



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)

December 16, 2016

Chase Settle

Yates Petroleum Corporation

105 South Fourth Street

Artesia, NM 88210

TEL: (575) 748-4111

FAX

RE: Spunky BUK State Com #1-H

OrderNo.: 1612564

Dear Chase Settle:

Hall Environmental Analysis Laboratory received 1 sample(s) on 12/10/2016 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to [www.hallenvironmental.com](http://www.hallenvironmental.com) or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a horizontal line.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order **1612564**

Date Reported: **12/16/2016**

**CLIENT:** Yates Petroleum Corporation

**Client Sample ID:** Stockpile - 3-6"

**Project:** Spunky BUK State Com #1-H

**Collection Date:** 12/1/2016 8:30:00 AM

**Lab ID:** 1612564-001

**Matrix:** SOIL

**Received Date:** 12/10/2016 10:00:00 AM

| Analyses   | Result | PQL      | Qual | Units | DF | Date Analyzed         | Batch               |
|--|--------|----------|------|-------|----|-----------------------|---------------------|
| <b>EPA METHOD 8015M/D: DIESEL RANGE ORGANICS</b> |        |          |      |       |    |                       | Analyst: <b>TOM</b> |
| Diesel Range Organics (DRO)                      | 750    | 10       |      | mg/Kg | 1  | 12/14/2016 4:19:41 PM | 29146               |
| Surr: DNOP                                       | 92.2   | 70-130   |      | %Rec  | 1  | 12/14/2016 4:19:41 PM | 29146               |
| <b>EPA METHOD 8015D: GASOLINE RANGE</b>          |        |          |      |       |    |                       | Analyst: <b>NSB</b> |
| Gasoline Range Organics (GRO)                    | ND     | 4.9      |      | mg/Kg | 1  | 12/13/2016 3:41:01 PM | 29139               |
| Surr: BFB  | 87.3   | 68.3-144 |      | %Rec  | 1  | 12/13/2016 3:41:01 PM | 29139               |

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

|                    |    |   |    |   |
|--------------------|----|---|----|---|
| <b>Qualifiers:</b> | *  | Value exceeds Maximum Contaminant Level.              | B  | Analyte detected in the associated Method Blank           |
|                    | D  | Sample Diluted Due to Matrix                          | E  | Value above quantitation range                            |
|                    | H  | Holding times for preparation or analysis exceeded    | J  | Analyte detected below quantitation limits                |
|                    | ND | Not Detected at the Reporting Limit                   | P  | Sample pH Not In Range                                    |
|                    | R  | RPD outside accepted recovery limits                  | RL | Reporting Detection Limit                                 |
|                    | S  | % Recovery outside of range due to dilution or matrix | W  | Sample container temperature is out of limit as specified |

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1612564

16-Dec-16

Client: Yates Petroleum Corporation

Project: Spunky BUK State Com #1-H

|                                |            |                |            |             |           |   |           |        |          |      |
|--------------------------------|------------|----------------|------------|-------------|-----------|---|-----------|--------|----------|------|
| Sample ID                      | MB-29146   | SampType:      | MBLK       |             | TestCode: | EPA Method 8015M/D: Diesel Range Organics |           |        |          |      |
| Client ID:                     | PBS        | Batch ID:      | 29146      |             | RunNo:    | 39372                                     |           |        |          |      |
| Prep Date:                     | 12/13/2016 | Analysis Date: | 12/14/2016 |             | SeqNo:    | 1233445                                   |           | Units: | mg/Kg    |      |
| Analyte                        | Result     | PQL            | SPK value  | SPK Ref Val | %REC      | LowLimit                                  | HighLimit | %RPD   | RPDLimit | Qual |
| Diesel Range Organics (DRO)    | ND         | 10             |            |             |           |   |           |        |          |      |
| Motor Oil Range Organics (MRO) | ND         | 50             |            |             |           |   |           |        |          |      |
| Surr: DNOP                     | 8.4        |                | 10.00      |             | 84.1      | 70  | 130       |        |          |      |

