

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENTNMOCD  
HobbsFORM APPROVED  
OMB No. 1004-0137  
Expires: July 31, 2010

## WELL COMPLETION OR RECOMPLETION REPORT AND LOG

|                                                                                                                                                                                                                                                                                                                              |  |  |                                                                              |  |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|------------------------------------------------------------------------------|--|--|
| 1a. Type of Well <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Dry <input type="checkbox"/> Other                                                                                                                                                                  |  |  | 5. Lease Serial No.<br>NMNM13647                                             |  |  |
| b. Type of Completion <input checked="" type="checkbox"/> New Well <input type="checkbox"/> Work Over <input type="checkbox"/> Deepen <input type="checkbox"/> Plug Back <input type="checkbox"/> Diff. Resvr.<br>Other _____                                                                                                |  |  | 6. If Indian, Allottee or Tribe Name                                         |  |  |
| 2. Name of Operator<br>MARATHON OIL PERMIAN LLC                                                                                                                                                                                                                                                                              |  |  | Contact: ADRIAN COVARRUBIAS<br>E-Mail: acovarrubias@marathonoil.com          |  |  |
| 3. Address 5555 SAN FELIPE<br>HOUSTON, TX 77056                                                                                                                                                                                                                                                                              |  |  | 3a. Phone No. (include area code)<br>Ph: 713-296-3368                        |  |  |
| 4. Location of Well (Report location clearly and in accordance with Federal requirements)*<br>At surface SESW 287FSL 1811FWL<br>At top prod interval reported below SESW 287FSL 1811FWL<br>At total depth NWNW 617FNL 1317FWL                                                                                                |  |  | 8. Lease Name and Well No.<br>CAVE LION 5 WC FEDERAL 2H                      |  |  |
| 14. Date Spudded<br>03/03/2019                                                                                                                                                                                                                                                                                               |  |  | 15. Date T.D. Reached<br>05/14/2019                                          |  |  |
| 16. Date Completed<br><input type="checkbox"/> D & A <input checked="" type="checkbox"/> Ready to Prod.<br>08/01/2019                                                                                                                                                                                                        |  |  | 9. API Well No.<br>30-025-45421                                              |  |  |
| 18. Total Depth: MD 17593<br>TVD 13209                                                                                                                                                                                                                                                                                       |  |  | 19. Plug Back T.D.: MD<br>TVD                                                |  |  |
| 20. Depth Bridge Plug Set: MD<br>TVD                                                                                                                                                                                                                                                                                         |  |  | 10. Field and Pool, or Exploratory<br>WOLFCAMP                               |  |  |
| 21. Type Electric & Other Mechanical Logs Run (Submit copy of each)<br>MUD AND GR                                                                                                                                                                                                                                            |  |  | 11. Sec., T., R., M., or Block and Survey<br>or Area Sec 5 T26S R35E Mer NMP |  |  |
| 22. Was well cored? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes (Submit analysis)<br>Was DST run? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes (Submit analysis)<br>Directional Survey? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes (Submit analysis) |  |  | 12. County or Parish<br>LEA                                                  |  |  |
|                                                                                                                                                                                                                                                                                                                              |  |  | 13. State<br>NM                                                              |  |  |
|                                                                                                                                                                                                                                                                                                                              |  |  | 17. Elevations (DF, KB, RT, GL)*<br>3263 GL                                  |  |  |

## 23. Casing and Liner Record (Report all strings set in well)

| Hole Size | Size/Grade   | Wt. (#/ft.) | Top (MD) | Bottom (MD) | Stage Cementer Depth | No. of Sk. & Type of Cement | Slurry Vol. (BBL) | Cement Top* | Amount Pulled |
|-----------|--------------|-------------|----------|-------------|----------------------|-----------------------------|-------------------|-------------|---------------|
| 17.500    | 13.375 J55   | 54.5        | 0        | 1191        |                      | 945                         |                   | 0           |               |
| 12.250    | 9.625 J55    | 40.0        | 0        | 5419        |                      | 1625                        |                   | 0           |               |
| 8.750     | 7.000 P110   | 29.0        | 0        | 12005       |                      | 1210                        |                   | 0           |               |
| 6.125     | 4.500 P110HC | 15.1        | 0        | 17554       |                      | 600                         |                   | 17554       |               |
|           |              |             |          |             |                      |                             |                   |             |               |
|           |              |             |          |             |                      |                             |                   |             |               |

## 24. Tubing Record

| Size | Depth Set (MD) | Packer Depth (MD) | Size | Depth Set (MD) | Packer Depth (MD) | Size | Depth Set (MD) | Packer Depth (MD) |
|------|----------------|-------------------|------|----------------|-------------------|------|----------------|-------------------|
|      |                |                   |      |                |                   |      |                |                   |

## 25. Producing Intervals

| Formation   | Top   | Bottom | Perforated Interval | Size  | No. Holes | Perf. Status |
|-------------|-------|--------|---------------------|-------|-----------|--------------|
| A) WOLFCAMP | 12957 | 17451  | 12616 TO 17540      | 0.360 | 624       | ACTIVE OPEN  |
| B)          |       |        |                     |       |           |              |
| C)          |       |        |                     |       |           |              |
| D)          |       |        |                     |       |           |              |

## 26. Perforation Record

| Depth Interval | Amount and Type of Material      |
|----------------|----------------------------------|
| 12957 TO 17451 | 11,251,242 LBS - 40/70; 100 MESH |
|                |                                  |
|                |                                  |
|                |                                  |

## 27. Acid, Fracture, Treatment, Cement Squeeze, Etc.

| Date First Produced | Test Date            | Hours Tested | Test Production | Oil BBL | Gas MCF | Water BBL | Oil Gravity Corr. API | Gas Gravity | Production Method   |
|---------------------|----------------------|--------------|-----------------|---------|---------|-----------|-----------------------|-------------|---------------------|
| 08/01/2019          | 08/10/2019           | 24           | →               | 997.0   | 1713.0  | 7803.0    |                       |             | FLOW FROM WELL      |
| Choke Size          | Tbg. Press. Flwg. SI | Csg. Press.  | 24 Hr. Rate     | Oil BBL | Gas MCF | Water BBL | Gas:Oil Ratio         | Well Status |                     |
| 40                  | SI                   | 1750.0       | →               |         |         |           |                       | PGW         | ACCEPTED FOR RECORD |

## 28a. Production - Interval B

| Date First Produced | Test Date            | Hours Tested | Test Production | Oil BBL | Gas MCF | Water BBL | Oil Gravity Corr. API | Gas Gravity | Production Method                                 |
|---------------------|----------------------|--------------|-----------------|---------|---------|-----------|-----------------------|-------------|---------------------------------------------------|
|                     |                      |              | →               |         |         |           |                       |             | DEC 03 2019                                       |
| Choke Size          | Tbg. Press. Flwg. SI | Csg. Press.  | 24 Hr. Rate     | Oil BBL | Gas MCF | Water BBL | Gas:Oil Ratio         | Well Status |                                                   |
|                     | SI                   |              | →               |         |         |           |                       |             | BUREAU OF LAND MANAGEMENT<br>ROSWELL FIELD OFFICE |

(See Instructions and spaces for additional data on reverse side)

ELECTRONIC SUBMISSION #482754 VERIFIED BY THE BLM WELL INFORMATION SYSTEM

\*\* OPERATOR-SUBMITTED \*\* OPERATOR-SUBMITTED \*\* OPERATOR-SUBMITTED \*\*

Reclamation due: 02/01/2020

## 28b. Production - Interval C

| Date First Produced | Test Date                  | Hours Tested | Test Production<br>→ | Oil BBL | Gas MCF | Water BBL | Oil Gravity<br>Corr. API | Gas Gravity | Production Method |
|---------------------|----------------------------|--------------|----------------------|---------|---------|-----------|--------------------------|-------------|-------------------|
| Choke Size          | Tbg. Press.<br>Flwg.<br>SI | Csg. Press.  | 24 Hr. Rate<br>→     | Oil BBL | Gas MCF | Water BBL | Gas:Oil Ratio            | Well Status |                   |

