle guard and continue going north for approx. ½ of a mile to the Federal 'AB' #8 well location. From the southeast corner of this location, follow lease road for approx. a tenth of a mile to the southeast corner of the well location.

**II. Background**

On October 16, 2011 a release occurred of 15 B/O & 450 B/PW of which 10 B/O & 400 B/PW was recovered. Yates submitted a C-141 on October 24, 2011 to the NMOCD District II office and BLM. The total affected area was 20 yards x 100 yards. Initial delineation samples were taken (10/31/11) and sent to an NMOCD approved laboratory (11/15/11 results enclosed).

**III. Surface and Ground Water**

Area surface geology is Cenozoic. The nearest Depth to Groundwater record listed on the New Mexico Office of the State Engineer (Section 32, T18S-R25E) shows depth of groundwater to be approximately 300 feet making the site ranking for this site a zero (0). Watercourses in the area are dry except for infrequent flows in response to major precipitation events.

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

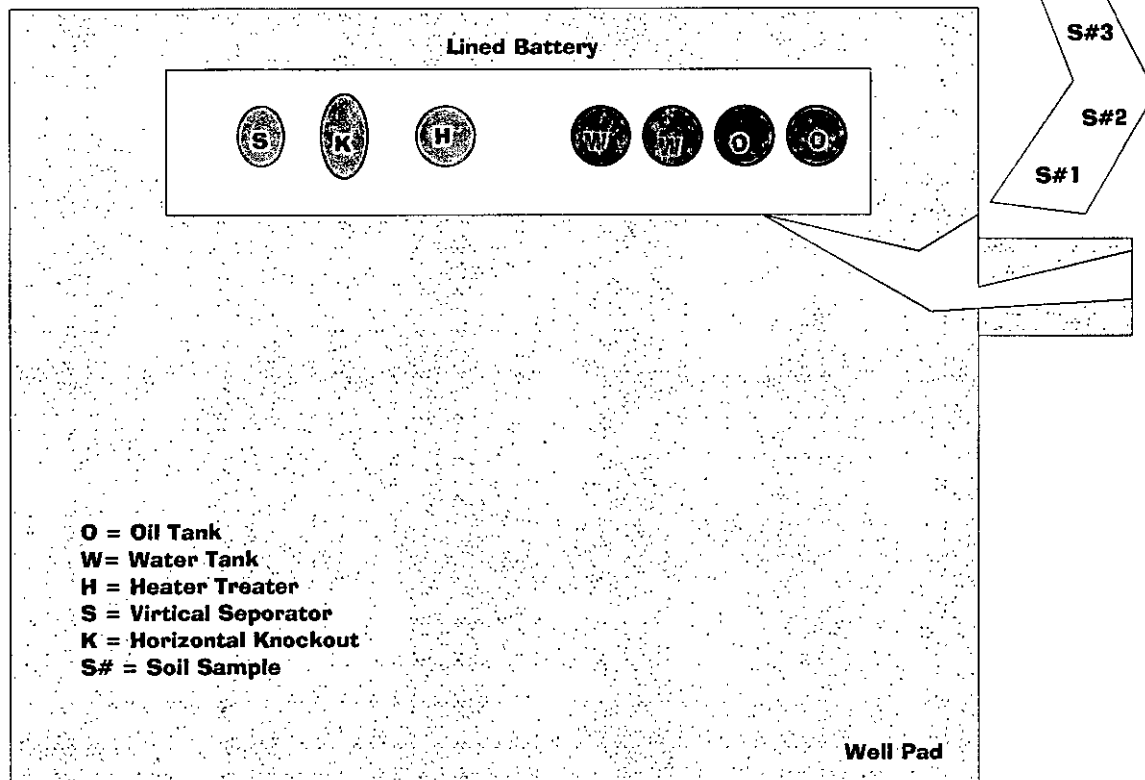
Depth to ground water	> 100'
Wellhead Protection Area	> 1000'
Distance to surface water body	> 1000'

**IV. Soils**

The area consists of soils that are caliche and interspersed with clay seams providing a low permeability barrier to retard vertical percolation of contaminants into the subsurface.

**V. Scope of Work**

Upon approval of this work plan and based on the enclosed analytical results, Yates Petroleum Corp. with the expressed consent of the "Four Dinkus Ranch" will have a contractor place manure on the impacted area (total area will be 20 yds. x 100 yds.), and monitor the site for sustained plant growth and resample the area in May 2011 at such time if need be a new plan of action may be taken.



Federal 'AB' #13H  
30-015-37211  
Section 32, T18S-R25E  
Eddy County, NM

SAMPLE DIAGRAM(Not to Scale)  
Xenco Laboratories# 430929 & 430930  
Report Date: 11/15/2011  
Prepared by Jeremy Haass  
Environmental Regulatory Agent

Analytical Report- 430929 & 430930	Sample Date	Depth	BTEX	GRO	DRO	TOTAL	Chlorides
Sample #1	10/31/2011	6"	51.9	178	2340	2520	7610
Sample #2	10/31/2011	6"	.254	ND	229	229	8350
Sample #3	10/31/2011	6"	ND	ND	88.8	88.8	8700
Sample #4	10/31/2011	6"	2.26	ND	605	605	7730
Sample #5	10/31/2011	4"	ND	ND	52.3	52.3	8300
Sample #6	10/31/2011	6"	4.58	20.5	1360	1380	6990

**Site Ranking is Zero (0).** Depth to Ground Water >100' (approx. 300', per NMOSE).

All results are ppm. Chlorides for documentation. **X - Sample Points**

Released: 450 B/PW & 15 B/O; Recovered: 400 B/PW & 10 B/O. Release Date: 10/16/2011

# Analytical Report 430929

## for Yates Petroleum Corporation

Project Manager: Jeremy Haass

Federal 'AB' # 13H

30-015-37211

15-NOV-11

Collected By: Client



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Xenco-Houston (EPA Lab code: TX00122):

Texas (T104704215-10-6-TX), Arizona (AZ0765), Arkansas (08-039-0), Connecticut (PH-0102), Florida (E871002)  
Illinois (002082), Indiana (C-TX-02), Iowa (392), Kansas (E-10380), Kentucky (45), Louisiana (03054)  
New Hampshire (297408), New Jersey (TX007), New York (11763), Oklahoma (9218), Pennsylvania (68-03610)  
Rhode Island (LAO00312), USDA (S-44102)

Xenco-Atlanta (EPA Lab Code: GA00046):

