

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

NMOCD  
Hobbs

FORM APPROVED  
OMB No. 1004-0137  
Expires: July 31, 2010

WELL COMPLETION OR RECOMPLETION REPORT AND LOG

5. Lease Serial No.  
NNNM13647

|                                                                                                                                                                                                                               |  |                               |                                                                                                                                                                                                                                                                                                                              |                                      |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|--|
| 1a. Type of Well <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Dry <input type="checkbox"/> Other                                                                   |  |                               | 6. If Indian, Allottee or Tribe Name                                                                                                                                                                                                                                                                                         |                                      |  |
| 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 _____ |  |                               | 7. Unit or CA Agreement Name and No.                                                                                                                                                                                                                                                                                         |                                      |  |
| 2. Name of Operator<br>MARATHON OIL PERMIAN LLC Contact: ADRIAN COVARRUBIAS<br>E-Mail: acovarrubias@marathonoil.com                                                                                                           |  |                               | 8. Lease Name and Well No.<br>CAVE LION 5 WA FEDERAL 9H                                                                                                                                                                                                                                                                      |                                      |  |
| 3. Address 5555 SAN FELIPE<br>HOUSTON, TX 77056                                                                                                                                                                               |  |                               | 9. API Well No.<br>30-025-45420                                                                                                                                                                                                                                                                                              |                                      |  |
| 4. Location of Well (Report location clearly and in accordance with Federal requirements)*<br>At surface SESW 287FSL 1871FWL<br>At top prod interval reported below SESW 287FSL 1871FWL<br>At total depth NENW 100FNL 2293FWL |  |                               | 10. Field and Pool, or Exploratory<br>WOLFCAMP                                                                                                                                                                                                                                                                               |                                      |  |
| 14. Date Spudded<br>03/05/2019                                                                                                                                                                                                |  |                               | 15. Date T.D. Reached<br>06/13/2019                                                                                                                                                                                                                                                                                          |                                      |  |
| 16. Date Completed<br><input type="checkbox"/> D & A <input checked="" type="checkbox"/> Ready to Prod.<br>08/01/2019                                                                                                         |  |                               | 17. Elevations (DF, KB, RT, GL)*<br>3262 GL                                                                                                                                                                                                                                                                                  |                                      |  |
| 18. Total Depth: MD 17619<br>TVD 12740                                                                                                                                                                                        |  | 19. Plug Back T.D.: MD<br>TVD |                                                                                                                                                                                                                                                                                                                              | 20. Depth Bridge Plug Set: MD<br>TVD |  |
| 21. Type Electric & Other Mechanical Logs Run (Submit copy of each)<br>MUD AND GR                                                                                                                                             |  |                               | 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) |                                      |  |

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 Sks. & Type of Cement | Slurry Vol. (BBL) | Cement Top* | Amount Pulled |
|-----------|------------|-------------|----------|-------------|----------------------|------------------------------|-------------------|-------------|---------------|
| 17.500    | 13.375 J55 | 54.5        | 0        | 1154        |                      | 1070                         |                   | 0           |               |
| 12.250    | 9.625 J55  | 40.0        | 0        | 5441        |                      | 1690                         |                   | 0           |               |
| 8.750     | 7.000 P110 | 29.0        | 0        | 12004       |                      | 980                          |                   | 3085        |               |
| 6.125     | 4.500 P110 | 13.5        | 11682    | 17607       |                      | 605                          |                   | 11682       |               |

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

26. Perforation Record

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

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

| Depth Interval | Amount and Type of Material      |
|----------------|----------------------------------|
| 12616 TO 17540 | 11,788,063 LBS - 40/70; 100 MESH |
|                |                                  |
|                |                                  |

28. Production - Interval A

| 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           | →               | 1448.0  | 1945.0  | 5914.0    |                       |             | 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 |                     |
| 42                  | SI                   | 1050.0       | →               |         |         |           |                       | 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 |
|---------------------|----------------------|--------------|-----------------|---------|---------|-----------|-----------------------|-------------|-------------------|
|                     |                      |              | →               |         |         |           |                       |             |                   |
| Choke Size          | Tbg. Press. Flwg. SI | Csg. Press.  | 24 Hr. Rate     | Oil BBL | Gas MCF | Water BBL | Gas:Oil Ratio         | Well Status |                   |
|                     | SI                   |              | →               |         |         |           |                       |             |                   |