## 28c. Production - Interval D

| Date First Produced | Test Date                  | Hours Tested | Test Production<br>→ | Oil BBL | Gas MCF | Water BBL | Oil Gravity<br>Corr. API | Gas Gravity | Production Method |
|---------------------|----------------------------|--------------|----------------------|---------|---------|-----------|--------------------------|-------------|-------------------|
| Choke Size          | Tbg. Press.<br>Flwg.<br>SI | Csg. Press.  | 24 Hr. Rate<br>→     | Oil BBL | Gas MCF | Water BBL | Gas:Oil Ratio            | Well Status |                   |

29. Disposition of Gas(Sold, used for fuel, vented, etc.)  
SOLD

## 30. Summary of Porous Zones (Include Aquifers):

Show all important zones of porosity and contents thereof: Cored intervals and all drill-stem tests, including depth interval tested, cushion used, time tool open, flowing and shut-in pressures and recoveries.

## 31. Formation (Log) Markers

| Formation     | Top  | Bottom | Descriptions, Contents, etc. | Name          | Top<br>Meas. Depth |
|---------------|------|--------|------------------------------|---------------|--------------------|
| SALADO        | 1497 | 3534   | BRINE                        | SALADO        | 1497               |
| CASTILE       | 3534 | 5091   | BRINE                        | CASTILE       | 3534               |
| BASE SALT     | 5091 | 5350   | BRINE                        | BASE SALT     | 5091               |
| LAMAR         | 5350 | 5384   | OIL, GAS, AND WATER          | LAMAR         | 5350               |
| BELL CANYON   | 5384 | 6720   | OIL, GAS, AND WATER          | BELL CANYON   | 5384               |
| CHERRY CANYON | 6720 | 7861   | OIL, GAS, AND WATER          | CHERRY CANYON | 6720               |
| BRUSHY CANYON | 7861 | 9307   | OIL, GAS, AND WATER          | BRUSHY CANYON | 7861               |
| BONE SPRING   | 9307 | 12493  | OIL, GAS, AND WATER          | BONE SPRING   | 9307               |

32. Additional remarks (include plugging procedure):  
Porous Zones continued:

Wolfcamp; 12493' - 13186'; Oil, Gas, and Water

Formation (Log) Markers continued:  
Wolfcamp; 12493 MD

## 33. Circle enclosed attachments:

- |                                                       |                    |               |                       |
|-------------------------------------------------------|--------------------|---------------|-----------------------|
| 1. Electrical/Mechanical Logs (1 full set req'd.)     | 2. Geologic Report | 3. DST Report | 4. Directional Survey |
| 5. Sundry Notice for plugging and cement verification | 6. Core Analysis   | 7. Other:     |                       |

34. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records (see attached instructions):

Electronic Submission #482754 Verified by the BLM Well Information System.  
For MARATHON OIL PERMIAN LLC, sent to the Hobbs  
Committed to AFMSS for processing by JENNIFER SANCHEZ on 11/18/2019 ()

Name (please print) ADRIAN COVARRUBIAS

Title CTR - TECHNICIAN HES

Signature \_\_\_\_\_ (Electronic Submission)

Date 09/10/2019

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

**\*\* ORIGINAL \*\* ORIGINAL \*\* ORIGINAL \*\* ORIGINAL \*\* ORIGINAL \*\* ORIGINAL \*\* ORIGINAL \*\***

District I  
1625 N. French Dr., Hobbs, NM 88240  
Phone: (575) 393-6161 Fax: (575) 393-0720  
District II  
811 S. First St., Artesia, NM 88210  
Phone: (575) 748-1283 Fax: (575) 748-9720  
District III  
1000 Rio Brazos Road, Aztec, NM 87410  
Phone: (505) 334-6178 Fax: (505) 334-6170  
District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505  
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico  
Energy, Minerals & Natural Resources Department  
OIL CONSERVATION DIVISION  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Form C-102  
Revised August 1, 2011  
Submit one copy to appropriate  
District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

|                                         |                                                        |                                                   |
|-----------------------------------------|--------------------------------------------------------|---------------------------------------------------|
| <sup>1</sup> API Number<br>30-025-45421 | <sup>2</sup> Pool Code<br>72860                        | <sup>3</sup> Pool Name<br>BRADLEY; WOLFCAMP (GAS) |
| <sup>4</sup> Property Code              | <sup>5</sup> Property Name<br>CAVE LION 5 WC FEDERAL   | <sup>6</sup> Well Number<br>2H                    |
| <sup>7</sup> OGRID No.<br>372098        | <sup>8</sup> Operator Name<br>MARATHON OIL PERMIAN LLC | <sup>9</sup> Elevation<br>3263'                   |

<sup>10</sup> Surface Location

| UL or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|---------------|---------|----------|-------|---------|---------------|------------------|---------------|----------------|--------|
| N             | 5       | T26S     | R35E  |         | 287           | SOUTH            | 1811          | WEST           | LEA    |

<sup>11</sup> Bottom Hole Location If Different From Surface

| UL or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|---------------|---------|----------|-------|---------|---------------|------------------|---------------|----------------|--------|
| D             | 5       | T26S     | R35E  |         | 617           | NORTH            | 1317          | WEST           | LEA    |

|                                         |                               |                                  |                         |
|-----------------------------------------|-------------------------------|----------------------------------|-------------------------|
| <sup>12</sup> Dedicated Acres<br>320.00 | <sup>13</sup> Joint or Infill | <sup>14</sup> Consolidation Code | <sup>15</sup> Order No. |
|-----------------------------------------|-------------------------------|----------------------------------|-------------------------|

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.

|                                                                                                                                                                                                                                                                                                                                                                               |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><sup>16</sup></p>                                                                                                                                                                                                                                                                                                                                                          |  | <p><b><sup>17</sup> OPERATOR CERTIFICATION</b></p> <p>I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.</p> <p>Signature: <i>Adrian Covarrubias</i> Date: 9/10/2019</p> <p>Printed Name: Adrian Covarrubias</p> <p>E-mail Address:</p> |
| <p><b><sup>18</sup> SURVEYOR CERTIFICATION</b></p> <p>I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.</p> <p>Date of Survey:</p> <p>Signature and Seal of Professional Surveyor:</p> <p>Certificate Number:</p> |  | <p><b>PRELIMINARY</b></p> <p>THIS DOCUMENT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING, RECORDATION, CONVEYANCE, SALE OR THE BASIS FOR THE ISSUANCE OF A PERMIT.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

DISTANCES/AREAS RELATIVE TO NAD83 COMBINED SCALE FACTOR: 1.000006454  
CONVERGENCE: 0.4997137472; NOTE: ALL DIMENSIONS IN U.S. FEET

SHEET 1 OF 1  
JOB No. R3767\_004

District I  
1625 N French Dr., Hobbs, NM 88240  
District II  
811 S First St., Artesia, NM 88210  
District III  
1000 Rio Brazos Rd., Aztec, NM 87410  
District IV  
1220 S St Francis Dr., Santa Fe, NM 87505