Florida (E87429), North Carolina (483), South Carolina (98015), Utah (AALI1), West Virginia (362), Kentucky (85)  
Louisiana (04176), USDA (P330-07-00105)

Xenco-Miami (EPA Lab code: FL01152): Florida (E86678), Maryland (330)

Xenco-Tampa Mobile (EPA Lab code: FL01212): Florida (E84900)

Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-TX)

Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295-TX)

Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)

Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)

Xenco Tucson (EPA Lab code: AZ000989): Arizona (AZ0758)



15-NOV-11

Project Manager: **Jeremy Haass**  
**Yates Petroleum Corporation**  
105 South Fourth St.  
Artesia, NM 88210

Reference: XENCO Report No: **430929**  
**Federal 'AB' # 13H**  
Project Address: Eddy

**Jeremy Haass:**

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number 430929. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. Estimation of data uncertainty for this report is found in the quality control section of this report unless otherwise noted. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 430929 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

---

**Brent Barron II**

Odessa Laboratory Manager

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## Sample Cross Reference 430929



Yates Petroleum Corporation, Artesia, NM

Federal 'AB' # 13H

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
Sample # 1	S	10-31-11 09:00	6 - 6 In	430929-001
Sample # 2	S	10-31-11 09:10	6 - 6 In	430929-002
Sample # 3	S	10-31-11 09:20	6 - 6 In	430929-003
Sample # 4	S	10-31-11 09:30	6 - 6 In	430929-004
Sample # 5	S	10-31-11 09:40	4 - 4 In	430929-005
Sample # 6	S	10-31-11 09:50	6 - 6 In	430929-006





## CASE NARRATIVE

*Client Name: Yates Petroleum Corporation*

*Project Name: Federal 'AB' # 13H*



*Project ID: 30-015-37211*

*Work Order Number: 430929*

*Report Date: 15-NOV-11*

*Date Received: 11/04/2011*

---

***Sample receipt non conformances and comments:***

*None*

---

***Sample receipt non conformances and comments per sample:***

*None*

***Analytical non nonformances and comments:***

*Batch: LBA-874338 BTEX by EPA 8021B  
SW8021BM*

*Batch 874338, 1,4-Difluorobenzene recovered above QC limits . Matrix interferences is suspected; data not confirmed by re-analysis*

*Samples affected are: 430929-003.*

*1,4-Difluorobenzene recovered below QC limits . Matrix interferences is suspected; data confirmed by re-analysis*

*Samples affected are: 430929-001 and 430929-002.*

*4-Bromofluorobenzene recovered above QC limits . Matrix interferences is suspected; data confirmed by re-analysis*

*Samples affected are: 430929-001.*

*SW8021BM*

*Batch 874338, Benzene, Ethylbenzene, m\_p-Xylenes recovered below QC limits in the Matrix Spike. o-Xylene recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate.*

*Toluene recovered below QC limits in the Matrix Spike Duplicate.*

*Samples affected are: 430929-003.*

*The Laboratory Control Sample for Toluene, Benzene, Ethylbenzene, m\_p-Xylenes , o-Xylene is within laboratory Control Limits*

*SW8021BM*

*Batch 874338, Benzene, Ethylbenzene, m\_p-Xylenes , o-Xylene RPD was outside QC limits.*

*Samples affected are: 430929-003*



## CASE NARRATIVE

*Client Name: Yates Petroleum Corporation*

*Project Name: Federal 'AB' # 13H*



*Project ID: 30-015-37211*

*Work Order Number: 430929*

*Report Date: 15-NOV-11*

*Date Received: 11/04/2011*

---

*Batch: LBA-874667 BTEX by EPA 8021B  
SW8021BM*

*Batch 874667, o-Xylene recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate. Ethylbenzene, Toluene, m\_p-Xylenes recovered below QC limits in the Matrix Spike Duplicate.*

*Samples affected are: 430929-006, -005.*

*The Laboratory Control Sample for Toluene, o-Xylene, Ethylbenzene, m\_p-Xylenes is within laboratory Control Limits*



# Certificate of Analysis Summary 430929

Yates Petroleum Corporation, Artesia, NM

Project Name: Federal 'AB' # 13H

Project Id: 30-015-37211

Contact: Jeremy Haass

Project Location: Eddy



Date Received in Lab: Fri Nov-04-11 10:20 am

Report Date: 15-NOV-11

Project Manager: Brent Barron II

Analysis Requested	Lab Id:	430929-001	430929-002	430929-003	430929-004	430929-005	430929-006
	Field Id: Depth: Matrix: Sampled:	Sample # 1 6-6 In SOIL Oct-31-11 09:00	Sample # 2 6-6 In SOIL Oct-31-11 09:10	Sample # 3 6-6 In SOIL Oct-31-11 09:20	Sample # 4 6-6 In SOIL Oct-31-11 09:30	Sample # 5 4-4 In SOIL Oct-31-11 09:40	Sample # 6 6-6 In SOIL Oct-31-11 09:50
BTEX by EPA 8021B	Extracted:	Nov-08-11 09:24	Nov-08-11 09:24	Nov-08-11 09:24	Nov-08-11 16:40	Nov-10-11 10:12	Nov-10-11 10:12
	Analyzed:	Nov-09-11 09:58	Nov-09-11 11:06	Nov-08-11 22:47	Nov-09-11 17:10	Nov-11-11 12:47	Nov-11-11 15:28
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
		ND 0.119	ND 0.0289	ND 0.00119	ND 0.0236	ND 0.00119	ND 0.0231
		2.95 0.237	ND 0.0578	ND 0.00239	ND 0.0473	ND 0.00239	ND 0.0461
Percent Moisture	Extracted:	Nov-07-11 12:10	Nov-07-11 12:10	Nov-07-11 12:10	Nov-07-11 12:10	Nov-07-11 12:10	Nov-07-11 12:10
	Analyzed:	Nov-07-11 14:15	Nov-07-11 14:15	Nov-07-11 14:15	Nov-07-11 14:15	Nov-07-11 14:15	Nov-07-11 14:15
	Units/RL:	% RL	% RL	% RL	% RL	% RL	% RL
		16.0 1.00	14.2 1.00	16.3 1.00	16.1 1.00	16.4 1.00	13.8 1.00
		178 75.0	ND 15.0	ND 15.0	ND 14.9	ND 14.9	20.5 15.0
TPH By SW8015B Mod	Extracted:	Nov-07-11 04:23	Nov-08-11 04:58	Nov-08-11 05:33	Nov-08-11 06:08	Nov-08-11 06:43	Nov-08-11 07:18
	Analyzed:	Nov-07-11 14:15	Nov-07-11 14:15	Nov-07-11 14:15	Nov-07-11 14:15	Nov-07-11 14:15	Nov-07-11 14:15
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
C6-C10 Gasoline Range Hydrocarbons		2340 75.0	229 15.0	88.8 15.0	605 14.9	52.3 14.9	1360 15.0
		2520 75.0	229 15.0	88.8 15.0	605 14.9	52.3 14.9	1380 15.0
	Total TPH						

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

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Brent Barron II  
Odessa Laboratory Manager

## Flagging Criteria

- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

\* Surrogate recovered outside laboratory control limit.

