

Confidentiality Requested:

Yes  No

KANSAS CORPORATION COMMISSION  
OIL & GAS CONSERVATION DIVISION

Form ACO-1

January 2018

Form must be Typed

Form must be Signed

All blanks must be Filled

WELL COMPLETION FORM  
WELL HISTORY - DESCRIPTION OF WELL & LEASE

OPERATOR: License # \_\_\_\_\_

Name: \_\_\_\_\_

Address 1: \_\_\_\_\_

Address 2: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_ + \_\_\_\_\_

Contact Person: \_\_\_\_\_

Phone: ( \_\_\_\_\_ ) \_\_\_\_\_

CONTRACTOR: License # \_\_\_\_\_

Name: \_\_\_\_\_

Wellsite Geologist: \_\_\_\_\_

Purchaser: \_\_\_\_\_

Designate Type of Completion:

New Well  Re-Entry  Workover

Oil  WSW  SWD

Gas  DH  EOR

OG  GSW

CM (Coal Bed Methane)

Cathodic  Other (Core, Expl., etc.): \_\_\_\_\_

If Workover/Re-entry: Old Well Info as follows:

Operator: \_\_\_\_\_

Well Name: \_\_\_\_\_

Original Comp. Date: \_\_\_\_\_ Original Total Depth: \_\_\_\_\_

Deepening  Re-perf.  Conv. to EOR  Conv. to SWD  
 Plug Back  Liner  Conv. to GSW  Conv. to Producer

Commingled Permit #: \_\_\_\_\_

Dual Completion Permit #: \_\_\_\_\_

SWD Permit #: \_\_\_\_\_

EOR Permit #: \_\_\_\_\_

GSW Permit #: \_\_\_\_\_

Spud Date or Date Reached TD Completion Date or Recompletion Date

API No.: \_\_\_\_\_

Spot Description: \_\_\_\_\_

\_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_ Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West

\_\_\_\_\_ Feet from  North /  South Line of Section

\_\_\_\_\_ Feet from  East /  West Line of Section

Footages Calculated from Nearest Outside Section Corner:

NE  NW  SE  SW

GPS Location: Lat: \_\_\_\_\_, Long: \_\_\_\_\_  
(e.g. xx.xxxxx) (e.g. -xxx.xxxxx)

Datum:  NAD27  NAD83  WGS84

County: \_\_\_\_\_

Lease Name: \_\_\_\_\_ Well #: \_\_\_\_\_

Field Name: \_\_\_\_\_

Producing Formation: \_\_\_\_\_

Elevation: Ground: \_\_\_\_\_ Kelly Bushing: \_\_\_\_\_

Total Vertical Depth: \_\_\_\_\_ Plug Back Total Depth: \_\_\_\_\_

Amount of Surface Pipe Set and Cemented at: \_\_\_\_\_ Feet

Multiple Stage Cementing Collar Used?  Yes  No

If yes, show depth set: \_\_\_\_\_ Feet

If Alternate II completion, cement circulated from: \_\_\_\_\_

feet depth to: \_\_\_\_\_ w/ \_\_\_\_\_ sx cmt.

Drilling Fluid Management Plan

(Data must be collected from the Reserve Pit)

Chloride content: \_\_\_\_\_ ppm Fluid volume: \_\_\_\_\_ bbls

Dewatering method used: \_\_\_\_\_

Location of fluid disposal if hauled offsite:

Operator Name: \_\_\_\_\_

Lease Name: \_\_\_\_\_ License #: \_\_\_\_\_

Quarter \_\_\_\_\_ Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West

County: \_\_\_\_\_ Permit #: \_\_\_\_\_

AFFIDAVIT

I am the affiant and I hereby certify that all requirements of the statutes, rules and regulations promulgated to regulate the oil and gas industry have been fully complied with and the statements herein are complete and correct to the best of my knowledge.