State of New Mexico  
Energy, Minerals & Natural Resources

Form C-104  
Revised August 1, 2011

Oil Conservation Division  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

Submit one copy to appropriate District Office

☐ AMENDED REPORT

**I. REQUEST FOR ALLOWABLE AND AUTHORIZATION TO TRANSPORT**

|                                                                                                              |                                                      |                                                           |
|--------------------------------------------------------------------------------------------------------------|------------------------------------------------------|-----------------------------------------------------------|
| <sup>1</sup> Operator name and Address<br>Marathon Oil Permian LLC<br>5555 San Felipe St., Houston, TX 77056 |                                                      | <sup>2</sup> OGRID Number<br>372098                       |
|                                                                                                              |                                                      | <sup>3</sup> Reason for Filing Code/ Effective Date<br>NW |
| <sup>4</sup> API Number<br>30 - 025-45421                                                                    | <sup>5</sup> Pool Name<br>BRADLEY; WOFLCAMP (GAS)    | <sup>6</sup> Pool Code<br>72860                           |
| <sup>7</sup> Property Code<br>319729                                                                         | <sup>8</sup> Property Name<br>CAVE LION 5 WC FEDERAL | <sup>9</sup> Well Number<br>2H                            |

**II. <sup>10</sup> Surface Location**

| UL or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South Line | Feet from the | East/West line | County |
|---------------|---------|----------|-------|---------|---------------|------------------|---------------|----------------|--------|
| N             | 5       | 26S      | 35E   |         | 287           | SOUTH            | 1811          | WEST           | LEA    |

**<sup>11</sup> Bottom Hole Location**

| UL or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|---------------|---------|----------|-------|---------|---------------|------------------|---------------|----------------|--------|
| D             | 5       | 26S      | 35E   |         | 617           | NORTH            | 1317          | WEST           | LEA    |

|                             |                                     |                                   |                                   |                                    |                                     |
|-----------------------------|-------------------------------------|-----------------------------------|-----------------------------------|------------------------------------|-------------------------------------|
| <sup>12</sup> Lse Code<br>F | <sup>13</sup> Producing Method Code | <sup>14</sup> Gas Connection Date | <sup>15</sup> C-129 Permit Number | <sup>16</sup> C-129 Effective Date | <sup>17</sup> C-129 Expiration Date |
|-----------------------------|-------------------------------------|-----------------------------------|-----------------------------------|------------------------------------|-------------------------------------|

**III. Oil and Gas Transporters**

| <sup>18</sup> Transporter OGRID | <sup>19</sup> Transporter Name and Address | <sup>20</sup> O/G/W |
|---------------------------------|--------------------------------------------|---------------------|
|                                 | ORYX GATHERING - CARLSBAD                  | O                   |
|                                 |                                            |                     |
|                                 | LUCID ENERGY                               | G                   |
|                                 |                                            |                     |
|                                 |                                            |                     |
|                                 |                                            |                     |
|                                 |                                            |                     |

**IV. Well Completion Data**

|                                     |                                      |                                    |                            |                                               |                       |
|-------------------------------------|--------------------------------------|------------------------------------|----------------------------|-----------------------------------------------|-----------------------|
| <sup>21</sup> Spud Date<br>3/3/2019 | <sup>22</sup> Ready Date<br>8/1/2019 | <sup>23</sup> TD<br>17593' /13209' | <sup>24</sup> PBTB         | <sup>25</sup> Perforations<br>12957' - 17451' | <sup>26</sup> DHC, MC |
| <sup>27</sup> Hole Size             | <sup>28</sup> Casing & Tubing Size   | <sup>29</sup> Depth Set            | <sup>30</sup> Sacks Cement |                                               |                       |
| 17 1/2"                             | 13 3/8"                              | 1191'                              | 945                        |                                               |                       |
| 12 1/4"                             | 9 5/8"                               | 5419'                              | 1625                       |                                               |                       |
| 8 3/4"                              | 7"                                   | 12005'                             | 1210                       |                                               |                       |
| 6 1/8"                              | 5 1/2 - 4 1/2                        | 17554'                             | 600                        |                                               |                       |

**V. Well Test Data**

|                                        |                                 |                                      |                                     |                                  |                                      |
|----------------------------------------|---------------------------------|--------------------------------------|-------------------------------------|----------------------------------|--------------------------------------|
| <sup>31</sup> Date New Oil<br>8/1/2109 | <sup>32</sup> Gas Delivery Date | <sup>33</sup> Test Date<br>8/10/2019 | <sup>34</sup> Test Length<br>24 hrs | <sup>35</sup> Tbg. Pressure<br>0 | <sup>36</sup> Csg. Pressure<br>1750  |
| <sup>37</sup> Choke Size<br>40         | <sup>38</sup> Oil<br>997        | <sup>39</sup> Water<br>7803          | <sup>40</sup> Gas<br>1713           |                                  | <sup>41</sup> Test Method<br>Flowing |

<sup>42</sup> I hereby certify that the rules of the Oil Conservation Division have been complied with and that the information given above is true and complete to the best of my knowledge and belief.

Signature:

*Adrian Covarrubias*

Printed name: Adrian Covarrubias

Title: CTR - Technician HES

E-mail Address: acovarrubias@marathonoil.com

Date: 9/9/2019

Phone: 713-296-3368

OIL CONSERVATION DIVISION

Approved by:

Title:

Approval Date:



MARATHON

CAVE LION 5 WC FEDERAL #2H

MARATHON H&P 480

3/2/2019

Scientific Drilling

The  In Wellbore Placement

**SURVEY REPORT**

CAVE LION 5 WC FEDERAL #2H

COMPUTED SURVEY 2H

CUSTOMER MARATHON  
PROJECT CAVE LION 5 WC FEDERAL 2H  
FIELD WOLF CAMP

SDI JOB NO. OP.016918  
SDI DISTRICT Midland  
SDI KIT/UNIT KIT MUD PULSE

**SITE INFORMATION**

Site Name CAVE LION PAD  
Lat/Long 32° 3' 56.703" N, 103° 23' 30.513" W  
Northing 388,917.09 ft  
Easting 791,664.75 ft

Section  
Township  
Range

**MAP INFORMATION**

North Reference Grid North  
Grid Correction -0.50 deg  
System US State Plane 1927  
Datum North American Datum 1927 (Clarke 1866)  
Map Zone New Mexico East: 3001

**WELL INFORMATION**

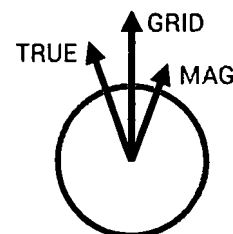
Lat/Long 32° 3' 56.7" N, 103° 23' 30.165" W  
Northing 388,917.06 ft  
Easting 791,664.71 ft  
UWI 3002545421

**DEPTH AND ELEVATION REFERENCE**

Ground Level 3263 ft above Mean Sea Level  
Reference Datum KB  
Reference Height 26.5 ft above G.L.  
Reference Elevation 3289.5 ft

**VERTICAL SECTION REFERENCE**

+N/-S 0 ft  
+E/-W 0 ft  
Proposal Direction 359.41°  
Calculation Method Minimum Curvature

**GEOMAGNETIC REFERENCE INFORMATION**

Local Gravity: 998.501 mG [computed]

| MD           | MODEL | DATE | DECLINATION | TRUE TO GRID  | MAG TO GRID |
|--------------|-------|------|-------------|---------------|-------------|
| 147-17511 ft |       |      | 6.60°       | subtract 0.5° | add 6.1°    |

**WELL NOTES****OPERATORS**

A. Houze, CHRIS LI, J. Morales, J. MILTON, JOHN MELTON,  
JOHN.MELTON, JOSE MORALES

SDI Operator Name (Printed)