**BRL** Below Reporting Limit.

**RL** Reporting Limit

**MDL** Method Detection Limit      **SDL** Sample Detection Limit      **LOD** Limit of Detection

**PQL** Practical Quantitation Limit      **MQL** Method Quantitation Limit      **LOQ** Limit of Quantitation

**DL** Method Detection Limit

**NC** Non-Calculable

+ Outside XENCO's scope of NELAC Accreditation.

^ NELAC or State program does not offer Accreditation at this time.

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(432) 563-1800	(432) 563-1713
(770) 449-8800	(770) 449-5477
(602) 437-0330	



## Form 2 - Surrogate Recoveries

Project Name: Federal 'AB' # 13H

Work Orders : 430929,

Project ID: 30-015-37211

Lab Batch #: 874216

Sample: 430929-001 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 11/08/11 04:23

### SURROGATE RECOVERY STUDY

TPH By SW8015B Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1-Chlorooctane	120	100	120	70-135	
o-Terphenyl	54.6	50.0	109	70-135	

Lab Batch #: 874216

Sample: 430929-002 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 11/08/11 04:58

### SURROGATE RECOVERY STUDY

TPH By SW8015B Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1-Chlorooctane	102	99.7	102	70-135	
o-Terphenyl	54.9	49.9	110	70-135	

Lab Batch #: 874216

Sample: 430929-003 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 11/08/11 05:33

### SURROGATE RECOVERY STUDY

TPH By SW8015B Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1-Chlorooctane	97.5	100	98	70-135	
o-Terphenyl	51.4	50.0	103	70-135	

Lab Batch #: 874216

Sample: 430929-004 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 11/08/11 06:08

### SURROGATE RECOVERY STUDY

TPH By SW8015B Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1-Chlorooctane	109	99.6	109	70-135	
o-Terphenyl	54.7	49.8	110	70-135	

Lab Batch #: 874216

Sample: 430929-005 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 11/08/11 06:43

### SURROGATE RECOVERY STUDY

TPH By SW8015B Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1-Chlorooctane	106	99.5	107	70-135	
o-Terphenyl	55.2	49.8	111	70-135	

\* Surrogate outside of Laboratory QC limits

\*\* Surrogates outside limits; data and surrogates confirmed by reanalysis

\*\*\* Poor recoveries due to dilution

Surrogate Recovery [D] =  $100 * A / B$

All results are based on MDL and validated for QC purposes.



## Form 2 - Surrogate Recoveries

Project Name: Federal 'AB' # 13H

Work Orders : 430929,

Project ID: 30-015-37211

Lab Batch #: 874216

Sample: 430929-006 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 11/08/11 07:18

### SURROGATE RECOVERY STUDY

TPH By SW8015B Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1-Chlorooctane	117	99.8	117	70-135	
o-Terphenyl	56.5	49.9	113	70-135	

Lab Batch #: 874338

Sample: 430929-003 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 11/08/11 22:47

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0394	0.0300	131	80-120	*
4-Bromofluorobenzene	0.0266	0.0300	89	80-120	

Lab Batch #: 874338

Sample: 430929-001 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 11/09/11 09:58

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0232	0.0300	77	80-120	**
4-Bromofluorobenzene	0.0676	0.0300	225	80-120	**

Lab Batch #: 874338

Sample: 430929-002 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 11/09/11 11:06

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0238	0.0300	79	80-120	**
4-Bromofluorobenzene	0.0292	0.0300	97	80-120	

Lab Batch #: 874430

Sample: 430929-004 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 11/09/11 17:10

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0255	0.0300	85	80-120	
4-Bromofluorobenzene	0.0333	0.0300	111	80-120	

\* Surrogate outside of Laboratory QC limits

\*\* Surrogates outside limits; data and surrogates confirmed by reanalysis

\*\*\* Poor recoveries due to dilution

Surrogate Recovery [D] =  $100 \times A / B$

All results are based on MDL and validated for QC purposes.



## Form 2 - Surrogate Recoveries

Project Name: Federal 'AB' # 13H

Work Orders : 430929,

Project ID: 30-015-37211

Lab Batch #: 874667

Sample: 430929-005 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 11/11/11 12:47

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0270	0.0300	90	80-120	
4-Bromofluorobenzene	0.0294	0.0300	98	80-120	

Lab Batch #: 874667

Sample: 430929-006 / SMP

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 11/11/11 15:28

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0255	0.0300	85	80-120	
4-Bromofluorobenzene	0.0311	0.0300	104	80-120	

Lab Batch #: 874216

Sample: 613793-I-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 11/07/11 19:22

### SURROGATE RECOVERY STUDY

TPH By SW8015B Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1-Chlorooctane	95.3	100	95	70-135	
o-Terphenyl	49.4	50.0	99	70-135	

Lab Batch #: 874338

Sample: 613857-I-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 11/08/11 11:30

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0272	0.0300	91	80-120	
4-Bromofluorobenzene	0.0273	0.0300	91	80-120	

Lab Batch #: 874430

Sample: 613916-I-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 11/09/11 14:53

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0273	0.0300	91	80-120	
4-Bromofluorobenzene	0.0283	0.0300	94	80-120	

\* Surrogate outside of Laboratory QC limits

\*\* Surrogates outside limits; data and surrogates confirmed by reanalysis

\*\*\* Poor recoveries due to dilution

Surrogate Recovery [D] =  $100 * A / B$

All results are based on MDL and validated for QC purposes.