|                             |            |     |                           |             |   |          |              |      |          |      |
|-----------------------------|------------|-----|---------------------------|-------------|---|----------|--------------|------|----------|------|
| Sample ID                   | LCS-29146  |     | SampType: LCS             |             | TestCode: EPA Method 8015M/D: Diesel Range Organics |          |              |      |          |      |
| Client ID:                  | LCSS       |     | Batch ID: 29146           |             | RunNo: 39372  |          |              |      |          |      |
| Prep Date:                  | 12/13/2016 |     | Analysis Date: 12/14/2016 |             | SeqNo: 1233446                                      |          | Units: mg/Kg |      |          |      |
| Analyte                     | Result     | PQL | SPK value                 | SPK Ref Val | %REC  | LowLimit | HighLimit    | %RPD | RPDLimit | Qual |
| Diesel Range Organics (DRO) | 46         | 10  | 50.00                     | 0           | 92.7  | 63.8     | 116          |      |          |      |
| Surr: DNOP                  | 4.2        |     | 5.000                     |             | 84.3  | 70       | 130          |      |          |      |

|            |            |     |                           |             |   |          |             |      |          |      |
|------------|------------|-----|---------------------------|-------------|---|----------|-------------|------|----------|------|
| Sample ID  | LCS-29181  |     | SampType: LCS             |             | TestCode: EPA Method 8015M/D: Diesel Range Organics |          |             |      |          |      |
| Client ID: | LCSS       |     | Batch ID: 29181           |             | RunNo: 39405  |          |             |      |          |      |
| Prep Date: | 12/14/2016 |     | Analysis Date: 12/15/2016 |             | SeqNo: 1234480                                      |          | Units: %Rec |      |          |      |
| Analyte    | Result     | PQL | SPK value                 | SPK Ref Val | %REC  | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| Surr: DNOP | 4.2        |     | 5.000                     |             | 84.5  | 70       | 130         |      |          |      |

|            |            |     |                           |             |   |          |             |      |          |      |
|------------|------------|-----|---------------------------|-------------|---|----------|-------------|------|----------|------|
| Sample ID  | MB-29181   |     | SampType: MBLK            |             | TestCode: EPA Method 8015M/D: Diesel Range Organics |          |             |      |          |      |
| Client ID: | PBS        |     | Batch ID: 29181           |             | RunNo: 39405  |          |             |      |          |      |
| Prep Date: | 12/14/2016 |     | Analysis Date: 12/15/2016 |             | SeqNo: 1234481                                      |          | Units: %Rec |      |          |      |
| Analyte    | Result     | PQL | SPK value                 | SPK Ref Val | %REC  | LowLimit | HighLimit   | %RPD | RPDLimit | Qual |
| Surr: DNOP | 7.9        |     | 10.00                     |             | 78.8  | 70       | 130         |      |          |      |

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.  
D Sample Diluted Due to Matrix  
H Holding times for preparation or analysis exceeded  
ND Not Detected at the Reporting Limit  
R RPD outside accepted recovery limits  
S % Recovery outside of range due to dilution or matrix

B Analyte detected in the associated Method Blank  
E Value above quantitation range  
J Analyte detected below quantitation limits  
P Sample pH Not In Range  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1612564

16-Dec-16

**Client:** Yates Petroleum Corporation  
**Project:** Spunky BUK State Com #1-H

|                               |            |     |                           |             |  |          |              |      |          |      |
|-------------------------------|------------|-----|---------------------------|-------------|--|----------|--------------|------|----------|------|
| Sample ID                     | MB-29139   |     | SampType: MBLK            |             | TestCode: EPA Method 8015D: Gasoline Range |          |              |      |          |      |
| Client ID:                    | PBS        |     | Batch ID: 29139           |             | RunNo: 39349                               |          |              |      |          |      |
| Prep Date:                    | 12/12/2016 |     | Analysis Date: 12/13/2016 |             | SeqNo: 1231993                             |          | Units: mg/Kg |      |          |      |
| Analyte                       | Result     | PQL | SPK value                 | SPK Ref Val | %REC                                       | LowLimit | HighLimit    | %RPD | RPDLimit | Qual |
| Gasoline Range Organics (GRO) | ND         | 5.0 |                           |             |  |          |              |      |          |      |
| Surr: BFB                     | 880        |     | 1000                      |             | 87.8                                       | 68.3     | 144          |      |          |      |