Submitted Electronically

KCC Office Use ONLY

Confidentiality Requested

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

Confidential Release Date: \_\_\_\_\_

Wireline Log Received  Drill Stem Tests Received

Geologist Report / Mud Logs Received

UIC Distribution

ALT  I  II  III Approved by: \_\_\_\_\_ Date: \_\_\_\_\_

Operator Name: \_\_\_\_\_ Lease Name: \_\_\_\_\_ Well #: \_\_\_\_\_

Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  East  West County: \_\_\_\_\_

**INSTRUCTIONS:** Show important tops of formations penetrated. Detail all cores. Report all final copies of drill stems tests giving interval tested, time tool open and closed, flowing and shut-in pressures, whether shut-in pressure reached static level, hydrostatic pressures, bottom hole temperature, fluid recovery, and flow rates if gas to surface test, along with final chart(s). Attach extra sheet if more space is needed.

Final Radioactivity Log, Final Logs run to obtain Geophysical Data and Final Electric Logs must be emailed to kcc-well-logs@kcc.ks.gov. Digital electronic log files must be submitted in LAS version 2.0 or newer AND an image file (TIFF or PDF).

|  |   |
|--|---|
| Drill Stem Tests Taken <input type="checkbox"/> Yes <input type="checkbox"/> No<br><i>(Attach Additional Sheets)</i><br><br>Samples Sent to Geological Survey <input type="checkbox"/> Yes <input type="checkbox"/> No<br><br>Cores Taken <input type="checkbox"/> Yes <input type="checkbox"/> No<br>Electric Log Run <input type="checkbox"/> Yes <input type="checkbox"/> No<br>Geologist Report / Mud Logs <input type="checkbox"/> Yes <input type="checkbox"/> No<br><br>List All E. Logs Run: _____ | <input type="checkbox"/> Log Formation (Top), Depth and Datum <input type="checkbox"/> Sample<br><br>Name Top Datum |
|--|---|

| CASING RECORD <input type="checkbox"/> New <input type="checkbox"/> Used  |                   |                           |                   |               |                |              |                            |
|---|-------------------|---------------------------|-------------------|---------------|----------------|--------------|----------------------------|
| Report all strings set-conductor, surface, intermediate, production, etc. |                   |                           |                   |               |                |              |                            |
| Purpose of String   | Size Hole Drilled | Size Casing Set (In O.D.) | Weight Lbs. / Ft. | Setting Depth | Type of Cement | # Sacks Used | Type and Percent Additives |
|   |                   |                           |                   |               |                |              |                            |
|   |                   |                           |                   |               |                |              |                            |
|   |                   |                           |                   |               |                |              |                            |

| ADDITIONAL CEMENTING / SQUEEZE RECORD  |                  |                |              |                            |
|--|------------------|----------------|--------------|----------------------------|
| Purpose:   | Depth Top Bottom | Type of Cement | # Sacks Used | Type and Percent Additives |
| <input type="checkbox"/> Perforate<br><input type="checkbox"/> Protect Casing<br><input type="checkbox"/> Plug Back TD<br><input type="checkbox"/> Plug Off Zone |                  |                |              |                            |
|  |                  |                |              |                            |

1. Did you perform a hydraulic fracturing treatment on this well?  Yes  No *(If No, skip questions 2 and 3)*
2. Does the volume of the total base fluid of the hydraulic fracturing treatment exceed 350,000 gallons?  Yes  No *(If No, skip question 3)*
3. Was the hydraulic fracturing treatment information submitted to the chemical disclosure registry?  Yes  No *(If No, fill out Page Three of the ACO-1)*

|   |  |         |             |               |         |
|---|--|---------|-------------|---------------|---------|
| Date of first Production/Injection or Resumed Production/Injection: | Producing Method:<br><input type="checkbox"/> Flowing <input type="checkbox"/> Pumping <input type="checkbox"/> Gas Lift <input type="checkbox"/> Other <i>(Explain)</i> _____ |         |             |               |         |
| Estimated Production Per 24 Hours                                   | Oil Bbls.  | Gas Mcf | Water Bbls. | Gas-Oil Ratio | Gravity |