## Form 2 - Surrogate Recoveries

Project Name: Federal 'AB' # 13H

Work Orders : 430929,

Project ID: 30-015-37211

Lab Batch #: 874667

Sample: 614062-1-BLK / BLK

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 11/11/11 12:19

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B		Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes						
1,4-Difluorobenzene		0.0269	0.0300	90	80-120	
4-Bromofluorobenzene		0.0283	0.0300	94	80-120	

Lab Batch #: 874216

Sample: 613793-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 11/07/11 18:15

### SURROGATE RECOVERY STUDY

TPH By SW8015B Mod		Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes						
1-Chlorooctane		108	100	108	70-135	
o-Terphenyl		47.2	50.0	94	70-135	

Lab Batch #: 874338

Sample: 613857-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 11/08/11 09:59

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B		Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes						
1,4-Difluorobenzene		0.0285	0.0300	95	80-120	
4-Bromofluorobenzene		0.0297	0.0300	99	80-120	

Lab Batch #: 874430

Sample: 613916-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 11/09/11 13:22

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B		Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes						
1,4-Difluorobenzene		0.0292	0.0300	97	80-120	
4-Bromofluorobenzene		0.0309	0.0300	103	80-120	

Lab Batch #: 874667

Sample: 614062-1-BKS / BKS

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 11/11/11 10:48

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B		Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes						
1,4-Difluorobenzene		0.0287	0.0300	96	80-120	
4-Bromofluorobenzene		0.0286	0.0300	95	80-120	

\* Surrogate outside of Laboratory QC limits

\*\* Surrogates outside limits; data and surrogates confirmed by reanalysis

\*\*\* Poor recoveries due to dilution

Surrogate Recovery [D] =  $100 * A / B$

All results are based on MDL and validated for QC purposes.





## Form 2 - Surrogate Recoveries

Project Name: Federal 'AB' # 13H

Work Orders : 430929,

Project ID: 30-015-37211

Lab Batch #: 874216

Sample: 613793-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 11/07/11 18:51

### SURROGATE RECOVERY STUDY

TPH By SW8015B Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1-Chlorooctane	203	200	102	70-135	
o-Terphenyl	99.2	100	99	70-135	

Lab Batch #: 874338

Sample: 613857-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 11/08/11 10:22

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0293	0.0300	98	80-120	
4-Bromofluorobenzene	0.0301	0.0300	100	80-120	

Lab Batch #: 874430

Sample: 613916-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 11/09/11 13:45

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0283	0.0300	94	80-120	
4-Bromofluorobenzene	0.0308	0.0300	103	80-120	

Lab Batch #: 874667

Sample: 614062-1-BSD / BSD

Batch: 1 Matrix: Solid

Units: mg/kg

Date Analyzed: 11/11/11 11:11

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0281	0.0300	94	80-120	
4-Bromofluorobenzene	0.0289	0.0300	96	80-120	

Lab Batch #: 874216

Sample: 430641-001 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 11/08/11 07:54

### SURROGATE RECOVERY STUDY

TPH By SW8015B Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1-Chlorooctane	107	99.9	107	70-135	
o-Terphenyl	45.6	50.0	91	70-135	

\* Surrogate outside of Laboratory QC limits

\*\* Surrogates outside limits; data and surrogates confirmed by reanalysis

\*\*\* Poor recoveries due to dilution

Surrogate Recovery [D] =  $100 * A / B$

All results are based on MDL and validated for QC purposes.



## Form 2 - Surrogate Recoveries

Project Name: Federal 'AB' # 13H

Work Orders : 430929,

Project ID: 30-015-37211

Lab Batch #: 874338

Sample: 430848-001 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 11/08/11 20:30

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0244	0.0300	81	80-120	
4-Bromofluorobenzene	0.0291	0.0300	97	80-120	

Lab Batch #: 874430

Sample: 431054-003 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 11/09/11 19:04

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0284	0.0300	95	80-120	
4-Bromofluorobenzene	0.0317	0.0300	106	80-120	

Lab Batch #: 874667

Sample: 430929-005 S / MS

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 11/11/11 18:55

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0274	0.0300	91	80-120	
4-Bromofluorobenzene	0.0267	0.0300	89	80-120	

Lab Batch #: 874216

Sample: 430641-001 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 11/08/11 08:29

### SURROGATE RECOVERY STUDY

TPH By SW8015B Mod	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1-Chlorooctane	106	100	106	70-135	
o-Terphenyl	45.1	50.0	90	70-135	

Lab Batch #: 874338

Sample: 430848-001 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 11/08/11 20:53

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes					
1,4-Difluorobenzene	0.0357	0.0300	119	80-120	
4-Bromofluorobenzene	0.0307	0.0300	102	80-120	

\* Surrogate outside of Laboratory QC limits

\*\* Surrogates outside limits; data and surrogates confirmed by reanalysis

\*\*\* Poor recoveries due to dilution

Surrogate Recovery [D] =  $100 \cdot A / B$

All results are based on MDL and validated for QC purposes.



## Form 2 - Surrogate Recoveries

Project Name: Federal 'AB' # 13H

Work Orders : 430929,

Project ID: 30-015-37211

Lab Batch #: 874430

Sample: 431054-003 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 11/09/11 19:27

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B		Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes						
1,4-Difluorobenzene		0.0286	0.0300	95	80-120	
4-Bromofluorobenzene		0.0317	0.0300	106	80-120	

Lab Batch #: 874667

Sample: 430929-005 SD / MSD

Batch: 1 Matrix: Soil

Units: mg/kg

Date Analyzed: 11/11/11 19:18

### SURROGATE RECOVERY STUDY

BTEX by EPA 8021B		Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
Analytes						
1,4-Difluorobenzene		0.0274	0.0300	91	80-120	
4-Bromofluorobenzene		0.0278	0.0300	93	80-120	

\* Surrogate outside of Laboratory QC limits

\*\* Surrogates outside limits; data and surrogates confirmed by reanalysis

\*\*\* Poor recoveries due to dilution

Surrogate Recovery [D] =  $100 * A / B$

All results are based on MDL and validated for QC purposes.