|                               |            |     |                           |             |  |          |              |      |          |      |
|-------------------------------|------------|-----|---------------------------|-------------|--|----------|--------------|------|----------|------|
| Sample ID                     | LCS-29139  |     | SampType: LCS             |             | TestCode: EPA Method 8015D: Gasoline Range |          |              |      |          |      |
| Client ID:                    | LCSS       |     | Batch ID: 29139           |             | RunNo: 39349                               |          |              |      |          |      |
| Prep Date:                    | 12/12/2016 |     | Analysis Date: 12/13/2016 |             | SeqNo: 1231994                             |          | Units: mg/Kg |      |          |      |
| Analyte                       | Result     | PQL | SPK value                 | SPK Ref Val | %REC                                       | LowLimit | HighLimit    | %RPD | RPDLimit | Qual |
| Gasoline Range Organics (GRO) | 29         | 5.0 | 25.00                     | 0           | 116  | 74.6     | 123          |      |          |      |
| Surr: BFB                     | 1200       |     | 1000                      |             | 117  | 68.3     | 144          |      |          |      |

### Qualifiers:

|   |   |
|---|---|
| * Value exceeds Maximum Contaminant Level.              | B Analyte detected in the associated Method Blank           |
| D Sample Diluted Due to Matrix                          | E Value above quantitation range                            |
| H Holding times for preparation or analysis exceeded    | J Analyte detected below quantitation limits                |
| ND Not Detected at the Reporting Limit                  | P Sample pH Not In Range                                    |
| R RPD outside accepted recovery limits                  | RL Reporting Detection Limit                                |
| S % Recovery outside of range due to dilution or matrix | W Sample container temperature is out of limit as specified |



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## Sample Log-In Check List

Client Name: EOG/Yates

Work Order Number: 1612564

RcptNo: 1

Received by/date: LM 12/10/16

Logged By: Andy Jansson 12/10/2016 10:00:00 AM

Completed By: Andy Jansson 12/12/16

Reviewed By: JC 12/12/16

### Chain of Custody

1. Custody seals intact on sample bottles?
2. Is Chain of Custody complete?
3. How was the sample delivered?

Yes ☐

No ☐

Not Present ☒

Yes ☒

No ☐

Not Present ☐

Courier

### Log In

4. Was an attempt made to cool the samples?
5. Were all samples received at a temperature of  $>0^{\circ}\text{C}$  to  $6.0^{\circ}\text{C}$ ?
6. Sample(s) in proper container(s)?
7. Sufficient sample volume for indicated test(s)?
8. Are samples (except VOA and ONG) properly preserved?
9. Was preservative added to bottles?
10. VOA vials have zero headspace?
11. Were any sample containers received broken?
12. Does paperwork match bottle labels?  
(Note discrepancies on chain of custody)
13. Are matrices correctly identified on Chain of Custody?
14. Is it clear what analyses were requested?
15. Were all holding times able to be met?  
(If no, notify customer for authorization.)

Yes ☒

No ☐

NA ☐

Yes ☒

No ☐

NA ☐

Yes ☒

No ☐

Yes ☒

No ☐

Yes ☒

No ☐

Yes ☐

No ☒

NA ☐

Yes ☐

No ☐

No VOA Vials ☒

Yes ☐

No ☒

# of preserved  
bottles checked  
for pH: \_\_\_\_\_  
( $<2$  or  $>12$  unless noted)

Adjusted? \_\_\_\_\_

Checked by: \_\_\_\_\_

### Special Handling (if applicable)

16. Was client notified of all discrepancies with this order?

Yes ☐

No ☐

NA ☒

Person Notified: \_\_\_\_\_

Date: \_\_\_\_\_

By Whom: \_\_\_\_\_

Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

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

Client Instructions: \_\_\_\_\_

17. Additional remarks:

### 18. Cooler Information

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