SIGNATURE

DATE

| MD      | INC   | AZIM   | TVD     | VS     | +N/-S  | +E/-W   | DLS     | CLOSURE<br>DIST | CLOSURE<br>DIR |
|---------|-------|--------|---------|--------|--------|---------|---------|-----------------|----------------|
| ft      | deg   | deg    | ft      | ft     | ft     | ft      | "/100ft | ft              | deg            |
| 0.00    | 0.00  | 0.00   | 0.00    | 0.00   | 0.00   | 0.00    | Invalid | 0.00            | 0.00           |
| 183.00  | 0.14  | 106.84 | 183.00  | -0.07  | -0.06  | 0.21    | 0.08    | 0.22            | 106.84         |
| 244.00  | 0.17  | 61.75  | 244.00  | -0.05  | -0.04  | 0.36    | 0.20    | 0.36            | 96.80          |
| 335.00  | 0.09  | 9.90   | 335.00  | 0.09   | 0.09   | 0.49    | 0.15    | 0.50            | 79.12          |
| 518.00  | 0.09  | 308.92 | 518.00  | 0.33   | 0.34   | 0.40    | 0.05    | 0.52            | 49.66          |
| 608.00  | 0.31  | 39.79  | 608.00  | 0.57   | 0.57   | 0.50    | 0.36    | 0.76            | 40.94          |
| 700.00  | 0.47  | 352.59 | 700.00  | 1.13   | 1.14   | 0.61    | 0.37    | 1.29            | 28.08          |
| 792.00  | 0.31  | 326.24 | 791.99  | 1.71   | 1.72   | 0.42    | 0.26    | 1.77            | 13.74          |
| 884.00  | 0.36  | 324.13 | 883.99  | 2.16   | 2.16   | 0.11    | 0.06    | 2.16            | 2.97           |
| 974.00  | 0.47  | 329.40 | 973.99  | 2.71   | 2.70   | -0.24   | 0.13    | 2.72            | 354.89         |
| 1065.00 | 0.94  | 309.18 | 1064.98 | 3.51   | 3.50   | -1.01   | 0.58    | 3.64            | 343.89         |
| 1129.00 | 0.95  | 314.06 | 1128.98 | 4.22   | 4.20   | -1.80   | 0.13    | 4.57            | 336.80         |
| 1248.00 | 0.97  | 302.08 | 1247.96 | 5.46   | 5.42   | -3.36   | 0.17    | 6.38            | 328.19         |
| 1342.00 | 1.19  | 297.67 | 1341.94 | 6.34   | 6.29   | -4.90   | 0.25    | 7.98            | 322.12         |
| 1436.00 | 0.85  | 290.21 | 1435.93 | 7.05   | 6.99   | -6.42   | 0.38    | 9.49            | 317.44         |
| 1530.00 | 0.86  | 295.31 | 1529.92 | 7.61   | 7.53   | -7.71   | 0.08    | 10.78           | 314.33         |
| 1625.00 | 0.82  | 303.73 | 1624.91 | 8.30   | 8.21   | -8.92   | 0.13    | 12.12           | 312.64         |
| 1719.00 | 1.40  | 244.17 | 1718.89 | 8.19   | 8.09   | -10.52  | 1.29    | 13.27           | 307.56         |
| 1813.00 | 3.17  | 235.94 | 1812.81 | 6.27   | 6.13   | -13.71  | 1.91    | 15.02           | 294.09         |
| 1908.00 | 5.22  | 232.00 | 1907.55 | 2.19   | 2.00   | -19.29  | 2.18    | 19.40           | 275.91         |
| 2002.00 | 6.67  | 236.62 | 2001.04 | -3.36  | -3.64  | -27.22  | 1.62    | 27.47           | 262.38         |
| 2096.00 | 7.77  | 240.47 | 2094.30 | -9.39  | -9.78  | -37.31  | 1.28    | 38.57           | 255.32         |
| 2191.00 | 8.39  | 243.23 | 2188.36 | -15.56 | -16.06 | -49.08  | 0.77    | 51.64           | 251.88         |
| 2285.00 | 8.91  | 245.50 | 2281.29 | -21.53 | -22.17 | -61.83  | 0.67    | 65.68           | 250.27         |
| 2379.00 | 10.27 | 244.99 | 2373.97 | -27.94 | -28.73 | -76.04  | 1.45    | 81.29           | 249.30         |
| 2474.00 | 9.85  | 243.06 | 2467.51 | -35.05 | -35.99 | -90.96  | 0.56    | 97.82           | 248.41         |
| 2568.00 | 9.49  | 244.58 | 2560.18 | -41.88 | -42.96 | -105.13 | 0.47    | 113.57          | 247.77         |
| 2663.00 | 9.32  | 245.36 | 2653.90 | -48.31 | -49.54 | -119.20 | 0.22    | 129.09          | 247.43         |
| 2757.00 | 9.02  | 246.59 | 2746.70 | -54.27 | -55.64 | -132.89 | 0.39    | 144.06          | 247.28         |
| 2851.00 | 8.88  | 248.90 | 2839.55 | -59.67 | -61.18 | -146.41 | 0.41    | 158.68          | 247.32         |
| 2946.00 | 9.50  | 253.25 | 2933.33 | -64.41 | -66.07 | -160.76 | 0.98    | 173.81          | 247.66         |
| 3040.00 | 9.07  | 251.53 | 3026.10 | -68.85 | -70.66 | -175.21 | 0.54    | 188.92          | 248.04         |

| MD      | INC   | AZIM   | TVD     | VS      | +N/-S   | +E/-W   | DLS    | CLOSURE<br>DIST | CLOSURE<br>DIR |
|---------|-------|--------|---------|---------|---------|---------|--------|-----------------|----------------|
| ft      | deg   | deg    | ft      | ft      | ft      | ft      | /100ft | ft              | deg            |
| 3134.00 | 9.12  | 251.33 | 3118.92 | -73.44  | -75.39  | -189.30 | 0.06   | 203.76          | 248.28         |
| 3229.00 | 8.34  | 251.07 | 3212.82 | -77.94  | -80.03  | -202.94 | 0.82   | 218.15          | 248.48         |
| 3323.00 | 8.47  | 252.15 | 3305.81 | -82.14  | -84.36  | -215.98 | 0.22   | 231.87          | 248.66         |
| 3418.00 | 9.04  | 255.38 | 3399.70 | -86.02  | -88.39  | -229.86 | 0.79   | 246.27          | 248.97         |
| 3512.00 | 8.12  | 253.12 | 3492.65 | -89.67  | -92.18  | -243.35 | 1.04   | 260.23          | 249.25         |
| 3607.00 | 9.27  | 251.21 | 3586.56 | -93.95  | -96.60  | -257.02 | 1.25   | 274.57          | 249.40         |
| 3701.00 | 9.59  | 254.11 | 3679.29 | -98.38  | -101.18 | -271.72 | 0.61   | 289.95          | 249.58         |
| 3796.00 | 10.73 | 254.28 | 3772.80 | -102.78 | -105.75 | -287.85 | 1.19   | 306.66          | 249.83         |
| 3890.00 | 10.46 | 254.91 | 3865.19 | -107.20 | -110.34 | -304.50 | 0.31   | 323.88          | 250.08         |
| 3985.00 | 10.34 | 254.02 | 3958.63 | -111.62 | -114.93 | -321.02 | 0.21   | 340.98          | 250.30         |
| 4079.00 | 10.32 | 254.35 | 4051.11 | -116.04 | -119.52 | -337.24 | 0.06   | 357.79          | 250.49         |
| 4173.00 | 10.28 | 250.70 | 4143.60 | -120.92 | -124.57 | -353.27 | 0.69   | 374.58          | 250.58         |
| 4268.00 | 9.93  | 245.98 | 4237.12 | -126.90 | -130.70 | -368.75 | 0.95   | 391.23          | 250.48         |
| 4362.00 | 9.66  | 245.97 | 4329.75 | -133.26 | -137.21 | -383.36 | 0.29   | 407.17          | 250.31         |
| 4457.00 | 9.34  | 247.81 | 4423.45 | -139.27 | -143.37 | -397.77 | 0.46   | 422.82          | 250.18         |
| 4551.00 | 8.76  | 247.04 | 4516.28 | -144.80 | -149.04 | -411.43 | 0.63   | 437.59          | 250.09         |
| 4645.00 | 7.79  | 245.85 | 4609.30 | -150.07 | -154.44 | -423.83 | 1.05   | 451.09          | 249.98         |
| 4740.00 | 7.19  | 243.55 | 4703.49 | -155.24 | -159.72 | -435.03 | 0.70   | 463.43          | 249.84         |
| 4834.00 | 6.78  | 239.89 | 4796.79 | -160.54 | -165.13 | -445.10 | 0.65   | 474.75          | 249.65         |
| 4929.00 | 6.23  | 240.22 | 4891.18 | -165.81 | -170.50 | -454.42 | 0.58   | 485.36          | 249.43         |
| 5023.00 | 4.79  | 235.69 | 4984.74 | -170.48 | -175.24 | -462.09 | 1.60   | 494.20          | 249.23         |
| 5118.00 | 2.92  | 242.50 | 5079.53 | -173.77 | -178.60 | -467.51 | 2.02   | 500.47          | 249.09         |
| 5212.00 | 1.55  | 275.13 | 5173.46 | -174.73 | -179.59 | -470.91 | 1.94   | 503.99          | 249.12         |
| 5307.00 | 1.46  | 291.54 | 5268.42 | -174.15 | -179.03 | -473.31 | 0.46   | 506.04          | 249.28         |
| 5364.00 | 1.43  | 281.08 | 5325.41 | -173.73 | -178.63 | -474.69 | 0.47   | 507.18          | 249.38         |
| 5490.00 | 1.30  | 265.15 | 5451.37 | -173.52 | -178.45 | -477.65 | 0.32   | 509.90          | 249.51         |
| 5585.00 | 1.27  | 269.44 | 5546.35 | -173.60 | -178.55 | -479.79 | 0.11   | 511.93          | 249.59         |
| 5679.00 | 1.33  | 264.47 | 5640.32 | -173.69 | -178.66 | -481.91 | 0.13   | 513.97          | 249.66         |
| 5773.00 | 1.53  | 266.64 | 5734.29 | -173.85 | -178.84 | -484.25 | 0.23   | 516.22          | 249.73         |
| 5868.00 | 1.44  | 270.01 | 5829.26 | -173.90 | -178.92 | -486.72 | 0.13   | 518.56          | 249.82         |
| 5963.00 | 1.46  | 269.54 | 5924.23 | -173.88 | -178.93 | -489.12 | 0.02   | 520.82          | 249.91         |
| 6057.00 | 1.46  | 275.64 | 6018.20 | -173.75 | -178.82 | -491.51 | 0.16   | 523.02          | 250.01         |