**Project Name: Federal 'AB' # 13H**

Work Order #: 430929

Analyst: ASA

Lab Batch ID: 874338

Sample: 613857-1-BKS

Date Prepared: 11/08/2011

Batch #: 1

Project ID: 30-015-37211

Date Analyzed: 11/08/2011

Matrix: Solid

Units: mg/kg

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

Analytes	BTEX by EPA 8021B										Flag
	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blank Spike Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	
Benzene	<0.00100	0.100	0.0973	97	0.100	0.102	102	5	70-130	35	
Toluene	<0.00200	0.100	0.100	100	0.100	0.104	104	4	70-130	35	
Ethylbenzene	<0.00100	0.100	0.104	104	0.100	0.109	109	5	71-129	35	
m,p-Xylenes	<0.00200	0.200	0.209	105	0.200	0.217	109	4	70-135	35	
o-Xylene	<0.00100	0.100	0.107	107	0.100	0.109	109	2	71-133	35	

Analyst: ASA

Lab Batch ID: 874430

Sample: 613916-1-BKS

Date Prepared: 11/08/2011

Batch #: 1

Date Analyzed: 11/09/2011

Matrix: Solid

Units: mg/kg

**BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY**

Analytes	BTEX by EPA 8021B										Flag
	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blank Spike Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	
Benzene	<0.00100	0.100	0.101	101	0.100	0.104	104	3	70-130	35	
Toluene	<0.00200	0.100	0.103	103	0.100	0.105	105	2	70-130	35	
Ethylbenzene	<0.00100	0.100	0.112	112	0.100	0.113	113	1	71-129	35	
m,p-Xylenes	<0.00200	0.200	0.236	118	0.200	0.237	119	0	70-135	35	
o-Xylene	<0.00100	0.100	0.113	113	0.100	0.114	114	1	71-133	35	

 Relative Percent Difference RPD =  $200 * [(C-F)/(C+F)]$ 

 Blank Spike Recovery [D] =  $100 * (C)/[B]$ 

 Blank Spike Duplicate Recovery [G] =  $100 * (F)/[E]$ 

All results are based on MDL and Validated for QC Purposes

## Project Name: Federal 'AB' # 13H

Work Order #: 430929

Analyst: ASA

Lab Batch ID: 874667

Sample: 614062-1-BKS

Date Prepared: 11/10/2011

Batch #: 1

Project ID: 30-015-37211

Date Analyzed: 11/11/2011

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY												
Analytes	BTEX by EPA 8021B	Units: mg/kg										
		Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene		<0.00100	0.100	0.0915	92	0.100	0.0858	86	6	70-130	35	
Toluene		<0.00200	0.100	0.0948	95	0.100	0.0895	90	6	70-130	35	
Ethylbenzene		<0.00100	0.100	0.0999	100	0.100	0.0950	95	5	71-129	35	
m,p-Xylenes		<0.00200	0.200	0.197	99	0.200	0.188	94	5	70-135	35	
o-Xylene		<0.00100	0.100	0.100	100	0.100	0.0964	96	4	71-133	35	

Analyst: ASA

Lab Batch ID: 874216

Sample: 613793-1-BKS

Date Prepared: 11/07/2011

Batch #: 1

Date Analyzed: 11/07/2011

Matrix: Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY												
TPH By SW8015B Mod		Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes												
C6-C10 Gasoline Range Hydrocarbons		<15.0	1000	884	88	1000	914	91	3	70-135	35	
C10-C28 Diesel Range Hydrocarbons		<15.0	1000	794	79	1000	847	85	6	70-135	35	

Relative Percent Difference RPD =  $200 * [(C-P)/(C+F)]$

Blank Spike Recovery [D] =  $100 * (C)/(B)$

Blank Spike Duplicate Recovery [G] =  $100 * (F)/(E)$

All results are based on MDL and Validated for QC Purposes



# Form 3 - MS / MSD Recoveries

Project Name: Federal 'AB' # 13H

Work Order # : 430929

Lab Batch ID: 874338

Date Analyzed: 11/08/2011

Reporting Units: mg/kg

Project ID: 30-015-37211

QC-Sample ID: 430848-001 S

Batch #: 1 Matrix: Soil

Date Prepared: 11/08/2011

Analyst: ASA

## MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Analytes	MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY										Flag
	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	
BTEX by EPA 8021B											
Benzene	<0.00104	0.104	0.0656	63	0.105	0.107	102	48	70-130	35	XF
Toluene	<0.00208	0.104	0.0828	80	0.105	0.0699	67	17	70-130	35	X
Ethylbenzene	<0.00104	0.104	0.0534	51	0.105	0.0971	92	58	71-129	35	XF
m_p-Xylenes	<0.00208	0.208	0.104	50	0.211	0.198	94	62	70-135	35	XF
o-Xylene	<0.00104	0.104	0.0509	49	0.105	0.0735	70	36	71-133	35	XF

Lab Batch ID: 874430

Date Analyzed: 11/09/2011

Reporting Units: mg/kg

QC-Sample ID: 431054-003 S

Batch #: 1 Matrix: Soil

Date Prepared: 11/08/2011

Analyst: ASA

## MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

Analytes	MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY										Flag
	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	
BTEX by EPA 8021B											
Benzene	<0.00110	0.110	0.0888	81	0.110	0.0872	79	2	70-130	35	
Toluene	<0.00220	0.110	0.0904	82	0.110	0.0867	79	4	70-130	35	
Ethylbenzene	<0.00110	0.110	0.0963	88	0.110	0.0911	83	6	71-129	35	
m_p-Xylenes	<0.00220	0.220	0.198	90	0.219	0.185	84	7	70-135	35	
o-Xylene	<0.00110	0.110	0.0970	88	0.110	0.0917	83	6	71-133	35	

Matrix Spike Percent Recovery  $[D] = 100 \times (C-A)/B$   
Relative Percent Difference  $RPD = 200 \times |(C-F)/(C+F)|$

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable  
N = See Narrative, EQL = Estimated Quantitation Limit

Matrix Spike Duplicate Percent Recovery  $[G] = 100 \times (F-A)/E$

# Form 3 - MS / MSD Recoveries

Project Name: Federal 'AB' # 13H

Work Order #: 430929

Lab Batch ID: 874667

Date Analyzed: 11/11/2011

Reporting Units: mg/kg

Project ID: 30-015-37211

QC- Sample ID: 430929-005 S Batch #: 1 Matrix: Soil

Date Prepared: 11/10/2011 Analyst: ASA

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY													
Reporting Units: mg/kg	BTEX by EPA 8021B  Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag	
	Benzene	<0.00120	0.120	0.0975	81	0.119	0.0847	71	14	70-130	35		
	Toluene	<0.00240	0.120	0.0947	79	0.119	0.0818	69	15	70-130	35	X	
	Ethylbenzene	<0.00120	0.120	0.0905	75	0.119	0.0768	65	16	71-129	35	X	
	m,p-Xylenes	<0.00240	0.240	0.174	73	0.238	0.147	62	17	70-135	35	X	
	o-Xylene	<0.00120	0.120	0.0834	70	0.119	0.0714	60	16	71-133	35	X	

