

|                        |                 |             |                           |
|------------------------|-----------------|-------------|---------------------------|
| RECEIVED<br>10/30/2017 | REVIEWER<br>PRG | TYPE<br>IPI | APP NO.<br>PPRG1732045830 |
|------------------------|-----------------|-------------|---------------------------|

ABOVE THIS TABLE FOR OCD DIVISION USE ONLY

**NEW MEXICO OIL CONSERVATION DIVISION**  
 - Geological & Engineering Bureau -  
 1220 South St. Francis Drive, Santa Fe, NM 87505



**ADMINISTRATIVE APPLICATION CHECKLIST**

THIS CHECKLIST IS MANDATORY FOR ALL ADMINISTRATIVE APPLICATIONS FOR EXCEPTIONS TO DIVISION RULES AND REGULATIONS WHICH REQUIRE PROCESSING AT THE DIVISION LEVEL IN SANTA FE

**Applicant:** LINN OPERATING, LLC

**OGRID Number:** 269324

**Well Name:** HALE STATE WELL NO. 4

**API:** 30-025-39785

**Pool:** SWD; SAN ANDRES

**Pool Code:** 96121

**SUBMIT ACCURATE AND COMPLETE INFORMATION REQUIRED TO PROCESS THE TYPE OF APPLICATION INDICATED BELOW**

**1) TYPE OF APPLICATION:** Check those which apply for [A]

A. Location - Spacing Unit - Simultaneous Dedication

☐ NSL

☐ NSP (PROJECT AREA)

☐ NSP (PRORATION UNIT)

☐ SD

B. Check one only for [I] or [II]

[I] Commingling - Storage - Measurement

☐ DHC

☐ CTB

☐ PLC

☐ PC

☐ OLS

☐ OLM

[II] Injection - Disposal - Pressure Increase - Enhanced Oil Recovery

☐ WFX

☐ PMX

☐ SWD

☒ IPI

☐ EOR

☐ PPR

**2) NOTIFICATION REQUIRED TO:** Check those which apply.

A. ☐ Offset operators or lease holders

B. ☐ Royalty, overriding royalty owners, revenue owners

C. ☐ Application requires published notice

D. ☐ Notification and/or concurrent approval by SLO

E. ☐ Notification and/or concurrent approval by BLM

F. ☐ Surface owner

G. ☐ For all of the above, proof of notification or publication is attached, and/or,

H. ☒ No notice required

**FOR OCD ONLY**

☐ Notice Complete

☒ Application  
Content  
Complete

**3) CERTIFICATION:** I hereby certify that the information submitted with this application for administrative approval is **accurate** and **complete** to the best of my knowledge. I also understand that **no action** will be taken on this application until the required information and notifications are submitted to the Division.

**Note:** Statement must be completed by an individual with managerial and/or supervisory capacity.

NANCY FITZWATER

Print or Type Name

*Nancy Fitzwater*  
Signature

10/10/2017

Date

281-840-4266

Phone Number

nfitzwat@linnenergy.com

e-mail Address

Submit 1 Copy To Appropriate District Office  
District I - (575) 393-6161  
1625 N. French Dr., Hobbs, NM 88240  
District II - (575) 748-1283  
811 S. First St., Artesia, NM 88210  
District III - (505) 334-6178  
1000 Rio Brazos Rd., Aztec, NM 87410  
District IV - (505) 476-3460  
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico  
Energy, Minerals and Natural Resources

Form C-103  
Revised July 18, 2013

OIL CONSERVATION DIVISION  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

|                                                                                                     |
|-----------------------------------------------------------------------------------------------------|
| WELL API NO.<br>30-025-39785                                                                        |
| 5. Indicate Type of Lease<br>STATE <input checked="" type="checkbox"/> FEE <input type="checkbox"/> |
| 6. State Oil & Gas Lease No.                                                                        |
| 7. Lease Name or Unit Agreement Name<br>HALE STATE                                                  |
| 8. Well Number 004                                                                                  |
| 9. OGRID Number 269324                                                                              |
| 10. Pool name or Wildcat<br>SWD; SAN ANDRES                                                         |
| 11. Elevation (Show whether DR, RKB, RT, GR, etc.)<br>4096'GL                                       |

|                                                                                                                                                                                                         |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| SUNDRY NOTICES AND REPORTS ON WELLS<br>(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)  |  |
| 1. Type of Well: Oil Well <input type="checkbox"/> Gas Well <input checked="" type="checkbox"/> Other                                                                                                   |  |
| 2. Name of Operator<br>LINN OPERATING, LLC                                                                                                                                                              |  |
| 3. Address of Operator<br>600 TRAVIS ST, SUITE 1400, HOUSTON, TEXAS 77002                                                                                                                               |  |
| 4. Well Location<br>Unit Letter <u>D</u> : <u>330</u> feet from the <u>N</u> line and <u>990</u> feet from the <u>W</u> line<br>Section <u>31</u> Township <u>17S</u> Range <u>34E</u> NMPM LEA, County |  |
| 11. Elevation (Show whether DR, RKB, RT, GR, etc.)<br>4096'GL                                                                                                                                           |  |