| MD      | INC  | AZIM   | TVD     | VS      | +N/-S   | +E/-W   | DLS     | CLOSURE<br>DIST | CLOSURE<br>DIR |
|---------|------|--------|---------|---------|---------|---------|---------|-----------------|----------------|
| ft      | deg  | deg    | ft      | ft      | ft      | ft      | %/100ft | ft              | deg            |
| 6151.00 | 0.88 | 232.89 | 6112.18 | -174.05 | -179.14 | -493.27 | 1.07    | 524.79          | 250.04         |
| 6246.00 | 1.05 | 205.93 | 6207.17 | -175.27 | -180.36 | -494.24 | 0.51    | 526.12          | 249.95         |
| 6340.00 | 1.00 | 200.45 | 6301.15 | -176.80 | -181.91 | -494.90 | 0.12    | 527.27          | 249.82         |
| 6435.00 | 0.87 | 202.84 | 6396.14 | -178.24 | -183.35 | -495.47 | 0.14    | 528.31          | 249.69         |
| 6529.00 | 0.83 | 208.13 | 6490.13 | -179.49 | -184.61 | -496.07 | 0.10    | 529.31          | 249.59         |
| 6623.00 | 0.76 | 212.21 | 6584.12 | -180.62 | -185.74 | -496.73 | 0.09    | 530.32          | 249.50         |
| 6718.00 | 0.75 | 217.58 | 6679.11 | -181.64 | -186.77 | -497.44 | 0.08    | 531.35          | 249.42         |
| 6812.00 | 0.78 | 216.59 | 6773.10 | -182.63 | -187.77 | -498.20 | 0.04    | 532.41          | 249.35         |
| 6907.00 | 0.77 | 215.66 | 6868.10 | -183.67 | -188.81 | -498.96 | 0.02    | 533.49          | 249.27         |
| 7001.00 | 0.85 | 149.83 | 6962.09 | -184.79 | -189.93 | -498.98 | 0.94    | 533.91          | 249.16         |
| 7096.00 | 1.14 | 137.78 | 7057.07 | -186.10 | -191.24 | -497.99 | 0.38    | 533.45          | 248.99         |
| 7190.00 | 1.31 | 136.24 | 7151.05 | -187.59 | -192.71 | -496.62 | 0.18    | 532.70          | 248.79         |
| 7284.00 | 0.97 | 117.82 | 7245.03 | -188.75 | -193.86 | -495.17 | 0.53    | 531.77          | 248.62         |
| 7379.00 | 0.69 | 62.10  | 7340.02 | -188.87 | -193.97 | -493.95 | 0.86    | 530.67          | 248.56         |
| 7473.00 | 0.74 | 76.62  | 7434.02 | -188.48 | -193.56 | -492.86 | 0.20    | 529.51          | 248.56         |
| 7567.00 | 0.57 | 66.06  | 7528.01 | -188.16 | -193.23 | -491.84 | 0.22    | 528.44          | 248.55         |
| 7662.00 | 0.53 | 74.91  | 7623.01 | -187.86 | -192.93 | -490.99 | 0.10    | 527.53          | 248.55         |
| 7756.00 | 0.32 | 74.00  | 7717.00 | -187.68 | -192.74 | -490.32 | 0.23    | 526.84          | 248.54         |
| 7851.00 | 0.35 | 66.90  | 7812.00 | -187.50 | -192.55 | -489.80 | 0.06    | 526.29          | 248.54         |
| 7945.00 | 0.30 | 83.36  | 7906.00 | -187.36 | -192.41 | -489.29 | 0.11    | 525.76          | 248.53         |
| 8039.00 | 0.49 | 61.21  | 8000.00 | -187.15 | -192.19 | -488.69 | 0.25    | 525.13          | 248.53         |
| 8134.00 | 0.39 | 87.12  | 8095.00 | -186.95 | -191.98 | -488.01 | 0.23    | 524.42          | 248.53         |
| 8228.00 | 0.30 | 65.41  | 8188.99 | -186.83 | -191.86 | -487.47 | 0.17    | 523.87          | 248.52         |
| 8323.00 | 0.08 | 103.23 | 8283.99 | -186.74 | -191.77 | -487.18 | 0.26    | 523.56          | 248.51         |
| 8417.00 | 0.18 | 322.03 | 8377.99 | -186.64 | -191.67 | -487.21 | 0.26    | 523.55          | 248.53         |
| 8512.00 | 0.34 | 310.44 | 8472.99 | -186.34 | -191.37 | -487.51 | 0.17    | 523.73          | 248.57         |
| 8606.00 | 0.57 | 323.30 | 8566.99 | -185.78 | -190.81 | -488.00 | 0.27    | 523.98          | 248.64         |
| 8701.00 | 0.81 | 322.27 | 8661.98 | -184.86 | -189.91 | -488.70 | 0.25    | 524.30          | 248.76         |
| 8795.00 | 0.70 | 321.81 | 8755.98 | -183.88 | -188.93 | -489.46 | 0.11    | 524.65          | 248.89         |
| 8890.00 | 0.77 | 319.99 | 8850.97 | -182.93 | -187.98 | -490.23 | 0.08    | 525.03          | 249.02         |
| 8984.00 | 0.64 | 318.65 | 8944.96 | -182.03 | -187.10 | -490.98 | 0.14    | 525.43          | 249.14         |
| 9078.00 | 0.64 | 317.82 | 9038.95 | -181.24 | -186.31 | -491.69 | 0.01    | 525.80          | 249.25         |