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

ELECTRONIC SUBMISSION #482717 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 | Oil BBL | Gas MCF | Water BBL | Oil Gravity Corr. API | Gas Gravity | Production Method |
|---------------------|----------------------|--------------|-----------------|---------|---------|-----------|-----------------------|-------------|-------------------|
| Choke Size          | Tbg. Press. Flwg. SI | Csg. Press.  | 24 Hr. Rate     | Oil BBL | Gas MCF | Water BBL | Gas:Oil Ratio         | Well Status |                   |

## 28c. Production - Interval D

| Date First Produced | Test Date            | Hours Tested | Test Production | Oil BBL | Gas MCF | Water BBL | Oil Gravity Corr. API | Gas Gravity | Production Method |
|---------------------|----------------------|--------------|-----------------|---------|---------|-----------|-----------------------|-------------|-------------------|
| Choke Size          | Tbg. Press. Flwg. SI | Csg. Press.  | 24 Hr. Rate     | 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        | 1517 | 3554   | BRINE                        | SALADO        | 1517               |
| CASTILE       | 3554 | 5111   | BRINE                        | CASTILE       | 3554               |
| BASE SALT     | 5111 | 5350   | BRINE                        | BASE SALT     | 5111               |
| LAMAR         | 5350 | 5404   | OIL, GAS, AND WATER          | LAMAR         | 5350               |
| BELL CANYON   | 5404 | 6740   | OIL, GAS, AND WATER          | BELL CANYON   | 5404               |
| CHERRY CANYON | 6470 | 7881   | OIL, GAS, AND WATER          | CHERRY CANYON | 6740               |
| BRUSHY CANYON | 7881 | 9327   | OIL, GAS, AND WATER          | BRUSHY CANYON | 7881               |
| BONE SPRING   | 9327 | 12527  | OIL, GAS, AND WATER          | BONE SPRING   | 9327               |

## 32. Additional remarks (include plugging procedure):

Porous Zones continued:

Wolfcamp; 12527' - 12657'; Oil, Gas, and Water

Formation (Log) Markers continued:

Wolfcamp; 9327 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 #482717 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 Hrazos 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>30-025-45420 | <sup>2</sup> Pool Code<br>98117                        | <sup>3</sup> Pool Name<br>WC-025 G-09 S263504N; WOLFCAMP |
| <sup>4</sup> Property Code              | <sup>5</sup> Property Name<br>CAVE LION 5 WA FEDERAL   | <sup>6</sup> Well Number<br>9H                           |
| <sup>7</sup> OGRID No.<br>372098        | <sup>8</sup> Operator Name<br>MARATHON OIL PERMIAN LLC | <sup>9</sup> Elevation<br>3262'                          |

**10 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            | 1871          | WEST           | LEA    |

**11 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 |
|---------------|---------|----------|-------|---------|---------------|------------------|---------------|----------------|--------|
| C             | 5       | T26S     | R35E  |         | 100           | NORTH            | 2293          | WEST           | LEA    |

| <sup>12</sup> Dedicated Acres | <sup>13</sup> Joint or Infill | <sup>14</sup> Consolidation Code | <sup>15</sup> Order No. |
|-------------------------------|-------------------------------|----------------------------------|-------------------------|
| 160.00                        |                               |                                  |                         |