Lab Batch ID: 874216

Date Analyzed: 11/08/2011

Reporting Units: mg/kg

QC- Sample ID: 430641-001 S Batch #: 1 Matrix: Soil

Date Prepared: 11/07/2011 Analyst: ASA

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY											
Reporting Units: mg/kg											
	TPH By SW8015B Mod										
	Analytes										
C6-C10 Gasoline Range Hydrocarbons	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C10 Gasoline Range Hydrocarbons	<16.2	1080	926	86	1080	952	88	3	70-135	35	
C10-C28 Diesel Range Hydrocarbons	<16.2	1080	856	79	1080	911	84	6	70-135	35	

Matrix Spike Percent Recovery  $[D] = 100 \times (C-A)/B$   
Relative Percent Difference  $RPD = 200 \times |(C-F)/(C+F)|$

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable  
N = See Narrative, EQL = Estimated Quantitation Limit

Matrix Spike Duplicate Percent Recovery  $[G] = 100 \times (F-A)/E$



## Sample Duplicate Recovery



Project Name: Federal 'AB' # 13H

Work Order #: 430929

Lab Batch #: 874221

Project ID: 30-015-37211

Date Analyzed: 11/07/2011 12:10

Date Prepared: 11/07/2011

Analyst: BRB

QC- Sample ID: 430951-001 D

Batch #: 1

Matrix: Soil

Reporting Units: %

		SAMPLE / SAMPLE DUPLICATE RECOVERY				
Percent Moisture	Analyte	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Percent Moisture		4.07	4.06	0	20	

Spike Relative Difference RPD  $200 * |(B-A)/(B+A)|$

All Results are based on MDL and validated for QC purposes.

BRL - Below Reporting Limit







XENCO Laboratories  
Atlanta, Boca Raton, Corpus Christi, Dallas  
Houston, Miami, Odessa, Philadelphia  
Phoenix, San Antonio, Tampa

Document Title: Sample Receipt Checklist  
Document No.: SYS-SRC  
Revision/Date: No. 01, 5/27/2010  
Effective Date: 6/1/2010 Page 1 of 1

### Prelogin / Nonconformance Report - Sample Log-In

Client: Yates Petroleum  
Date/Time: 11-4-11 10:30  
Lab ID #: 430929 / 430930  
Initials: UE

#### Sample Receipt Checklist

1. Samples on ice?	Blue	<u>Water</u>	No	
2. Shipping container in good condition?	<u>Yes</u>	No	None	
3. Custody seals intact on shipping container (cooler) and bottles?	Yes	No	<u>N/A</u>	
4. Chain of Custody present?	<u>Yes</u>	No		
5. Sample instructions complete on chain of custody?	<u>Yes</u>	No		
6. Any missing / extra samples?	Yes	<u>No</u>		
7. Chain of custody signed when relinquished / received?	<u>Yes</u>	No		
8. Chain of custody agrees with sample label(s)?	<u>Yes</u>	No		
9. Container labels legible and intact?	<u>Yes</u>	No		
10. Sample matrix / properties agree with chain of custody?	<u>Yes</u>	No		
11. Samples in proper container / bottle?	<u>Yes</u>	No		
12. Samples properly preserved?	<u>Yes</u>	No	N/A	
13. Sample container intact?	<u>Yes</u>	No		
14. Sufficient sample amount for indicated test(s)?	<u>Yes</u>	No		
15. All samples received within sufficient hold time?	<u>Yes</u>	No		
16. Subcontract of sample(s)?	Yes	No	<u>N/A</u>	
17. VOC sample have zero head space?	<u>Yes</u>	No	N/A	
18. Cooler 1 No.	Cooler 2 No.	Cooler 3 No.	Cooler 4 No.	Cooler 5 No.
lbs <u>1.5</u> °C	lbs °C	lbs °C	lbs °C	lbs °C

#### Nonconformance Documentation

Contact: \_\_\_\_\_ Contacted by: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Regarding: \_\_\_\_\_

Corrective Action Taken: \_\_\_\_\_

Check all that apply: ☐ Cooling process has begun shortly after sampling event and out of temperature condition acceptable by NELAC 5.5.8.3.1.a.1.  
☐ Initial and Backup Temperature confirm out of temperature conditions  
☐ Client understands and would like to proceed with analysis

# Analytical Report 430930

for  
**Yates Petroleum Corporation**

**Project Manager: Jeremy Haass**

**Federal 'AB' # 13H**

**30-015-37211**

**15-NOV-11**

Collected By: Client



**Celebrating 20 Years of commitment to excellence in Environmental Testing Services**



**12600 West I-20 East Odessa, Texas 79765**

Xenco-Houston (EPA Lab code: TX00122):

Texas (T104704215-10-6-TX), Arizona (AZ0765), Arkansas (08-039-0), Connecticut (PH-0102), Florida (E871002)  
Illinois (002082), Indiana (C-TX-02), Iowa (392), Kansas (E-10380), Kentucky (45), Louisiana (03054)  
New Hampshire (297408), New Jersey (TX007), New York (11763), Oklahoma (9218), Pennsylvania (68-03610)  
Rhode Island (LAO00312), USDA (S-44102)

Xenco-Atlanta (EPA Lab Code: GA00046):

Florida (E87429), North Carolina (483), South Carolina (98015), Utah (AAL11), West Virginia (362), Kentucky (85)  
Louisiana (04176), USDA (P330-07-00105)

Xenco-Miami (EPA Lab code: FL01152): Florida (E86678), Maryland (330)

Xenco-Tampa Mobile (EPA Lab code: FL01212): Florida (E84900)

Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400-TX)

Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295-TX)

Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)

Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)

Xenco Tucson (EPA Lab code: AZ000989): Arizona (AZ0758)



15-NOV-11

Project Manager: **Jeremy Haass**  
**Yates Petroleum Corporation**  
105 South Fourth St.  
Artesia, NM 88210

Reference: XENCO Report No: **430930**  
**Federal 'AB' # 13H**  
Project Address: Eddy

**Jeremy Haass:**

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number 430930. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. Estimation of data uncertainty for this report is found in the quality control section of this report unless otherwise noted. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 430930 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

**Brent Barron II**

Odessa Laboratory Manager

*Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.*

*Certified and approved by numerous States and Agencies.*

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Houston - Dallas - San Antonio - Austin - Tampa - Miami - Atlanta - Corpus Christi - Latin America



## Sample Cross Reference 430930



Yates Petroleum Corporation, Artesia, NM

Federal 'AB' # 13H

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
Sample # 1	S	10-31-11 09:00	6 - 6 In	430930-001
Sample # 2	S	10-31-11 09:10	6 - 6 In	430930-002
Sample # 3	S	10-31-11 09:20	6 - 6 In	430930-003
Sample # 4	S	10-31-11 09:30	6 - 6 In	430930-004
Sample # 5	S	10-31-11 09:40	4 - 4 In	430930-005
Sample # 6	S	10-31-11 09:50	6 - 6 In	430930-006