12. Check Appropriate Box to Indicate Nature of Notice, Report or Other Data

| NOTICE OF INTENTION TO:                        |                                           | SUBSEQUENT REPORT OF:                                  |                                          |
|------------------------------------------------|-------------------------------------------|--------------------------------------------------------|------------------------------------------|
| PERFORM REMEDIAL WORK <input type="checkbox"/> | PLUG AND ABANDON <input type="checkbox"/> | REMEDIAL WORK <input type="checkbox"/>                 | ALTERING CASING <input type="checkbox"/> |
| TEMPORARILY ABANDON <input type="checkbox"/>   | CHANGE PLANS <input type="checkbox"/>     | COMMENCE DRILLING OPNS. <input type="checkbox"/>       | P AND A <input type="checkbox"/>         |
| PULL OR ALTER CASING <input type="checkbox"/>  | MULTIPLE COMPL <input type="checkbox"/>   | CASING/CEMENT JOB <input type="checkbox"/>             |                                          |
| DOWNHOLE COMMINGLE <input type="checkbox"/>    |                                           |                                                        |                                          |
| CLOSED-LOOP SYSTEM <input type="checkbox"/>    |                                           |                                                        |                                          |
| OTHER: <input type="checkbox"/>                |                                           | OTHER: REQUEST IPI <input checked="" type="checkbox"/> |                                          |

13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 19.15.7.14 NMAC. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

LINN OPERATING, LLC RESPECTFULLY REQUESTS AN INCREASE IN INJECTION PRESSURE TO 1647 PSI.

IN SUPPORT OF THIS REQUEST PLEASE FIND ATTACHED THE NODULE ANALYSIS AS REQUESTED AND WELLBORE DIAGRAM.

02/06/2018

Conference call: Linn  
D. Gordon  
G. Waters

- 1647 psi - with single tubing
- nodal analysis shows FPP at surface of 1883 psi with new tapered tubing
- approval of 1647 psi (without mod.) is acceptable

Spud Date:

Rig Release Date:

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNATURE Nancy Fitzwater TITLE Regulatory Supervisor DATE 10/10/2017  
Type or print name: Nancy Fitzwater E-mail address: nfitzwater@linnenergy.com PHONE: 281.840.4266  
For State Use Only

APPROVED BY: \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_  
Conditions of Approval (if any):

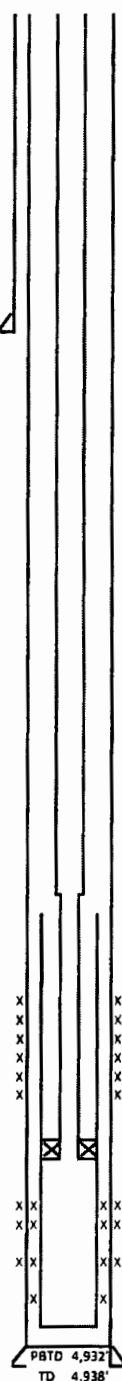
|             |                    |
|-------------|--------------------|
| Well Name:  | Hale St #4         |
| AFE #       | PC-W16147995       |
| Location:   |                    |
| Footage:    | 330' FNL, 900' FWL |
| Section:    | 31                 |
| Township:   | 17S                |
| Range:      | 34E                |
| County:     | Lea                |
| Lat:        | N 32° 47' 51.26"   |
| Long:       | W 103° 36' 17.424" |
| Elevations: |                    |
| GL:         |                    |
| KB:         | 4107'              |

| Date         | Work History                                                                                                                                                                                                                                                                                                                                                                                                     |
|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 11/20/2008 - | Spudded well. Set surf csg @1556'. Cmt'd w/393 sks cmt circ to surf. Drilled to TD @4938'. Set prod csg @4936' Cmt'd w/975 sks.                                                                                                                                                                                                                                                                                  |
| 11/30/2008 - | Perf 4898-4902, 4882-4890, 4820-4824, 4744-4754, (2 SPF). Acidize perfs w/3200 gals acid. Perf 4720-4726, 4714-4716, 4666-4674, 4658-4660, 4640-4650, 4609-4611, 4588-4590, 4578-4585, 4570-4574, 4556-4560, 4549-4551, 4524-4534. Acidize perfs w/7000 gals acid. Set SN @4879', set TAC @4501', set 155 jts 2-7/8" tbg @4900'. PU pump RIH w/10-7/8" rod, 86 3/4" rods, and 95 7/8" rods. Hung well on 2/5/09. |
| 11/9/2009 -  | Treat existing perfs (4524-4890'; 196 perfs) w/6300 gal acid. Set RBP @4500'. Shot perfs 4370-4400' (30); 4406-4412' (6) w/1 SPF. Treat new perfs w/2000 gals HCL. Frac new perfs 24,150 gals. Retrieve RBP, test and RWTP.                                                                                                                                                                                      |
| 11/17/2009 - |                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 9/17/2010 -  | Frac San Andres perfs 4370-4412' with 55.5k# sand. RIH w/4-3/4 b t, bit sub, 4-3 1/2" DC on 2-7/8 tbg to 4435'. Tag fill, break circ., clean out fill to 4459'.                                                                                                                                                                                                                                                  |
| 9/20/2010 -  |                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 3/15/2013    | Passed Bradenhead test.                                                                                                                                                                                                                                                                                                                                                                                          |
| 3/24/2014    | Passed Bradenhead test.                                                                                                                                                                                                                                                                                                                                                                                          |
| 3/6/2015     | Passed Bradenhead test.                                                                                                                                                                                                                                                                                                                                                                                          |
| 10/16/2015   | Administrative Order SWD-1590 approved by NM-OCD for recompletion of the Hale St #4 for the purpose of produced water disposal. Injection permitted to occur through lower San Andres perforations from 4820'-4902' with a MASIP of 964 psi.                                                                                                                                                                     |
| 3/4/2016 -   | Convert to disposal. Attempt to squeeze off Grayburg - San Andres perfs 4370'-4754'. Establish injection rate of 200 psi. Pump 209 sks class C (49 bbls) 14.8# mud. Release pkr, reverse 23.9 bbls cmt out. Pkr cemented in hole.                                                                                                                                                                                |
| 3/14/2016 -  | Mill out and retrieve cemented packer.                                                                                                                                                                                                                                                                                                                                                                           |
| 4/12/2016    |                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 4/13/2016 -  | Pressure test csg. lost 170 psi in 15 min. Isolate pressure loss - bottom of leak 4740', top of leak 4365'. Unable to establish injection rate in interval. RDMO.                                                                                                                                                                                                                                                |
| 5/12/2016    |                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 11/9/2016 -  | Run 22 jts 4" 10.5# liner from 4011'-4932'. Shoot circulating holes at 4921'-4923' Cmt liner in place with 50 sks cmt. Run CBL - TOC at 4,058                                                                                                                                                                                                                                                                    |
| 11/16/2016   |                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 11/17/2016 - | Perf 4" liner from 4820'-4850', 4870'-4892' at 4 SPF. RIH with injecting tbg and set pkr at 4766'. Acidize perfs.                                                                                                                                                                                                                                                                                                |
| 11/18/2016   |                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 11/22/2016   | Passed MIT (OCD witnessed).                                                                                                                                                                                                                                                                                                                                                                                      |