| MD       | INC  | AZIM   | TVD      | VS      | +N/-S   | +E/-W   | DLS     | CLOSURE<br>DIST | CLOSURE<br>DIR |
|----------|------|--------|----------|---------|---------|---------|---------|-----------------|----------------|
| ft       | deg  | deg    | ft       | ft      | ft      | ft      | %/100ft | ft              | deg            |
| 9173.00  | 0.67 | 303.23 | 9133.95  | -180.53 | -185.62 | -492.51 | 0.18    | 526.33          | 249.35         |
| 9267.00  | 0.87 | 278.89 | 9227.94  | -180.11 | -185.20 | -493.68 | 0.41    | 527.27          | 249.44         |
| 9361.00  | 1.01 | 279.75 | 9321.93  | -179.84 | -184.95 | -495.20 | 0.14    | 528.61          | 249.52         |
| 9456.00  | 1.51 | 270.15 | 9416.90  | -179.68 | -184.81 | -497.28 | 0.57    | 530.51          | 249.61         |
| 9550.00  | 1.79 | 269.67 | 9510.86  | -179.65 | -184.81 | -499.98 | 0.29    | 533.05          | 249.71         |
| 9644.00  | 1.86 | 275.43 | 9604.82  | -179.49 | -184.68 | -502.97 | 0.21    | 535.80          | 249.84         |
| 9738.00  | 2.39 | 282.51 | 9698.75  | -178.88 | -184.11 | -506.40 | 0.62    | 538.83          | 250.02         |
| 9833.00  | 2.68 | 287.11 | 9793.66  | -177.76 | -183.03 | -510.46 | 0.38    | 542.28          | 250.27         |
| 9927.00  | 2.56 | 280.42 | 9887.56  | -176.69 | -182.00 | -514.63 | 0.35    | 545.86          | 250.52         |
| 10022.00 | 3.01 | 273.90 | 9982.45  | -176.09 | -181.44 | -519.20 | 0.58    | 550.00          | 250.74         |
| 10116.00 | 2.90 | 269.20 | 10076.32 | -175.90 | -181.31 | -524.05 | 0.28    | 554.52          | 250.92         |
| 10210.00 | 3.31 | 259.94 | 10170.19 | -176.36 | -181.82 | -529.10 | 0.69    | 559.47          | 251.04         |
| 10304.00 | 3.88 | 231.25 | 10264.01 | -178.77 | -184.28 | -534.25 | 1.98    | 565.14          | 250.97         |
| 10399.00 | 4.99 | 231.02 | 10358.72 | -183.33 | -188.90 | -539.97 | 1.16    | 572.06          | 250.72         |
| 10493.00 | 3.80 | 231.13 | 10452.44 | -187.79 | -193.42 | -545.57 | 1.27    | 578.85          | 250.48         |
| 10588.00 | 2.75 | 244.55 | 10547.29 | -190.70 | -196.37 | -550.08 | 1.36    | 584.08          | 250.35         |
| 10682.00 | 1.57 | 284.80 | 10641.23 | -191.31 | -197.02 | -553.36 | 1.97    | 587.39          | 250.40         |
| 10777.00 | 1.28 | 311.93 | 10736.20 | -190.24 | -195.97 | -555.41 | 0.76    | 588.97          | 250.56         |
| 10871.00 | 1.64 | 345.48 | 10830.17 | -188.22 | -193.96 | -556.53 | 0.97    | 589.36          | 250.79         |
| 10966.00 | 1.49 | 345.05 | 10925.13 | -185.71 | -191.45 | -557.19 | 0.16    | 589.17          | 251.04         |
| 11060.00 | 2.28 | 24.33  | 11019.08 | -182.83 | -188.57 | -556.73 | 1.56    | 587.80          | 251.29         |
| 11155.00 | 2.55 | 29.94  | 11114.00 | -179.29 | -185.01 | -554.90 | 0.38    | 584.93          | 251.56         |
| 11249.00 | 2.23 | 26.52  | 11207.92 | -175.86 | -181.56 | -553.04 | 0.38    | 582.08          | 251.83         |
| 11343.00 | 3.12 | 59.46  | 11301.82 | -172.95 | -178.62 | -550.02 | 1.85    | 578.29          | 252.01         |
| 11437.00 | 4.62 | 77.73  | 11395.61 | -170.91 | -176.52 | -544.11 | 2.04    | 572.03          | 252.03         |
| 11532.00 | 5.64 | 93.72  | 11490.23 | -170.48 | -176.01 | -535.71 | 1.84    | 563.89          | 251.81         |
| 11626.00 | 2.92 | 129.42 | 11583.97 | -172.37 | -177.83 | -529.25 | 3.92    | 558.33          | 251.43         |
| 11721.00 | 2.66 | 130.73 | 11678.86 | -175.38 | -180.81 | -525.71 | 0.29    | 555.93          | 251.02         |
| 11815.00 | 1.92 | 132.82 | 11772.78 | -177.90 | -183.30 | -522.90 | 0.79    | 554.10          | 250.68         |
| 11909.00 | 1.30 | 136.96 | 11866.75 | -179.77 | -185.15 | -521.02 | 0.68    | 552.94          | 250.44         |
| 11949.00 | 1.17 | 144.61 | 11906.74 | -180.44 | -185.81 | -520.48 | 0.52    | 552.65          | 250.35         |
| 12109.00 | 1.94 | 162.07 | 12066.68 | -184.37 | -189.72 | -518.70 | 0.56    | 552.31          | 249.91         |