## CASE NARRATIVE

*Client Name: Yates Petroleum Corporation*

*Project Name: Federal 'AB' # 13H*



*Project ID: 30-015-37211*

*Work Order Number: 430930*

*Report Date: 15-NOV-11*

*Date Received: 11/04/2011*

---

***Sample receipt non conformances and comments:***

*None*

---

***Sample receipt non conformances and comments per sample:***

*None*



# Certificate of Analysis Summary 430930

Yates Petroleum Corporation, Artesia, NM

Project Name: Federal 'AB' # 13H

Project Id: 30-015-37211  
Contact: Jeremy Haass  
Project Location: Eddy



Date Received in Lab: Fri Nov-04-11 10:20 am  
Report Date: 15-NOV-11

Project Manager: Brent Barron II

Analysis Requested	Lab Id:	Field Id:	Depth:	Matrix:	Sampled:	430930-001	430930-002	430930-003	430930-004	430930-005	430930-006
	Extracted:	Analyzed:	Units/RL:	mg/kg	RL	Nov-08-11 11:19	Oct-31-11 09:10	Nov-08-11 11:19	Oct-31-11 09:30	Oct-31-11 09:40	Oct-31-11 09:50
Anions by E300						7610	8350	8700	7730	8300	6990
						100	97.9	100	100	100	97.4
Percent Moisture						Nov-07-11 12:10	Nov-07-11 12:10	Nov-07-11 12:10	Nov-07-11 12:10	Nov-07-11 12:10	Nov-07-11 12:10
						16.0	14.2	16.3	16.1	16.4	13.8
Percent Moisture						1.00	1.00	1.00	1.00	1.00	1.00

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

Houston - Dallas - San Antonio - Atlanta - Tampa - Boca Raton - Latin America - Odessa - Corpus Christi

Brent Barron II  
Odessa Laboratory Manager

## Flagging Criteria

- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

\* Surrogate recovered outside laboratory control limit.

**BRL** Below Reporting Limit.

**RL** Reporting Limit

**MDL** Method Detection Limit      **SDL** Sample Detection Limit      **LOD** Limit of Detection

**PQL** Practical Quantitation Limit      **SQL** Method Quantitation Limit      **LOQ** Limit of Quantitation

**DL** Method Detection Limit

**NC** Non-Calculable

+ Outside XENCO's scope of NELAC Accreditation.      ^ NELAC or State program does not offer Accreditation at this time.

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 2505 North Falkenburg Rd, Tampa, FL 33619  
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 12600 West I-20 East, Odessa, TX 79765  
 6017 Financial Drive, Norcross, GA 30071  
 3725 E. Atlanta Ave, Phoenix, AZ 85040

Phone	Fax
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(214) 902 0300	(214) 351-9139
(210) 509-3334	(210) 509-3335
(813) 620-2000	(813) 620-2033
(305) 823-8500	(305) 823-8555
(432) 563-1800	(432) 563-1713
(770) 449-8800	(770) 449-5477
(602) 437-0330	



Project Name: Federal 'AB' # 13H

Work Order #: 430930

Analyst: BRB

Lab Batch ID: 874348

Sample: 874348-1-BKS

Units: mg/kg

Date Prepared: 11/08/2011

Batch #: 1

Project ID: 30-015-37211

Date Analyzed: 11/08/2011

Matrix: Solid

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY											
Anions by E300	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Analytes											
	Chloride	<0.840	20.0	22.7	114	20.0	22.6	113	0	75-125	20

Analyst: BRB

Lab Batch ID: 874380

Sample: 874380-1-BKS

Units: mg/kg

Date Prepared: 11/08/2011

Batch #: 1

Date Analyzed: 11/08/2011

Matrix: Solid

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY											
Anions by E300	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
	Analytes										
Chloride	<0.840	20.0	22.7	114	20.0	22.6	113	0	75-125	20	

Relative Percent Difference RPD =  $200 * [(C-F)/(C+F)]$   
Blank Spike Recovery [D] =  $100 * (C)/[B]$   
Blank Spike Duplicate Recovery [G] =  $100 * (F)/[E]$   
All results are based on MDL and Validated for QC Purposes



# Form 3 - MS Recoveries



Project Name: Federal 'AB' # 13H

Work Order #: 430930

Lab Batch #: 874348

Date Analyzed: 11/08/2011

Date Prepared: 11/08/2011

Project ID: 30-015-37211

Analyst: BRB

QC- Sample ID: 430844-002 S

Batch #: 1

Matrix: Soil

Reporting Units: mg/kg

## MATRIX / MATRIX SPIKE RECOVERY STUDY

Inorganic Anions by EPA 300	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Analytes						
Chloride	656	207	894	115	75-125	

Lab Batch #: 874348

Date Analyzed: 11/08/2011

Date Prepared: 11/08/2011

Analyst: BRB

QC- Sample ID: 430883-009 S

Batch #: 1

Matrix: Soil

Reporting Units: mg/kg

## MATRIX / MATRIX SPIKE RECOVERY STUDY

Inorganic Anions by EPA 300	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Analytes						
Chloride	367	440	858	112	75-125	

Lab Batch #: 874380

Date Analyzed: 11/08/2011

Date Prepared: 11/08/2011

Analyst: BRB

QC- Sample ID: 430850-006 S

Batch #: 1

Matrix: Soil

Reporting Units: mg/kg

## MATRIX / MATRIX SPIKE RECOVERY STUDY

Inorganic Anions by EPA 300	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Analytes						
Chloride	277	545	847	105	75-125	

Lab Batch #: 874380

Date Analyzed: 11/08/2011

Date Prepared: 11/08/2011

Analyst: BRB

QC- Sample ID: 430930-006 S

Batch #: 1

Matrix: Soil

Reporting Units: mg/kg

## MATRIX / MATRIX SPIKE RECOVERY STUDY

Inorganic Anions by EPA 300	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Analytes						
Chloride	6990	2320	9640	114	75-125	

Matrix Spike Percent Recovery [D] =  $100 \times (C-A)/B$   
Relative Percent Difference [E] =  $200 \times (C-A)/(C+B)$   
All Results are based on MDL and Validated for QC Purposes