|   |  |                                    |
|---|--|------------------------------------|
| DISPOSITION OF GAS:<br><input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease<br><i>(If vented, Submit ACO-18.)</i> | METHOD OF COMPLETION:<br><input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled<br><i>(Submit ACO-5) (Submit ACO-4)</i> | PRODUCTION INTERVAL:<br>Top Bottom |
|---|--|------------------------------------|

| Shots Per Foot | Perforation Top | Perforation Bottom | Bridge Plug Type | Bridge Plug Set At | Acid, Fracture, Shot, Cementing Squeeze Record<br><i>(Amount and Kind of Material Used)</i> |
|----------------|-----------------|--------------------|------------------|--------------------|---|
|                |                 |                    |                  |                    |   |
|                |                 |                    |                  |                    |   |
|                |                 |                    |                  |                    |   |
|                |                 |                    |                  |                    |   |

|                |       |         |            |  |
|----------------|-------|---------|------------|--|
| TUBING RECORD: | Size: | Set At: | Packer At: |  |
|----------------|-------|---------|------------|--|

|           |                                |
|-----------|--------------------------------|
| Form      | ACO1 - Well Completion         |
| Operator  | O'Brien Energy Resources Corp. |
| Well Name | KEYSTONE 3-4                   |
| Doc ID    | 1393846                        |

Tops

| Name                | Top  | Datum |
|---------------------|------|-------|
| Heebner             | 4367 | -1769 |
| Toronto             | 4394 | -1796 |
| Lansing             | 4512 | -1914 |
| Marmaton            | 5148 | -2550 |
| Cherokee            | 5318 | -2720 |
| Atoka               | 5568 | -2970 |
| Morrow              | 5627 | -3029 |
| Mississippi Chester | 5748 | -3150 |
| Basal Chester       | 5935 | -3337 |
| Ste. Genevieve      | 5966 | -3368 |
| St. Louis           | 6066 | -3468 |





Liberal Yard #1717 - Phone 620-624-2277 - 1700 S. Country Estates Road, Liberal KS 67901

PRESSURE PUMPING

Job Log


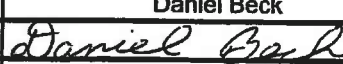
|                    |                           |                  |                           |                   |   |
|--------------------|---------------------------|------------------|---------------------------|-------------------|---|
| Customer:          | Obrien Energy             | Cement Pump No.: | 37223, 19919 4Hrs.        | Operator TRK No.: | 78938                                       |
| Address:           | 18 Congress St. Suite 207 | Ticket #:        | 1718 14582 L              | Bulk TRK No.:     | 14355, 37724 Manuel<br>14354, 19578 Yosimar |
| City, State, Zip:  | Portsmouth NH 03801       | Job Type:        | Z42 Cement Surface Casing |                   |   |
| Service District:  | 1718 - Liberal, Ks.       | Well Type:       | OIL                       |                   |   |
| Well Name and No.: | Keystone 3-4              | Well Location:   | 4,33,29                   | County:           | Meade State: Ks                             |

| Type of Cmt         | Sacks | Additives                                     | Truck Loaded On      |       |      |
|---------------------|-------|---|----------------------|-------|------|
| A-Con' Blend        | 215   | 3% Calcium Chloride, 1/4# Polyflake, .2% WCA1 | 14355, 37724 Manuel  | Front | Back |
| Premium Plus Cement | 150   | 2% Calcium Chloride, 1/4# Polyflake           | 14354, 19578 Yosimar | Front | Back |
|                     |       |   |                      | Front | Back |

| Lead/Tail:   | Weight #1 Gal. | Cu/Ft/sk | Water Requirements | CU. FT. | Man Hours / Personnel |    |
|--------------|----------------|----------|--------------------|---------|-----------------------|----|
| <b>Lead:</b> | 11.4           | 2.95     | 18.1               | 634.25  | TT Man Hours:         | 22 |
| <b>Tail:</b> | 14.8           | 1.34     | 6.33               | 201     | # of Men on Job:      | 4  |