| MD       | INC   | AZIM   | TVD      | VS      | +N/-S   | +E/-W   | DLS     | CLOSURE<br>DIST | CLOSURE<br>DIR |
|----------|-------|--------|----------|---------|---------|---------|---------|-----------------|----------------|
| ft       | deg   | deg    | ft       | ft      | ft      | ft      | "/100ft | ft              | deg            |
| 12204.00 | 1.61  | 102.94 | 12161.64 | -186.22 | -191.55 | -516.91 | 1.87    | 551.26          | 249.67         |
| 12299.00 | 2.74  | 118.33 | 12256.57 | -187.63 | -192.93 | -513.61 | 1.33    | 548.65          | 249.41         |
| 12393.00 | 1.52  | 149.49 | 12350.51 | -189.79 | -195.07 | -511.00 | 1.75    | 546.96          | 249.11         |
| 12487.00 | 1.33  | 163.69 | 12444.48 | -191.92 | -197.18 | -510.06 | 0.43    | 546.85          | 248.86         |
| 12582.00 | 1.14  | 154.99 | 12539.46 | -193.84 | -199.09 | -509.35 | 0.28    | 546.88          | 248.65         |
| 12654.00 | 1.01  | 149.15 | 12611.44 | -195.04 | -200.29 | -508.72 | 0.23    | 546.73          | 248.51         |
| 12698.00 | 1.02  | 146.60 | 12655.44 | -195.70 | -200.95 | -508.31 | 0.10    | 546.59          | 248.43         |
| 12792.00 | 10.10 | 358.39 | 12748.99 | -188.14 | -193.38 | -508.08 | 11.68   | 543.64          | 249.16         |
| 12887.00 | 21.58 | 358.21 | 12840.23 | -162.26 | -167.51 | -508.86 | 12.08   | 535.72          | 251.78         |
| 12981.00 | 27.46 | 355.83 | 12925.72 | -123.31 | -128.58 | -510.98 | 6.34    | 526.91          | 255.88         |
| 13075.00 | 37.60 | 0.40   | 13004.88 | -72.88  | -78.16  | -512.36 | 11.09   | 518.29          | 261.33         |
| 13169.00 | 49.45 | 0.59   | 13072.92 | -8.27   | -13.54  | -511.79 | 12.61   | 511.97          | 268.48         |
| 13264.00 | 58.24 | 1.85   | 13128.91 | 68.32   | 63.07   | -510.11 | 9.32    | 514.00          | 277.05         |
| 13358.00 | 71.68 | 357.93 | 13168.61 | 153.27  | 148.02  | -510.43 | 14.78   | 531.46          | 286.17         |
| 13452.00 | 78.81 | 356.50 | 13192.54 | 244.04  | 238.75  | -514.86 | 7.72    | 567.52          | 294.88         |
| 13547.00 | 86.38 | 358.19 | 13204.78 | 338.11  | 332.78  | -519.21 | 8.16    | 616.70          | 302.66         |
| 13642.00 | 88.99 | 359.64 | 13208.62 | 433.02  | 427.68  | -521.01 | 3.15    | 674.06          | 309.38         |
| 13736.00 | 91.44 | 1.92   | 13208.26 | 526.98  | 521.66  | -519.72 | 3.56    | 736.37          | 315.11         |
| 13831.00 | 90.50 | 2.20   | 13206.65 | 621.86  | 616.58  | -516.30 | 1.03    | 804.20          | 320.06         |
| 13925.00 | 90.17 | 1.85   | 13206.10 | 715.76  | 710.52  | -512.98 | 0.51    | 876.35          | 324.17         |
| 14020.00 | 91.91 | 3.01   | 13204.37 | 810.61  | 805.41  | -508.95 | 2.21    | 952.75          | 327.71         |
| 14115.00 | 90.10 | 358.32 | 13202.70 | 905.54  | 900.36  | -507.85 | 5.29    | 1033.71         | 330.57         |
| 14209.00 | 90.97 | 359.15 | 13201.82 | 999.53  | 994.33  | -509.92 | 1.28    | 1117.46         | 332.85         |
| 14303.00 | 89.40 | 357.50 | 13201.52 | 1093.51 | 1088.29 | -512.67 | 2.43    | 1202.99         | 334.78         |
| 14397.00 | 89.33 | 357.18 | 13202.57 | 1187.44 | 1182.18 | -517.03 | 0.34    | 1290.30         | 336.38         |
| 14492.00 | 91.41 | 359.61 | 13201.95 | 1282.41 | 1277.13 | -519.69 | 3.36    | 1378.81         | 337.86         |
| 14587.00 | 89.26 | 359.22 | 13201.40 | 1377.40 | 1372.11 | -520.66 | 2.30    | 1467.58         | 339.22         |
| 14681.00 | 91.48 | 359.31 | 13200.79 | 1471.39 | 1466.10 | -521.87 | 2.36    | 1556.21         | 340.41         |
| 14775.00 | 92.28 | 359.31 | 13197.71 | 1565.34 | 1560.04 | -523.00 | 0.86    | 1645.38         | 341.47         |
| 14870.00 | 92.21 | 359.25 | 13193.98 | 1660.27 | 1654.96 | -524.20 | 0.10    | 1735.99         | 342.42         |
| 14964.00 | 88.12 | 0.19   | 13193.70 | 1754.25 | 1748.94 | -524.66 | 4.47    | 1825.94         | 343.30         |
| 15058.00 | 91.07 | 359.91 | 13194.36 | 1848.23 | 1842.92 | -524.58 | 3.15    | 1916.13         | 344.11         |

| MD       | INC   | AZIM   | TVD      | VS      | +N/-S   | +E/-W   | DLS     | CLOSURE<br>DIST | CLOSURE<br>DIR |
|----------|-------|--------|----------|---------|---------|---------|---------|-----------------|----------------|
| ft       | deg   | deg    | ft       | ft      | ft      | ft      | "/100ft | ft              | deg            |
| 15153.00 | 89.33 | 358.54 | 13194.03 | 1943.22 | 1937.91 | -525.86 | 2.33    | 2007.99         | 344.82         |
| 15247.00 | 86.31 | 357.87 | 13197.61 | 2037.12 | 2031.78 | -528.80 | 3.29    | 2099.47         | 345.41         |
| 15342.00 | 89.93 | 359.58 | 13200.72 | 2132.04 | 2126.69 | -530.91 | 4.22    | 2191.96         | 345.98         |
| 15437.00 | 90.37 | 359.26 | 13200.47 | 2227.04 | 2221.68 | -531.86 | 0.57    | 2284.46         | 346.54         |
| 15531.00 | 86.74 | 359.92 | 13202.84 | 2321.00 | 2315.64 | -532.53 | 3.92    | 2376.08         | 347.05         |
| 15626.00 | 89.70 | 0.87   | 13205.79 | 2415.93 | 2410.58 | -531.88 | 3.27    | 2468.56         | 347.56         |
| 15720.00 | 92.55 | 1.77   | 13203.95 | 2509.84 | 2504.52 | -529.71 | 3.18    | 2559.93         | 348.06         |
| 15815.00 | 92.48 | 2.01   | 13199.78 | 2604.66 | 2599.38 | -526.58 | 0.26    | 2652.18         | 348.55         |
| 15909.00 | 90.84 | 1.03   | 13197.06 | 2698.56 | 2693.30 | -524.09 | 2.04    | 2743.82         | 348.99         |
| 16003.00 | 91.38 | 1.52   | 13195.24 | 2792.49 | 2787.26 | -522.00 | 0.77    | 2835.72         | 349.39         |
| 16097.00 | 88.69 | 0.61   | 13195.19 | 2886.44 | 2881.24 | -520.25 | 3.01    | 2927.83         | 349.76         |
| 16191.00 | 88.26 | 359.18 | 13197.69 | 2980.40 | 2975.20 | -520.41 | 1.59    | 3020.37         | 350.08         |
| 16285.00 | 90.07 | 0.50   | 13199.07 | 3074.38 | 3069.18 | -520.67 | 2.38    | 3113.03         | 350.37         |
| 16380.00 | 90.30 | 359.45 | 13198.76 | 3169.37 | 3164.18 | -520.72 | 1.13    | 3206.74         | 350.65         |
| 16475.00 | 91.98 | 359.26 | 13196.87 | 3264.35 | 3259.15 | -521.79 | 1.78    | 3300.66         | 350.90         |
| 16569.00 | 92.15 | 358.44 | 13193.49 | 3358.29 | 3353.07 | -523.68 | 0.89    | 3393.72         | 351.12         |
| 16663.00 | 90.57 | 358.58 | 13191.26 | 3452.25 | 3447.01 | -526.12 | 1.68    | 3486.93         | 351.32         |
| 16758.00 | 90.94 | 359.29 | 13190.01 | 3547.23 | 3541.98 | -527.89 | 0.84    | 3581.11         | 351.52         |
| 16852.00 | 92.48 | 0.01   | 13187.21 | 3641.19 | 3635.94 | -528.47 | 1.81    | 3674.14         | 351.73         |
| 16946.00 | 90.20 | 359.91 | 13185.01 | 3735.15 | 3729.91 | -528.54 | 2.43    | 3767.17         | 351.93         |
| 17040.00 | 90.40 | 0.10   | 13184.51 | 3829.14 | 3823.90 | -528.53 | 0.30    | 3860.26         | 352.13         |
| 17135.00 | 88.72 | 359.71 | 13185.24 | 3924.13 | 3918.90 | -528.69 | 1.81    | 3954.40         | 352.32         |
| 17228.00 | 88.73 | 359.07 | 13187.30 | 4017.11 | 4011.87 | -529.68 | 0.68    | 4046.68         | 352.48         |
| 17323.00 | 89.33 | 357.63 | 13188.91 | 4112.08 | 4106.81 | -532.42 | 1.64    | 4141.18         | 352.61         |
| 17417.00 | 90.00 | 358.23 | 13189.46 | 4206.04 | 4200.75 | -535.82 | 0.96    | 4234.78         | 352.73         |
| 17511.00 | 91.67 | 359.34 | 13188.09 | 4300.02 | 4294.71 | -537.81 | 2.14    | 4328.26         | 352.86         |