#### PRODUCTION LINER

Prod Liner: 4", 10.5#, 22 jts Liberty flush-joint L-80 liner  
Liner top at 4,011'  
Cement: Cemented in place with 50 sks  
TOC: 4,058' (CBL)

#### Current Wellbore Diagram



|                |                  |
|----------------|------------------|
| Well Name:     | Hale St #4       |
| API No:        | 30-025-39785     |
| Spud Date:     | 11/20/2008       |
| Location area: | Caprock Maljamar |

#### SURFACE CASING

Hole Size: 12 - 1/4"  
Surf Csg: 8 - 5/8" OD, 8.097" ID, 23 lb/ft, J-55 @ 1,556  
Cement: 393 sks class C 2% CaCl2 cmt  
TOC: Circulated to Surface

#### PRODUCTION CASING

Hole Size: 7 - 7/8"  
Prod Csg: 5 - 1/2" OD, 4.95" ID, 15.5 lb/ft, J-55 @ 4,936  
Cement: 975 sks class C 2% CaCl2 cmt  
TOC: Circulated to Surface

#### INJECTION TUBING:

2 - 7/8", 6.5 lb/ft, J-55 IPC Tbg (154 jts)  
2 - 3/8", 6.5 lb/ft, J-55 IPC Tbg (36 jts) EOT @ 4758'  
Packer set at 4,766'

Top of Liner: 4,011'

Top of Liner Cmt: 4,058' (per CBL)

Sealed Perforations: Grayburg / San Andres  
4370'-4400', 4406'-4412' (1 SPF)  
4524'-4534', 4549'-4551', 4556'-4560', 4570'-4574  
4578'-4585', 4588'-4590', 4609'-4611', 4640'-4650  
4658'-4660', 4666'-4674', 4714'-4716', 4720'-4726  
4744'-4754' (2 SPF 90' phasing)  
Perforations sealed off behind 4" cemented liner

Injection Pkr: Set at 4,766'

PERFORATIONS: San Andres (Disposal Interval)  
4820'-4850', 4870'-4892' (4-SPF)

Circulating Holes: 4921'-4923'

Updated:  
12/13/2016 J Haines

Date: 21-09-2017

Neotechnology Consultants Ltd.

Time: 10:48:11 AM

WELLFLO 8 - Version 8.3.2

Licensee: FlexLM License

\*\* CALCULATION OPTIONS \*\*

TITLE:

INPUT DATA FILE: Hale State 4 - Tapered String - BHFP = 4079 psi.WFW

OUTPUT FILES: Hale State 4 - Tapered String - BHFP = 4079 psi.MIN  
: Hale State 4 - Tapered String - BHFP = 4079 psi.MAX  
: Hale State 4 - Tapered String - BHFP = 4079 psi.SUM  
: Hale State 4 - Tapered String - BHFP = 4079 psi.PLT

CALCULATION DIRECTION: Top to Bottom

FLOW DIRECTION: Injection

FLOW PATH: Tubing

FLUID SYSTEM: Simplified Data

CALCULATION METHODS

SELECTIONS FOR VERTICAL UPFLOW

OVERALL SELECTION: Aziz, Govier and Fogarasi  
FLOW REGIME PREDICTION: Aziz, Govier and Fogarasi  
LIQUID HOLDUP CALCULATION: Aziz, Govier and Fogarasi  
FRICTION LOSS CALCULATION: Aziz, Govier and Fogarasi  
ANNULAR-MIST FLOW MODEL: Homogeneous Method  
SLUG OPTION: Original Method