| Time (am/pm) | (BPM) | Volume (BBLS) | Pumps |   | Pressure(PSI) |        | Description of Operation and Materials |
|--------------|-------|---------------|-------|---|---------------|--------|--|
|              |       |               | T     | C | Tubing        | Casing |  |
| 14:15        |       |               |       |   |               |        | ON LOCATION                            |
| 14:50        |       |               |       |   |               |        | SAFETY MEETING                         |
| 3:00 PM      |       |               |       |   |               |        | RIG UP                                 |
| 15:19        |       |               |       |   |               |        | PRESSURE TEST TO 2800PSI               |
| 15:20        | 5     | 202.2 slurry  |       |   |               | 110    | PUMP 215SX LEAD @ 11.4#                |
| 3:44 PM      | 5     | 35.7 slurry   |       |   |               | 180    | PUMP 150SX TAIL @ 14.8#                |
| 15:52        |       |               |       |   |               |        | SHUTDOWN / DROP PLUG                   |
| 15:53        | 5.2   | 10            |       |   |               | 60     | DISPLACE                               |
|              | 5.2   | 20            |       |   |               | 90     |  |
|              | 5.2   | 30            |       |   |               | 110    |  |
|              | 5.2   | 40            |       |   |               | 160    |  |
|              | 5.2   | 50            |       |   |               | 230    |  |
|              | 5.2   | 60            |       |   |               | 310    |  |
|              | 5.2   | 70            |       |   |               | 350    |  |
|              | 5     | 80            |       |   |               | 400    |  |
| 16:13        | 5     | 82            |       |   |               | 410    | SLOW RATE TO 2.0BPM @ 360PSI           |
|              | 2.1   | 90            |       |   |               | 400    |  |
| 16:18        | 2.1   | 92.2          |       |   |               | 410    | LAND PLUG / PRESSURE UP TO 1040PSI     |
| 16:20        |       |               |       |   |               |        | RELEASE BACK --- FLOAT HELD            |
|              |       |               |       |   |               |        | JOB COMPLETE                           |

|                 |            |       |       |            |          |                |  |
|-----------------|------------|-------|-------|------------|----------|----------------|--|
| Size Hole       | 12 1/4"    | Depth | 1520' |            | TYPE     | Plug Container |  |
| Size & Wt. Csg. | 8 5/8" 24# | Depth | 1495' | New / Used | Packer   | Depth          |  |
| Landing Press.  | 303.3psi   | Depth |       |            | Retainer | Depth          |  |
| Shoe Jt.        | 42.29'     | Type  |       |            | Perfs    | CIBP           |  |

Customer Signature:  Basic Representative: Daniel Beck  
 Basic Signature:   
 Date of Service: 11/9/2017



Liberal Yard #1717 - Phone 620-624-2277 - 1700 S. Country Estates Road, Liberal KS 67901

**PRESSURE PUMPING**

**Job Log**



|                    |                           |                  |                              |                   |                         |
|--------------------|---------------------------|------------------|------------------------------|-------------------|-------------------------|
| Customer:          | O'Brien Energy            | Cement Pump No.: | 37223, 19919 6Hrs.           | Operator TRK No.: | 78938                   |
| Address:           | 18 Congress St. Suite 207 | Ticket #:        | 1718 14587 L                 | Bulk TRK No.:     | 30464-37725<br>Yoshimar |
| City, State, Zip:  | Portsmouth NH 03801       | Job Type:        | Z42 Cement Production Casing |                   |                         |
| Service Districts: | 1718 Liberal, Ks.         | Well Type:       | OIL                          |                   |                         |
| Well Name and No.: | Keystone 3-4              | Well Location:   | 4,33,29                      | County:           | Meade                   |
|                    |                           |                  |                              | State:            | Ks                      |