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><b>SECTION 31</b></p> <p><b>SECTION 6</b></p> <p>BHL/LAST TAKE POINT</p> <p>(CROSSING 2) MEASURED DEPTH=16,589'</p> <p>(NEAREST TO EAST LEASE LINE) MEASURED DEPTH=15,788'</p> <p>(CROSSING 1) MEASURED DEPTH=15,261'</p> <p>FIRST TAKE POINT</p> <p>KOP (FARTHEST POINT FROM EASTERN LEASE LINE) MD=12,315'</p> <p>SHL</p> <p>1871'</p> <p>2283'</p> <p>2276'</p> <p><b>SECTION 7</b></p> <p>CORNER COORDINATES<br/>NAD 83, SPCS NM EAST</p> <p>A - X: 832342.14' / Y: 393968.72'</p> <p>B - X: 833663.69' / Y: 393977.99'</p> <p>C - X: 833719.73' / Y: 388693.48'</p> <p>D - X: 832397.11' / Y: 388684.41'</p> |  | <p><b>SECTION 32</b></p> <p><b>SECTION 5</b></p> <p>LAST TAKE POINT/BOTTOM HOLE LOCATION</p> <p>17,619' MEASURED DEPTH IN FEET</p> <p>NAD 83, SPCS NM EAST</p> <p>X:833314.85' / Y:393875.24'</p> <p>LAT:32.07933569N / LON:103.39064070W</p> <p>NAD 27, SPCS NM EAST</p> <p>X:792127.43' / Y:393817.51'</p> <p>LAT:32.07920946N / LON:103.39017763W</p> <p>FIRST TAKE POINT</p> <p>12,603' MEASURED DEPTH IN FEET</p> <p>NAD 83, SPCS NM EAST</p> <p>X:833355.46' / Y:388919.96'</p> <p>LAT:32.06571464N / LON:103.39064937W</p> <p>NAD 27, SPCS NM EAST</p> <p>X:792167.82' / Y:388862.36'</p> <p>LAT:32.06558833N / LON:103.39018707W</p> <p>KICK OFF POINT</p> <p>12,315' MEASURED DEPTH IN FEET</p> <p>NAD 83, SPCS NM EAST</p> <p>X:833349.64' / Y:388790.94'</p> <p>LAT:32.06536018N / LON:103.39067181W</p> <p>NAD 27, SPCS NM EAST</p> <p>X:792161.99' / Y:388733.34'</p> <p>LAT:32.06523385N / LON:103.39020951W</p> <p>SURFACE HOLE LOCATION</p> <p>287' FSL 1871' FWL SECTION 5</p> <p>NAD 83, SPCS NM EAST</p> <p>X:832942.34' / Y:388974.66'</p> <p>LAT:32.06587490N / LON:103.39198130W</p> <p>NAD 27, SPCS NM EAST</p> <p>X:791754.71' / Y:388917.06'</p> <p>LAT:32.06574861N / LON:103.39151894W</p> <p><b>SECTION 8</b></p> <p>CORNER COORDINATES<br/>NAD 27, SPCS NM EAST</p> <p>A - X: 791154.74' / Y: 393911.00'</p> <p>B - X: 792476.27' / Y: 393920.25'</p> <p>C - X: 792532.08' / Y: 388635.88'</p> <p>D - X: 791209.47' / Y: 388626.82'</p> |  | <p><b>SECTION 33</b></p> <p><b>SECTION 4</b></p> |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--------------------------------------------------|--|

**17 OPERATOR CERTIFICATION**

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.

*[Signature]* 9/10/2019  
Signature Date

**Adrian Covarrubias**  
Printed Name

E-mail Address

**18 SURVEYOR CERTIFICATION**

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.

*[Signature]*  
Date of Survey

Signature of State Professional Surveyor

THIS DOCUMENT IS NOT TO BE USED FOR CONSTRUCTION, BIDDING, RECORDATION, CONVEYANCE, SALE OR THE BASIS FOR THE ISSUANCE OF A PERMIT.

Certificate Number

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

|      |          |     |
|------|----------|-----|
| 1    | 06/20/19 | DEF |
| REV. | DATE     | BY  |

SHEET 1 OF 1  
JOB No. R3757\_005

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 - 025-45420                                                                    | <sup>5</sup> Pool Name<br>WC-025 G-09 S263504; WOLFCAMP | <sup>6</sup> Pool Code<br>98117                           |
| <sup>7</sup> Property Code<br>323002                                                                         | <sup>8</sup> Property Name<br>CAVE LION 5 WA FEDERAL    | <sup>9</sup> Well Number<br>9H                            |

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

| U/L 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            | 1871          | WEST           | LEA    |

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

| U/L or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|----------------|---------|----------|-------|---------|---------------|------------------|---------------|----------------|--------|
| C              | 5       | 26S      | 35E   |         | 100           | NORTH            | 2293          | WEST           | LEA    |

| <sup>12</sup> Lse Code | <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 |
|------------------------|-------------------------------------|-----------------------------------|-----------------------------------|------------------------------------|-------------------------------------|
| F                      |                                     |                                   |                                   |                                    |                                     |

**III. Oil and Gas Transporters**

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

**IV. Well Completion Data**

| <sup>21</sup> Spud Date | <sup>22</sup> Ready Date | <sup>23</sup> TD                   | <sup>24</sup> PBTD      | <sup>25</sup> Perforations | <sup>26</sup> DHC, MC      |
|-------------------------|--------------------------|------------------------------------|-------------------------|----------------------------|----------------------------|
| 3/5/2019                | 8/1/2019                 | 17619' / 12740'                    |                         | 12616' - 17540'            |                            |
| <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"                            | 1154'                   |                            | 1070                       |
| 12 1/4"                 |                          | 9 5/8"                             | 5441'                   |                            | 1690                       |
| 8 3/4"                  |                          | 7"                                 | 12004'                  |                            | 980                        |
| 6 1/8"                  |                          | 4 1/2"                             | 11682' - 17607'         |                            | 605                        |