SELECTIONS FOR VERTICAL DOWNFLOW

OVERALL SELECTION: Beggs and Brill Revised  
FLOW PATTERN PREDICTION: Beggs and Brill Revised  
LIQUID HOLDUP CALCULATION: Beggs and Brill Revised  
FRICTION LOSS CALCULATION: Beggs and Brill

SELECTIONS FOR HORIZONTAL AND INCLINED FLOW

OVERALL SELECTION: Hughmark, Dukler  
FLOW PATTERN PREDICTION: Taitel and Dukler  
LIQUID HOLDUP CALCULATION: Hughmark  
FRICTION LOSS CALCULATION: Dukler  
UPHILL CORRECTION: No Correction  
DOWNHILL CORRECTION: Recovery Based on Gas Density

FLUID TEMPERATURE PROFILE: Calculated

FLUID PROPERTIES

Simplified Fluid Properties

PVT Behaviour and Transport Property Procedures

Gas Viscosity: Lee, Gonzalez and Eakin  
Dead Oil Viscosity Equation: ASTM Equation  
Dead Oil Viscosity Correlation: Twu  
Watson K Factor: Specify  
Surface Tension Option: Calculate

Injection and Production Fluid Properties

Lift Gas Fluid  
Gas Property Selection: Specify Gas Gravity  
Gas Gravity (Specific): N/A  
Oil Gravity: N/A  
Water Gravity: N/A

Production Fluid

Gas Property Selection: Specify Gas Gravity  
Gas Gravity (Specific): N/A  
Oil Gravity: N/A  
Water Gravity: 1.070

Simplified Fluid #1

Gas Property Selection: Specify Gas Gravity  
Gas Gravity (Specific): N/A  
Oil Gravity: N/A  
Water Gravity: N/A

Drilling Profile Report

Vertical Depth of Well: 4820.000 ft

| Horizontal<br>ft | Vertical<br>ft | Measured Depth<br>ft |
|------------------|----------------|----------------------|
| 0.000            | 0.000          | 0.000                |
| 0.000            | 4820.000       | 4820.000             |

Case Number: 1

-----  
SPECIFIED AND CALCULATED SYSTEM DATA  
-----

TITLE:

INJECTION STRING

Flow String: Tubing  
String Length: 4820.0 ft

| CASING | ID<br>(inch) | OD<br>(inch) | BHD<br>(inch) | Depth<br>(ft) |
|--------|--------------|--------------|---------------|---------------|
|        | 3.500        | 4.000        | 7.875         | 0.0           |

Roughness: 0.00180 inch @ 0.0 ft Depth

| TUBING | ID<br>(inch) | OD<br>(inch) | Depth<br>(ft) |
|--------|--------------|--------------|---------------|
|        | 2.441        | 2.875        | 0.0           |
|        | 1.995        | 2.375        | 3914.0        |
|        | 3.490        | 3.495        | 4766.0        |

Roughness: 0.00180 inch @ 0.0 ft Depth

WELLHEAD

Pressure: to be calculated  
Temperature: 75.0 deg F

BOTTOM-HOLE

Pressure: 4079.0 psia  
Temperature: to be calculated

FLOW RATES

Gas Volume Flow: N/A MMscfd  
HC Liquid Volume Flow: N/A Bbl/day  
Water Volume Flow: 1488.00 Bbl/day

RESULTS

| MEASURED<br>DEPTH<br>(ft) | CALCULATED<br>PRESSURE<br>(psia) | CUM.<br>LIQUID<br>HOLDUP<br>(bbl) | CALCULATED<br>TEMPERATURE<br>(deg F) |
|---------------------------|----------------------------------|-----------------------------------|--------------------------------------|
| 0.00                      | 1883.13                          | 0.00                              | 75.00                                |
| 3914.00                   | 3673.62                          | 22.66                             | 78.55                                |
| 4766.00                   | 4053.46                          | 25.95                             | 80.09                                |
| 4820.00                   | 4078.53                          | 26.59                             | 80.21                                |

SUMMARY:

CALCULATED WELLHEAD PRESSURE: 1883.1 psia  
SPECIFIED WELLHEAD TEMPERATURE: 75.0 deg F  
SPECIFIED BOTTOM-HOLE PRESSURE: 4078.5 psia  
CALCULATED BOTTOM-HOLE TEMPERATURE: 80.2 deg F

Predicted Pressure Loss: -2195.4 psi

Friction Loss: 44.7 psi  
Elevation Loss: -2240.1 psi  
Kinetic Loss: 0.0 psi  
In-line Facilities Loss: 0.0 psi