| Type of Cmt | Sacks | Additives  | Truck Loaded On      |       |      |
|-------------|-------|--|----------------------|-------|------|
| AA2 Cement  | 165   | 5% W-60, 10% Salt, .6% C-15, 1/4# Defoamer, 5# Gilsomite | 30464-37725 Yoshimar | Front | Back |
| 60/40 POZ   | 50    | Neat To Plug Rat And Mouse Holes                         | 30464-37725          | Front | Back |
|             |       |  |                      | Front | Back |

| Lead/Tail:   | Weight #1 Gal. | Cu/Ft/sk | Water Requirements | CU. FT. | Man Hours / Personnel |    |
|--------------|----------------|----------|--------------------|---------|-----------------------|----|
| <b>Lead:</b> |                |          |                    | 165     | TT Man Hours:         | 18 |
| <b>Tail:</b> | 14.8           | 1.51     | 6.65               | 75.5    | # of Men on Job:      | 3  |

| Time (am/pm) | (BPM) | Volume (BBLs) | Pumps |   | Pressure (PSI) |        | Description of Operation and Materials |
|--------------|-------|---------------|-------|---|----------------|--------|--|
|              |       |               | T     | C | Tubing         | Casing |  |
| 21:45        |       |               |       |   |                |        | ON LOCATION                            |
| 22:00        |       |               |       |   |                |        | SAFETY MEETING                         |
| 10:15 PM     |       |               |       |   |                |        | RIG UP                                 |
| 10:20 PM     |       |               |       |   |                |        | RIG UP TO PUMP TRUCK                   |
| 10:46 PM     |       |               |       |   |                |        | PRESSURE TEST TO 2200PSI               |
| 22:49        | 4.7   | 11.9          |       |   |                | 240    | PUMP MUD FLUSH                         |
| 23:00        |       |               |       |   |                |        | PUMP RAT AND MOUSE                     |
| 11:10 PM     | 6.5   | 44.3          |       |   |                | 400    | PUMP TAIL 165SX @ 14.8#                |
| 23:22        |       |               |       |   |                |        | SHUT DOWN / DROP PLUG                  |
| 23:24        |       |               |       |   |                |        | WASH TO PIT                            |
| 23:27        | 7     | 10            |       |   |                | 160    | DISPLACEMENT                           |
|              | 7     | 20            |       |   |                | 160    |  |
|              | 7     | 30            |       |   |                | 170    |  |
|              | 7     | 40            |       |   |                | 160    |  |
|              | 7     | 50            |       |   |                | 160    |  |
|              | 7     | 60            |       |   |                | 160    |  |
|              | 6.9   | 70            |       |   |                | 470    |  |
|              | 6.9   | 80            |       |   |                | 750    |  |
| 21:41        | 6.9   | 85            |       |   |                | 870    | SLOW RATE TO 2 BPM @620PSI             |
|              | 2     | 90            |       |   |                | 740    |  |
| 21:47        | 1.9   | 95.6          |       |   |                | 870    | LANDED PLUG PRESSURE UP TO 1500PSI     |
| 21:49        |       |               |       |   |                |        | RELEASE BACK — PLUG HELD               |
|              |       |               |       |   |                |        | JOB COMPLETE                           |

|                 |              |       |         |            |          |                |  |
|-----------------|--------------|-------|---------|------------|----------|----------------|--|
| Size Hole       | 7 7/8"       | Depth |         |            | TYPE     | Plug Container |  |
| Size & Wt. Csg. | 4 1/2" 11.6# | Depth | 6203.2' | New / Used | Packer   | Depth          |  |
| Landing Press.  | 592.7psi     | Depth |         |            | Retainer | Depth          |  |
| Shoe Jt.        | 35.16'       | Type  |         |            | Perfs    | CIBP           |  |

|   |                       |   |
|---|-----------------------|---|
| Customer Signature:  | Basic Representative: | Angel Echevarria  |
|   | Basic Signature:      |  |
|   | Date of Service:      | 11-17-17  |