BRL - Below Reporting Limit



## Sample Duplicate Recovery



Project Name: Federal 'AB' # 13H

Work Order #: 430930

Lab Batch #: 874348

Project ID: 30-015-37211

Date Analyzed: 11/08/2011 11:19

Date Prepared: 11/08/2011

Analyst: BRB

QC- Sample ID: 430844-002 D

Batch #: 1

Matrix: Soil

Reporting Units: mg/kg

SAMPLE / SAMPLE DUPLICATE RECOVERY					
Anions by E300	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Chloride	656	654	0	20	

Lab Batch #: 874380

Date Analyzed: 11/08/2011 19:42

Date Prepared: 11/08/2011

Analyst: BRB

QC- Sample ID: 430930-006 D

Batch #: 1

Matrix: Soil

Reporting Units: mg/kg

SAMPLE / SAMPLE DUPLICATE RECOVERY					
Anions by E300	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Chloride	6990	7040	1	20	

Lab Batch #: 874221

Date Analyzed: 11/07/2011 12:10

Date Prepared: 11/07/2011

Analyst: BRB

QC- Sample ID: 430951-001 D

Batch #: 1

Matrix: Soil

Reporting Units: %

SAMPLE / SAMPLE DUPLICATE RECOVERY					
Percent Moisture	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Analyte					
Percent Moisture	4.07	4.06	0	20	

Spike Relative Difference  $RPD = 200 * |(B-A)/(B+A)|$

All Results are based on MDL and validated for QC purposes.

BRL - Below Reporting Limit



**XENCO Laboratories**

Atlanta, Boca Raton, Corpus Christi, Dallas

Houston, Miami, Odessa, Philadelphia

Phoenix, San Antonio, Tampa

Document Title: Sample Receipt Checklist

Document No.: SYS-SRC

Revision/Date: No. 01, 5/27/2010

Effective Date: 6/1/2010 Page 1 of 1

**Prelogin / Nonconformance Report - Sample Log-In**

Client: Yates Petroleum  
Date/Time: 11-4-11 10:20  
Lab ID #: 430929 / 430930  
Initials: U2

**Sample Receipt Checklist**

1. Samples on ice?	Blue	<u>Water</u>	No	
2. Shipping container in good condition?	<u>Yes</u>	No	None	
3. Custody seals intact on shipping container (cooler) and bottles?	Yes	No	<u>N/A</u>	
4. Chain of Custody present?	<u>Yes</u>	No		
5. Sample instructions complete on chain of custody?	<u>Yes</u>	No		
6. Any missing / extra samples?	Yes	<u>No</u>		
7. Chain of custody signed when relinquished / received?	<u>Yes</u>	No		
8. Chain of custody agrees with sample label(s)?	<u>Yes</u>	No		
9. Container labels legible and intact?	<u>Yes</u>	No		
10. Sample matrix / properties agree with chain of custody?	<u>Yes</u>	No		
11. Samples in proper container / bottle?	<u>Yes</u>	No		
12. Samples properly preserved?	<u>Yes</u>	No	N/A	
13. Sample container intact?	<u>Yes</u>	No		
14. Sufficient sample amount for indicated test(s)?	<u>Yes</u>	No		
15. All samples received within sufficient hold time?	<u>Yes</u>	No		
16. Subcontract of sample(s)?	Yes	No	<u>N/A</u>	
17. VOC sample have zero head space?	<u>Yes</u>	No	N/A	
18. Cooler 1 No.	Cooler 2 No.	Cooler 3 No.	Cooler 4 No.	Cooler 5 No.
lbs <u>1.5</u> °C	lbs °C	lbs °C	lbs °C	lbs °C

**Nonconformance Documentation**

Contact: \_\_\_\_\_ Contacted by: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Regarding: \_\_\_\_\_

Corrective Action Taken: \_\_\_\_\_

Check all that apply: ☐ Cooling process has begun shortly after sampling event and out of temperature condition acceptable by NELAC 5.5.8.3.1.a.1.  
☐ Initial and Backup Temperature confirm out of temperature conditions  
☐ Client understands and would like to proceed with analysis

## Jeremy Haass

---

**From:** Amos, James A <jamos@blm.gov>  
**Sent:** Sunday, December 11, 2011 8:43 AM  
**To:** Jeremy Haass  
**Cc:** Bob Asher  
**Subject:** RE: Federal 'AB' #13H

Jeremy,

I can see this process as being acceptable for addressing the TPH. However, the chloride level will have an impact to the vegetation. We can go ahead and give this a shot with the understanding that if the vegetation does not come back, we will have to take additional action. The impact to vegetation may increase (due to slope), depending on moisture between now and then. Your call. If any questions, please get back to me.

Thanks,

J. Amos  
575-234-5909  
575-361-2648 (cell)

---

**From:** Jeremy Haass [mailto:jhaass@yatespetroleum.com]  
**Sent:** Friday, December 09, 2011 9:13 AM  
**To:** Amos, James A  
**Cc:** Bob Asher  
**Subject:** FW: Federal 'AB' #13H

Hi James

I'm just checking in to see if you have had a chance to go over my proposal on this well site. Thanks for your time and I look forward to hearing from you.

---

**From:** Jeremy Haass  
**Sent:** Tuesday, November 29, 2011 10:22 AM  
**To:** James Amos (jamos@blm.gov)  
**Cc:** Jerry Fanning; Bob Asher  
**Subject:** Federal 'AB' #13H

Mr. Amos,

This email is in reference to the spill that occurred at the Federal 'AB' #13H on 10/16/2011. 15bbls of oil and 450bbls of produced water were released; 10bbls of oil and 400bbls of produced water were recovered. The immediate notice was sent to you by email on 10/17/11 by Robert Asher and I emailed a copy of the Initial C-141 to you on 10/24/11. The spill occurred on location and ran off on to fee surface (Four Dinkus Ranch). I have included the results from the initial sampling that I collected on 10/31/11 and a diagram of the spill; I received the results from that sampling on 11/15/11. On 11/18/11 I met with the ranch foreman Darrel Brown at the site and he was concerned about tearing up his pasture land and suggested we try putting down manure and monitoring the site. Considering the included analytical results which are all under RRAL's; the site ranking of "0" approx. 300' DTGW per NMOSE; and the fact that below 3" to 6" there is a natural rock barrier that prevents leaching of chlorides to a further depth. I would like approval to spread manure over the affected area and monitor the site for sustained plant growth and resample the area in May 2011 at such time a new plan of action may be taken.

Jeremy Haass  
Environmental Regulatory Agent  
Yates Petroleum Corp.  
105 South 4th St.  
Artesia New Mexico  
575-748-4311 (Office)  
575-513-9235 (Cell)  
575-748-4131 (Fax)