Total Liquid Holdup: 26.6 bbl  
Total Gas Pack: 0.0 scf

Estimated Static Liquid Column  
Height: 4820.0 ft  
Measured Depth: 0.0 ft

Electrical Heating: 0.0 BTU/hr  
Net Heat Loss to Surroundings: -107668.6 BTU/hr

# Run Monitor

| Run completed successfully. |             |                  |                      |               |                                    |                                    |                |  |  | Print... |
|-----------------------------|-------------|------------------|----------------------|---------------|------------------------------------|------------------------------------|----------------|--|--|----------|
| Run Status:                 | Depth: (ft) | Pressure: (psia) | Temperature: (deg F) | Liquid Volume | Superficial Gas Velocity: (ft/sec) | Superficial Lq. Velocity: (ft/sec) | Flow Pattern:  |  |  |          |
|                             | 0           | 1883             | 75.0                 | 1.0000        | 0.000                              | 2.972                              | S.P. Turbulent |  |  |          |
|                             | 325         | 2032             | 75.0                 | 1.0000        | 0.000                              | 2.971                              | S.P. Turbulent |  |  |          |
|                             | 650         | 2180             | 75.1                 | 1.0000        | 0.000                              | 2.970                              | S.P. Turbulent |  |  |          |
|                             | 975         | 2329             | 75.2                 | 1.0000        | 0.000                              | 2.970                              | S.P. Turbulent |  |  |          |
|                             | 1288        | 2472             | 75.4                 | 1.0000        | 0.000                              | 2.969                              | S.P. Turbulent |  |  |          |
|                             | 1613        | 2620             | 75.6                 | 1.0000        | 0.000                              | 2.968                              | S.P. Turbulent |  |  |          |
|                             | 1938        | 2769             | 75.9                 | 1.0000        | 0.000                              | 2.967                              | S.P. Turbulent |  |  |          |
|                             | 2250        | 2912             | 76.2                 | 1.0000        | 0.000                              | 2.967                              | S.P. Turbulent |  |  |          |
|                             | 2575        | 3061             | 76.6                 | 1.0000        | 0.000                              | 2.966                              | S.P. Turbulent |  |  |          |
|                             | 2900        | 3209             | 77.0                 | 1.0000        | 0.000                              | 2.965                              | S.P. Turbulent |  |  |          |
|                             | 3225        | 3358             | 77.4                 | 1.0000        | 0.000                              | 2.965                              | S.P. Turbulent |  |  |          |
|                             | 3538        | 3501             | 77.9                 | 1.0000        | 0.000                              | 2.965                              | S.P. Turbulent |  |  |          |
|                             | 3863        | 3650             | 78.5                 | 1.0000        | 0.000                              | 2.964                              | S.P. Turbulent |  |  |          |
|                             | 4189        | 3796             | 79.0                 | 1.0000        | 0.000                              | 4.437                              | S.P. Turbulent |  |  |          |
|                             | 4502        | 3936             | 79.6                 | 1.0000        | 0.000                              | 4.436                              | S.P. Turbulent |  |  |          |
|                             | 4820        | 4079             | 80.2                 | 1.0000        | 0.000                              | 1.449                              | S.P. Turbulent |  |  |          |

Run

Pause

Stop

Skip

Basic

View

Plots

Flow Map

Phase Envel.

Erosion Veloc.