# **O'Brien Energy Resources, Inc.**

## **Keystone No. 3-4**

### **Section 4, T33S, R29W**

Meade County, Kansas

November, 2017

## **Well Summary**

The Keystone No. 3-4 was drilled to a total depth of 6250' in the St. Louis Formation. Formation tops ran high relative to the Keystone No. 2-3, 120' to the North. Tops from the Heebner to the Morrow ran 5' to 7' high relative to this offset. The Morrow A, B and C Sandstone intervals came ran 3', 2', and 4' high respectively. Mississippian formations ran 5' to 7' high.

The Morrow A Sandstone(5650'-5666') consists of a Sandstone in 10% of the samples: Salt and pepper, speckled green, friable, fine well sorted subground grains, siliceous cement, slightly calcareous, clean, glauconitic, good to excellent intergranular porosity, no fluorescence, no stain or cut. A 520 Unit gas kick was noted.

A very similar B Sandstone occurred from 5676' to 5681 and contained a 550 Unit gas increase on the hotwire. It's not unusual for excellent Morrow reservoir gas sands to be flushed when drilled and not exhibit hydrocarbon shows. Excellent gas effect is noted on logs.

An excellent oil show did occur from the Morrow C Sandstone(5704'-5712'): Sandstone(12% sample): Medium to light brown, Hard to friable, fine upper to fine lower well sorted subground grains, siliceous cement, clean to argillaceous in part, good to trace intergranular porosity, bright light yellowblue hydrocarbon fluorescence(all sandstone), excellent streaming cut, light brown matrix oil stain with very light brown live oil and odor when crushed, excellent show. A 560 Unit gas increases was noted.

A similar show but slightly less pronounced relative to the Keystone No. 2-4 was documented in the St. Louis(6066'-6078'): Limestone Medium to dark brown with oil stain, microcrystalline, microsucrosic to sucrosic, brittle, clean, dolomitic, chert nodules, very fossiliferous with moldic and vuggy porosity, occasionally good intercrystalline porosity, dark mottled brown matrix oil stain and live oil and odor, good show, with very dull goldbrown hydrocarbon fluorescence(10% sample), excellent fast streaming cut. A 200 Unit gas kick was documented.

4 1/2" production casing was run to TD on the Keystone No. 3-4 to further evaluate the above mentioned intervals.

Respectfully Submitted,

Peter Debenham

## WELL DATA

Operator: O'Brien Energy Resources, Inc., John Forma – Portsmouth, NH  
Geologist: Paul Wiemann – Denver, CO

Prospect Geologist: David Ward, Ed Schuett, Denver

Well: Keystone No. 3-4

API: 15-119-21413

Location: 380'FSL & 729'FWL, Section 4, 33S, R29W, Meade Co. Kansas – Southeast of Plains.

Elevation: Ground Level 2585', Kelly Bushing 2598'

Contractor: Duke Drilling Rig No. 7, T.P. Galen Roach, Drillers Todd Elsen, Scott Edwards, Steven Green

Company Man: Dana Greathouse

Spud Date: 11/6/17

Total Depth: 11/16/17, Driller 6250', Logger 6245', St. Louis Formation

Casing Program: 35 joints of 8 5/8", J-55, 24Lbs/ft, set at 1495' with 385 sacks A-Con blend(3%cc & ¼ lb flake) tail with 150 sacks Pem Plus(2%cc, ¼ bl Poly Flake), cement did circulate, services by Basic. , 4 1/2" production casing set to TD.'

Mud Program: Service Mud/Mudco, engineer Justin Whiting, displaced 2610', Chemical gel/LCM.

Wellsite Consultant: Peter Debenham with mudlogging trailer, Call depth 4000', Box 350, Drake, CO 80515, 720/220-4860.

Samples: 30' to 5700', 20' to TD. Zones of interest saved.