LEA COUNTY, NM (NAD27-NME)  
CAVE LION PAD  
CAVE LION 5 WC FEDERAL #2H

PLAN #5  
HP 480

#### WELL DETAILS

|                         |      |                   |           |                          |                   |                             |  |
|-------------------------|------|-------------------|-----------|--------------------------|-------------------|-----------------------------|--|
| CORRECTED LEVEL 3763.00 |      | EASTING 791694.71 |           | LATITUDE 32° 5' 58.700 N |                   | LONGITUDE 103° 23' 30.165 W |  |
| N/S                     | E/W  | NORTHING          | EASTING   | LATITUDE                 | LONGITUDE         |                             |  |
| 0.00                    | 0.00 | 36917.00          | 791694.71 | 32° 5' 58.700 N          | 103° 23' 30.165 W |                             |  |

#### SECTION DETAILS

| MD       | INC   | 2/F    | TVD      | N/S     | E/W     | DEG   | TFAC   | VSLE1   | TARGET     |
|----------|-------|--------|----------|---------|---------|-------|--------|---------|------------|
| 0.00     | 0.00  | 0.00   | 0.00     | 0.00    | 0.00    | 0.00  | 0.00   | 0.00    |            |
| 1734.00  | 0.00  | 0.00   | 1734.00  | 0.00    | 0.00    | 0.00  | 0.00   | 0.00    |            |
| 2234.00  | 10.00 | 74.90  | 2731.47  | -15.00  | -40.61  | 2.00  | 74.90  | -15.19  |            |
| 4794.00  | 10.00 | 74.90  | 4752.57  | -14.91  | -455.05 | 0.00  | 0.00   | -170.26 |            |
| 5794.00  | 0.00  | 0.00   | 5750.04  | -190.50 | -476.78 | 2.00  | 180.00 | -185.47 |            |
| 12786.57 | 0.00  | 0.00   | 12740.59 | -190.50 | -476.78 | 0.00  | 0.00   | -185.47 |            |
| 13538.96 | 90.53 | 359.41 | 13716.00 | 291.37  | -501.27 | 17.00 | 359.41 | 296.43  |            |
| 18161.87 | 90.53 | 359.41 | 13716.25 | 4893.84 | -545.92 | 0.00  | 0.00   | 4899.16 | BHL(CL#2H) |

#### DESIGN TARGET DETAILS

| Name        | TVD      | N/S     | E/W     | Northing  | Easting   |
|-------------|----------|---------|---------|-----------|-----------|
| FTPL(CL#2H) | 12719.12 | -180.31 | -488.28 | 388726.75 | 791198.45 |
| BHL(CL#2H)  | 13175.25 | 4893.84 | -545.92 | 393810.93 | 791145.79 |

SITE DETAILS: CAVE LION PAD  
SITE CENTRE NORTHING: 36917.00  
EASTING: 791694.75  
POSITIONAL UNCERTAINTY: 0.00  
CONVERSION: 0.00  
LOCAL NORTH: GRID

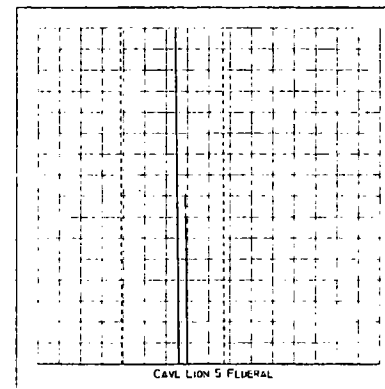
PROJECT DETAILS: LEA COUNTY, NM (NAD27-NME)  
GEODETIC SYSTEM: US STATE PLANE 1927 (FRACI SOLUTION)  
DATUM: NAD 1927 (NADCON CONUS)  
ELEVATION: CLIMATE 1866  
ZONE: NEW MEXICO EAST 3001  
SYSTEM DATUM: MEAN SEA LEVEL

#### FORMATION TOP DETAILS

| TVD PATH | MD PATH  | FORMATION                  |
|----------|----------|----------------------------|
| 1058.00  | 1058.00  | MUSKIE                     |
| 1697.00  | 1697.00  | SALADO                     |
| 3534.00  | 3536.63  | CASTLE                     |
| 5091.00  | 5134.88  | BAY IN SALT                |
| 5350.00  | 5393.90  | LAMAR                      |
| 5384.00  | 5427.96  | HILL CANYON                |
| 6770.00  | 6763.96  | CHERRY CANYON              |
| 7861.00  | 7904.96  | BRIGHT CANYON              |
| 9295.00  | 9338.96  | BOLE SPRING                |
| 10266.00 | 10449.96 | MT BOLE SPRING SAND        |
| 10566.00 | 10609.96 | BASE MT BOLE SPRING SAND   |
| 10952.00 | 10996.96 | 2ND BOLE SPRING SAND       |
| 11695.00 | 11558.96 | BASE 2ND BOLE SPRING SAND  |
| 12039.00 | 12082.96 | 3RD BOLE SPRING SAND       |
| 12605.00 | 12448.96 | LOWER 3RD BOLE SPRING SAND |
| 12748.00 | 12511.96 | WOLF CAMP                  |
| 12748.00 | 12570.96 | WOLF CAMP A                |
| 12503.00 | 12546.96 | WOLF CAMP A BAT            |
| 12544.00 | 12587.96 | WOLF CAMP Y                |
| 12575.00 | 12614.96 | WOLF CAMP A                |
| 12718.00 | 12761.96 | WOLF CAMP II               |
| 13130.00 | 13239.96 | WOLF CAMP C                |
| 13170.00 | 13318.53 | WOLF CAMP C THE            |
| 13200.00 | 13402.91 | WOLF CAMP C THE            |
| 13211.00 | 13452.57 | WOLF CAMP C7               |

MAP SYSTEM: US STATE PLANE 1927 (FRACI SOLUTION)  
DATUM: NAD 1927 (NADCON CONUS)  
ELEVATION: CLIMATE 1866  
ZONE: NEW MEXICO EAST 3001  
LOCAL ORIGIN: WELL CAVE LION 5 WC FEDERAL #2H, GRID 18000  
LATITUDE: 32° 5' 58.700 N  
LONGITUDE: 103° 23' 30.165 W  
GRID EAST: 791694.71  
GRID NORTH: 36917.00  
SCALE FACTOR: 1.000

GEOMAGNETIC MODEL: HIGH  
SAMPLE DATE: 11 FEB 19  
MAGNETIC DECLINATION: 6.60°  
DP ANGLE FROM HORIZONTAL: 59.70°  
MAGNETIC FIELD STRENGTH: 4773n  
TO CONVERT A MAGNETIC DIRECTION TO A GRID DIRECTION, ADD 6.10°  
TO CONVERT A MAGNETIC DIRECTION TO A TRUE DIRECTION, ADD 6.60° EAST  
TO CONVERT A TRUE DIRECTION TO A GRID DIRECTION, SUBTRACT 0.50°



To convert a True Direction to a Grid Direction, Subtract 0.50°  
To convert a Magnetic Direction to a Grid Direction, Add 6.10°

JOHNSON, LEA COUNTY, NM  
MAGNETIC NORTH: 0.50°  
MAGNETIC SOUTH: 0.50°  
STRENGTH: 4773n  
DP ANGLE: 59.70°  
DATE: 2/11/2019  
MODEL: 18000