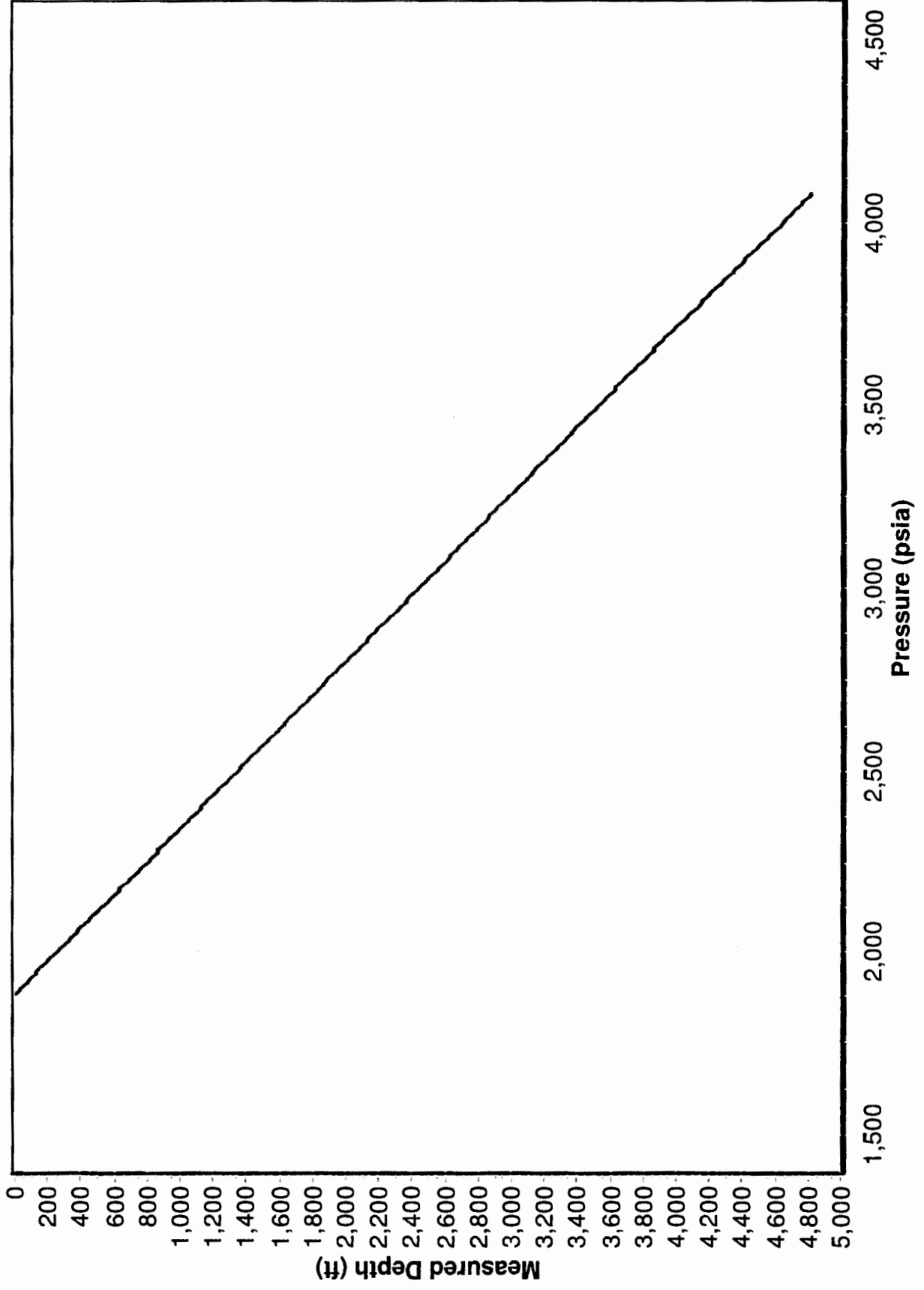
Exit

Pause Between Cases

Pause Mid Cycle

| Well Head Rates ( @ STP )          |                |                |              |
|------------------------------------|----------------|----------------|--------------|
| Gas Rate:                          | HC Lq Rate:    | Water Rate:    | Pressure:    |
| 0.00 MMscfd                        | 0.0 Bbl/d      | 1488.0 Bbl/d   | 1883.1 psia  |
| Pressure Drop                      |                |                |              |
| Friciton:                          | HydroSt. Head: | Kinetic:       | Total:       |
| 44.7 psi                           | 2240.1 psi     | 0.0 psi        | 2195.4 psi   |
| Gas Transit:                       |                |                |              |
| 0.0 min                            | Lq Transit:    | Liquid Holdup: | Motor ELY    |
|                                    | 25.8 min       | 26.6 bbl       |              |
| Minimum Liquid Velocity            |                |                |              |
| Bottom Hole Assembly Pressure Drop |                |                |              |
| MWD                                | Motor          | Nozzles        | Total        |
|                                    |                |                |              |
| Bottom Hole Rates ( @ Instu PT )   |                |                |              |
| Gas Rate:                          | HC Lq Rate:    | Water Rate:    | Pressure:    |
| 0.00 MMscfd                        | 0.0 Bbl/d      | 1481.8 Bbl/d   | 4078.53 psia |

HALE STATE 4 - TAPERED STRING - BHFP = 4079 PSI



# Step Rate Test



Cardinal Surveys Company

5/15/2016

Fracture @ 1488 BPD  
4079 BHPSIA,  
1647 Surf PSIA

Linn Operating  
Hale State # 4

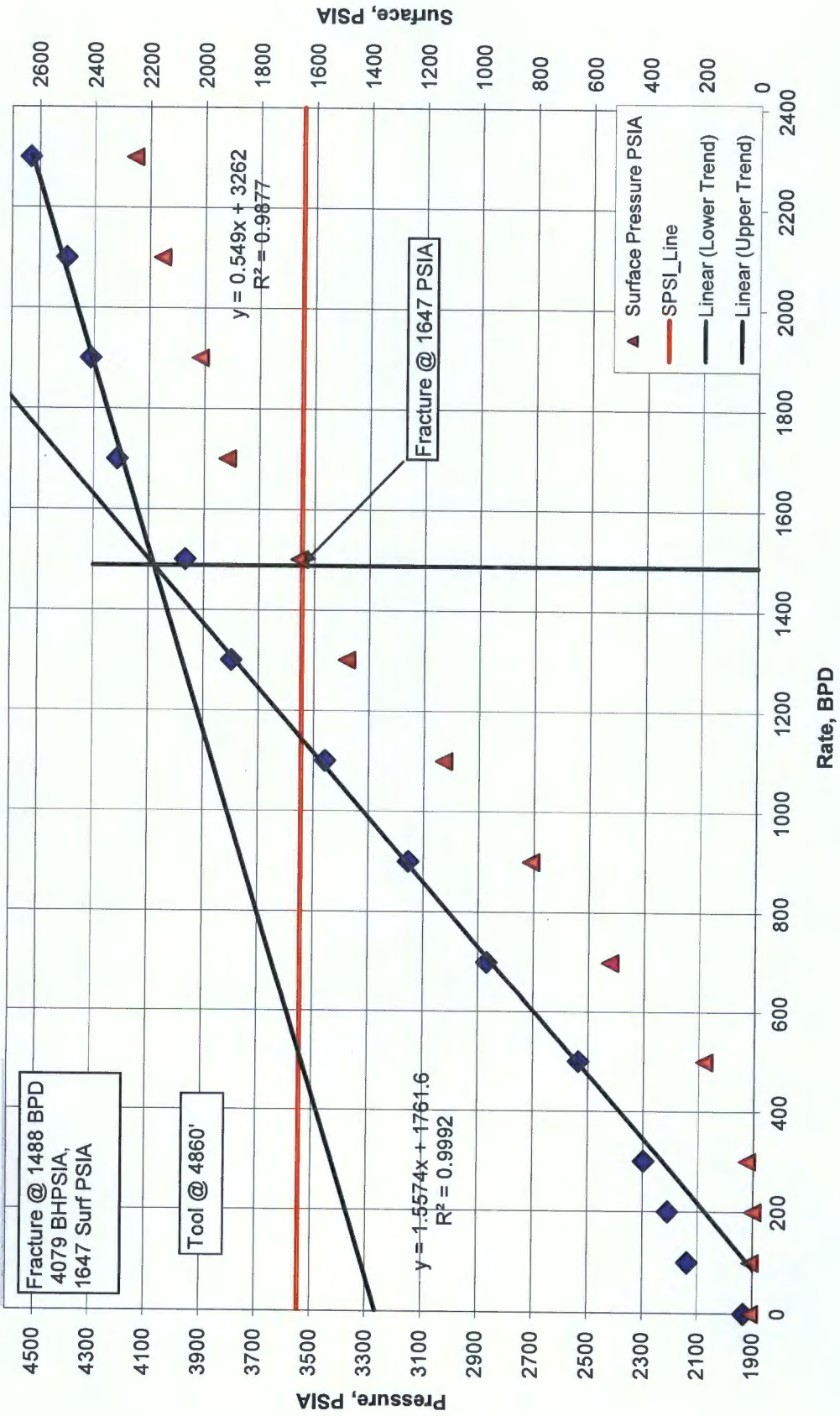
Lea County, New Mexico  
File #24521  
Tool # C-202