Electric Logs: Weatherford, engineer Nicholas Rupert, Array Induction, Compensated Neutron/Density, Microlog, Hi Res.

Status: 4 ½" production casing run to TD on 11/16/17.



**WELL CHRONOLOGY**

**AM Report**

| <b><u>DATE</u></b> | <b><u>DEPTH</u></b>                      | <b><u>FOOTAGE</u></b> | <b><u>RIG ACTIVITY</u></b>   |
|--------------------|--|-----------------------|--|
| 11/6               |  |                       | Move to and rig up rotary tools. Spud in 12 1/4" surface hole(11:45 PM).   |
| 11/7               | 400'                                     | 400'                  | Clean pits. Trip for plugged bit.  |
| 11/8               | 855'<br>Survey(1 deg.).                  | 455'                  | Trip for plugged bit and clean pits and mud motor.   |
| 11/9               | 1480'                                    | 1080'                 | Service light plant. Survey(1 deg.) and bit trip.  |
| 11/10              | 1520'                                    | 40'                   | To 1520' and circulate. Run and cement 35 joints of 8 5/8", J-55, 24Lbs/ft, set at 1495' with 385 sacks A-Con blend(3%cc & 1/4 lb flake) tail with 150 sacks Pem Plus(2%cc, 1/4 bl Poly Flake), cement did circulate, services by Basic. Plug down 4:15 PM, 11/09. |
| 11/11              | 2550'                                    | 1030'                 | Bit trip and surveys(1 deg.).  |
| 11/12              | 3470'<br>Service rig and survey(1 deg.). | 920'                  | Displace mud system at 2610'. Trip for plugged bit. Work on pump.  |
| 11/13              | 4605'                                    | 1135'                 | Survey(1 deg.).  |
| 11/14              | 5280'                                    | 675'                  | Service rig and survey(1 deg.). To 5014' and wiper trip.   |
| 11/15              | 6110'                                    | 830'                  | Service and survey.  |
| 11/16              | 6250'TD<br>Drop survey(1/2 deg.)         | 140'                  | To TD and circulate. Wiper trip 32 stands and circulate. Trip in and circulate. Trip out laying down and run and cement 4 1/2" production casing to TD.Rig down.   |

**BIT RECORD**

| <b><u>NO.</u></b>     | <b><u>MAKE</u></b> | <b><u>TYPE</u></b> | <b><u>SIZE</u></b> | <b><u>OUT</u></b> | <b><u>FOOTAGE</u></b> | <b><u>HOURS</u></b> |
|-----------------------|--------------------|--------------------|--------------------|-------------------|-----------------------|---------------------|
| 1                     | HP-IP00            | J-2                | 12 1/4"            | 1440'             | 1440'                 | 26 1/4              |
| 2                     |                    | J-2                | 12 1/4"            | 1520'             | 80'                   | 4 1/2               |
| 3                     | HTC                | HC 29              | 7 7/8"             | 1589'             | 69'                   | 1 1/2               |
| 4                     | HTC                |                    | 7 7/8"             | 6250'             | 4661'                 | 83 1/2              |
| Total Rotating Hours: |                    |                    |                    |                   |                       | 115 3/4             |
| Average:              |                    |                    |                    |                   |                       | 54 Ft/hr            |

**DEVIATION RECORD - degree**

300' 1, 600' 1, 1000' 1, 1500' 1, 2000' ½, 2500' ¾, 3000' 1, 3300' 1, 3600' 2, 3800' 1 ½, 4100' 1, 4400' 1, 4700' 1, 5000' 1 ½, 5400' MR, 5400' MR, 5520' 1, 5700' 1, TD ½