Downhole PSI Tool Ser. No.  
Surface PSI Gauge Ser. No.  
Tool @ 4860

| Start<br>Time | End<br>Time       | Rate<br>BPD | Comments    |
|---------------|-------------------|-------------|-------------|
| 1             | 9:41 AM 10:10 AM  |             | 0 On Bottom |
| 2             | 10:10 AM 10:40 AM | 100         |             |
| 3             | 10:40 AM 11:10 AM | 200         |             |
| 4             | 11:10 AM 11:40 AM | 300         |             |
| 5             | 11:40 AM 12:10 PM | 500         |             |
| 6             | 12:10 PM 12:40 PM | 700         |             |
| 7             | 12:40 PM 1:10 PM  | 900         |             |
| 8             | 1:10 PM 1:40 PM   | 1100        |             |
| 9             | 1:40 PM 2:10 PM   | 1300        |             |
| 10            | 2:10 PM 2:40 PM   | 1500        |             |
| 11            | 2:40 PM 3:10 PM   | 1700        |             |
| 12            | 3:10 PM 3:40 PM   | 1900        |             |
| 13            | 3:40 PM 4:10 PM   | 2100        |             |
| 14            | 4:10 PM 4:40 PM   | 2300        |             |
| 15            | 4:40 PM 4:55 PM   |             | 0 Fall Off  |



# Linn Operating Hale State # 4 Step Rate Test 05-15-2016



# Step Rate Test

Linn Operating  
Hale State # 4



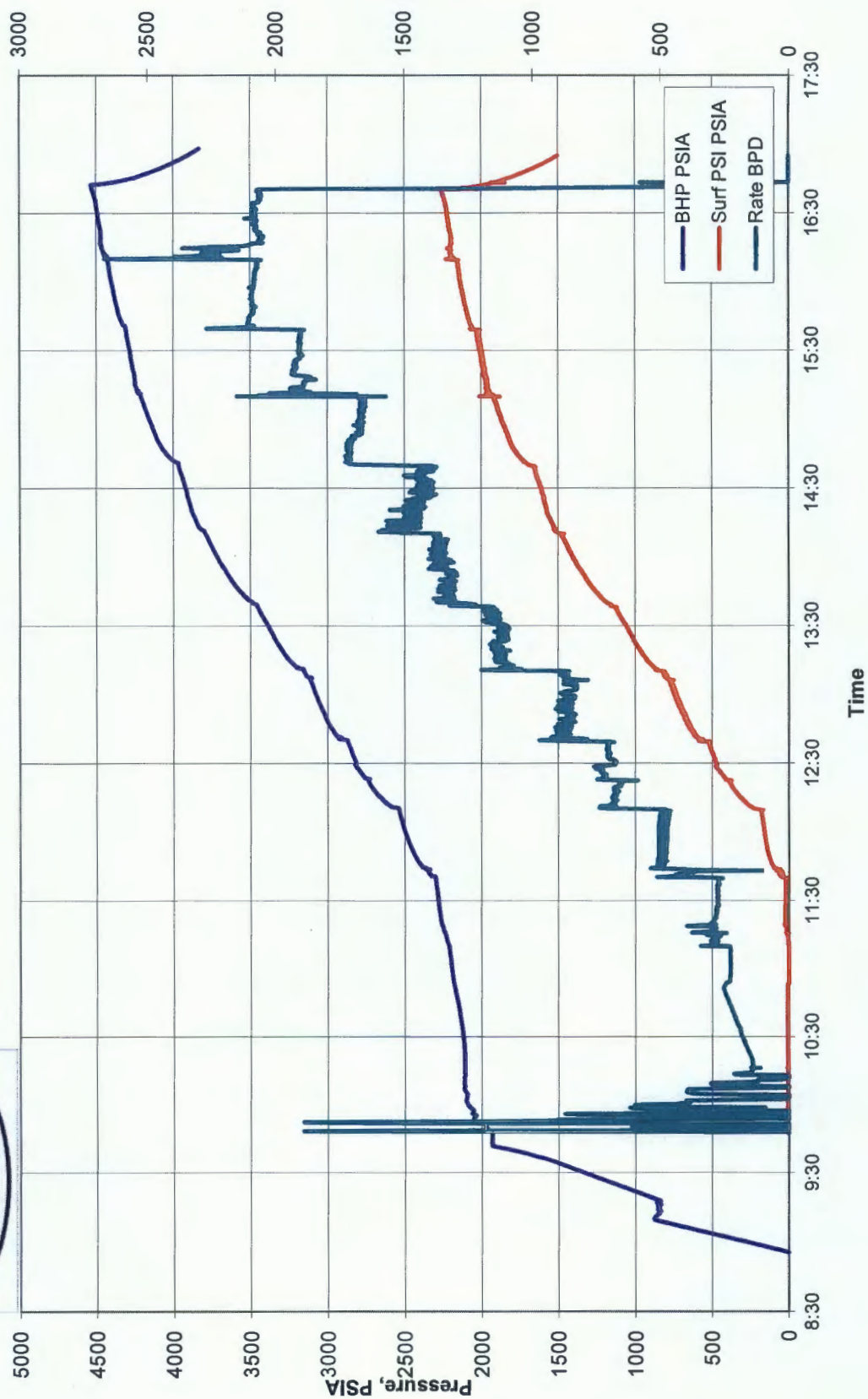
Lea County , New Mexico

|    | S Time   | E Time   | D Time | Last Rate | Step  | B. H. Pressure | Surf | Cum   | Delta | Avg. BPD | Avg From Raw Data | Lower Trend | Upper Trend |
|----|----------|----------|--------|-----------|-------|----------------|------|-------|-------|----------|-------------------|-------------|-------------|
|    |          |          | Min    | BPD       | BPD   | PSIA           | PSIA | BBL   | BBL   |          |                   |             |             |
| 1  | 9:41 AM  | 10:10 AM | 29     | 0         | 0     | 1932.3         | 9.5  | 0     | 0     | 0        |                   |             |             |
| 2  | 10:10 AM | 10:40 AM | 30     | 100       | 100   | 2138.2         | 9.2  | 3.1   | 3.1   | 148.8    |                   |             |             |
| 3  | 10:40 AM | 11:10 AM | 30     | 200       | 100   | 2209.9         | 0    | 8     | 4.9   | 235.2    |                   |             |             |
| 4  | 11:10 AM | 11:40 AM | 30     | 300       | 100   | 2298.6         | 23.5 | 14    | 6     | 288      |                   |             |             |
| 5  | 11:40 AM | 12:10 PM | 30     | 500       | 200   | 2535.7         | 181  | 24    | 10    | 480      |                   | 2535.7      |             |
| 6  | 12:10 PM | 12:40 PM | 30     | 700       | 200   | 2869           | 524  | 38.2  | 14.2  | 681.6    |                   | 2869        |             |
| 7  | 12:40 PM | 1:10 PM  | 30     | 900       | 200   | 3154.7         | 811  | 56.7  | 18.5  | 888      |                   | 3154.7      |             |
| 8  | 1:10 PM  | 1:40 PM  | 30     | 1100      | 200   | 3458.1         | 1128 | 78.5  | 21.8  | 1046.4   |                   | 3458.1      |             |
| 9  | 1:40 PM  | 2:10 PM  | 30     | 1300      | 200   | 3798.5         | 1481 | 108.3 | 29.8  | 1430.4   |                   | 3798.5      |             |
| 10 | 2:10 PM  | 2:40 PM  | 30     | 1500      | 200   | 3966.7         | 1654 | 137.5 | 29.2  | 1401.6   |                   |             |             |
| 11 | 2:40 PM  | 3:10 PM  | 30     | 1700      | 200   | 4213.9         | 1916 | 173   | 35.5  | 1704     |                   |             |             |
| 12 | 3:10 PM  | 3:40 PM  | 30     | 1900      | 200   | 4312.2         | 2017 | 211.8 | 38.8  | 1862.4   |                   |             | 4312.2      |
| 13 | 3:40 PM  | 4:10 PM  | 30     | 2100      | 200   | 4400.8         | 2155 | 256.1 | 44.3  | 2126.4   |                   |             | 4400.8      |
| 14 | 4:10 PM  | 4:40 PM  | 30     | 2300      | 200   | 4531.8         | 2255 | 301   | 44.9  | 2155.2   |                   |             | 4531.8      |
| 15 | 4:40 PM  | 4:55 PM  | 15     | 0         | -2300 | 3859           | 1506 | 301   | 0     | 0        |                   |             |             |

1.5574 1761.585  
0.549 3262.033

int point: 1488.023338 BPD  
4078.958146 Psia

Linn Operating Hale State # 4  
Step Rate Test 05-15-2016





## Proof of Delivery

[Close Window](#)

Dear Customer,

This notice serves as proof of delivery for the shipment listed below

|                             |                               |
|-----------------------------|-------------------------------|
| <b>Tracking Number:</b>     | 1Z6VE4280192439217            |
| <b>Reference Number(s):</b> | HALE STATE #4 SWD-PI INCR REQ |
| <b>Service:</b>             | UPS Next Day Air®             |
| <b>Shipped/Billed On:</b>   | 10/11/2017                    |
| <b>Delivered On:</b>        | 10/12/2017 10:05 A.M.         |
| <b>Delivered To:</b>        | SANTA FE, NM, US              |
| <b>Received By:</b>         | SOVERANEZ                     |
| <b>Left At:</b>             | Office                        |

Thank you for giving us this opportunity to serve you

Sincerely,

UPS

Tracking results provided by UPS 11/15/2017 4:56 P.M. ET