**MUD PROPERTIES**

| <b><u>DATE</u></b><br><b><u>LBS/BBL</u></b> | <b><u>DEPTH</u></b> | <b><u>WT</u></b> | <b><u>VIS</u></b> | <b><u>PV</u></b> | <b><u>YP</u></b> | <b><u>pH</u></b> | <b><u>WL</u></b> | <b><u>CL</u></b> | <b><u>LCM-</u></b> |
|---|---------------------|------------------|-------------------|------------------|------------------|------------------|------------------|------------------|--------------------|
| 11/7  | 431'                | 8.9              | 34                | 4                | 4                | 7.5              | nc               | 2.5K             | 6                  |
| 11/8  | 956'                | 9.4              | 34                | 4                | 4                | 7.5              | nc               | 400              | 10                 |
| 11/10                                       | 1576'               | 8.6              | 28                | 1                | 2                | 7.0              | nc               | 26.5K            | 0                  |
| 11/11                                       | 2657'               | 8.6              | 68                | 13               | 16               | 7.0              | nc               | 1.1K             | 1                  |
| 11/12                                       | 3842'               | 9.2              | 64                | 18               | 21               | 10.0             | 9.2              | 4.4K             | 2                  |
| 11/13                                       | 4791'               | 9.3              | 48                | 14               | 16               | 10.5             | 9.2              | 3.8K             | 3                  |
| 11/14                                       | 5304'               | 9.3              | 52                | 17               | 18               | 10.5             | 8.8              | 2.1K             | 2                  |
| 11/15                                       | 6139'               | 9.4              | 53                | 19               | 18               | 9.5              | 8.4              | 3.8K             | 3                  |

**ELECTRIC LOG FORMATION TOPS- KB Elev. 2598'**

| <b><u>FORMATION</u></b> | <b><u>DEPTH</u></b> | <b><u>DATUM</u></b> | <b><u>*Keystone No. 2-4</u></b> |                        |
|-------------------------|---------------------|---------------------|---------------------------------|------------------------|
|                         |                     |                     | <b><u>DATUM</u></b>             | <b><u>POSITION</u></b> |
| Casing                  | 1491'               |                     |                                 |                        |
| Heebner                 | 4367'               | -1769'              | -1777'                          | +8'                    |
| Toronto                 | 4394'               | -1796'              | -1777'                          | +5'                    |
| Lansing                 | 4512'               | -1914'              | -1919'                          | +5'                    |
| Marmaton                | 5148'               | -2550'              | -2557'                          | +7'                    |
| Cherokee                | 5318'               | -2720'              | -2725'                          | +5'                    |
| Atoka                   | 5568'               | -2970'              | -2977'                          | +7'                    |
| Morrow                  | 5627'               | -3029'              | -3036'                          | +7'                    |
| "A" SS                  | 5650'               | -3052'              | -3055'                          | +3'                    |
| "B" SS                  | 5676'               | -3078'              | -3080'                          | +2'                    |
| "C" SS                  | 5704'               | -3106'              | -3110'                          | +4'                    |
| Mississippi Chester     | 5748'               | -3150'              | -3155'                          | +5'                    |
| Basal Chester           | 5935'               | -3337'              | -3343'                          | +6'                    |
| Ste. Genevieve          | 5966'               | -3368'              | -3374'                          | +6'                    |
| St. Louis               | 6066'               | -3468'              | -3475'                          | +7'                    |
| TD                      | 6250'               | -3652'              |                                 |                        |

\*O'Brien Energy Resources, Keystone No. 2-4, 500' FSL & 716' FWL, Section 4, 33 S, 29W – 120' to the North., K.B. Elev. 2597'.

## Summary of Changes

Lease Name and Number: KEYSTONE 3-4

API/Permit #: 15-119-21413-00-00

Doc ID: 1393846

Correction Number: 1

Approved By: Karen Ritter

| Field Name                | Previous Value | New Value  |
|---------------------------|----------------|------------|
| Denied Date               | 02/26/2018     |            |
| Spud Or Recompletion Date | 1/06/2017      | 11/06/2017 |

## Summary of Attachments

Lease Name and Number: KEYSTONE 3-4

API: 15-119-21413-00-00

Doc ID: 1393846

Correction Number: 1

Attachment Name