**V. Well Test Data**

| <sup>31</sup> Date New Oil | <sup>32</sup> Gas Delivery Date | <sup>33</sup> Test Date | <sup>34</sup> Test Length | <sup>35</sup> Tbg. Pressure | <sup>36</sup> Csg. Pressure |
|----------------------------|---------------------------------|-------------------------|---------------------------|-----------------------------|-----------------------------|
| 8/1/2019                   |                                 | 8/10/2019               | 24 hrs                    | 0                           | 1050                        |
| <sup>37</sup> Choke Size   | <sup>38</sup> Oil               | <sup>39</sup> Water     | <sup>40</sup> Gas         |                             | <sup>41</sup> Test Method   |
| 42                         | 1448                            | 5914                    | 1945                      |                             | 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:



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 Oil Permian, LLC**

**Lea County, NM (NAD27-NME)**

**Cave Lion Pad**

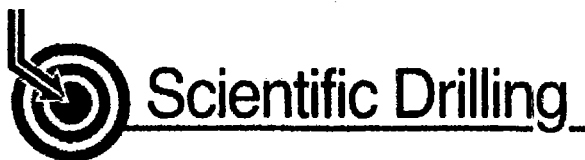
**Cave Lion 5 WA Federal #9H**

**Wellbore #1**

**Design: Actual**

## **Standard Survey Report**

**17 June, 2019**



[www.scientificdrilling.com](http://www.scientificdrilling.com)

# Scientific Drilling, Intl

## Survey Report

Company: Marathon Oil Permian, LLC  
 Project: Lea County, NM (NAD27-NME)  
 Site: Cave Lion Pad  
 Well: Cave Lion 5 WA Federal #9H  
 Wellbore: Wellbore #1  
 Design: Actual

Local Co-ordinate Reference: Well Cave Lion 5 WA Federal #9H  
 TVD Reference: KB=26.5 @ 3288.50usft  
 MD Reference: KB=26.5 @ 3288.50usft  
 North Reference: Grid  
 Survey Calculation Method: Minimum Curvature  
 Database: Midland District

|             |                                      |                             |                |
|-------------|--------------------------------------|-----------------------------|----------------|
| Project     | Lea County, NM (NAD27-NME)           |                             |                |
| Map System: | US State Plane 1927 (Exact solution) | System Datum:               | Mean Sea Level |
| Geo Datum:  | NAD 1927 (NADCON CONUS)              |                             |                |
| Map Zone:   | New Mexico East 3001                 | Using geodetic scale factor |                |

|                       |               |              |                 |                              |
|-----------------------|---------------|--------------|-----------------|------------------------------|
| Site                  | Cave Lion Pad |              |                 |                              |
| Site Position:        |               | Northing:    | 388,917.09 usft | Latitude: 32° 3' 56.703 N    |
| From:                 | Map           | Easting:     | 791,664.75 usft | Longitude: 103° 23' 30.513 W |
| Position Uncertainty: | 0.00 usft     | Slot Radius: | 13-3/16 "       | Grid Convergence: 0.50 °     |

|                      |                            |                     |           |                             |
|----------------------|----------------------------|---------------------|-----------|-----------------------------|
| Well                 | Cave Lion 5 WA Federal #9H |                     |           |                             |
| Well Position        | +N/-S                      | 0.00 usft           | Northing: | 388,917.06 usft             |
|                      | +E/-W                      | 0.00 usft           | Easting:  | 791,754.71 usft             |
| Position Uncertainty | 0.00 usft                  | Wellhead Elevation: | 0.00 usft | Ground Level: 3,262.00 usft |

|           |             |             |                 |               |                     |
|-----------|-------------|-------------|-----------------|---------------|---------------------|
| Wellbore  | Wellbore #1 |             |                 |               |                     |
| Magnetics | Model Name  | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
|           | HDGM        | 2/14/2019   | 6.60            | 59.70         | 47,738              |

|                   |                         |              |              |                     |      |
|-------------------|-------------------------|--------------|--------------|---------------------|------|
| Design            | Actual                  |              |              |                     |      |
| Audit Notes:      |                         |              |              |                     |      |
| Version:          | 1.0                     | Phase:       | ACTUAL       | Tie On Depth:       | 0.00 |
| Vertical Section: | Depth From (TVD) (usft) | +N/-S (usft) | +E/-W (usft) | Direction (bearing) |      |
|                   | 0.00                    | 0.00         | 0.00         | 359.39              |      |

|                |                |                                       |           |                 |  |
|----------------|----------------|---------------------------------------|-----------|-----------------|--|
| Survey Program | Date 6/17/2019 |                                       |           |                 |  |
| From (usft)    | To (usft)      | Survey (Wellbore)                     | Tool Name | Description     |  |
| 183.00         | 11,946.00      | SDI MWD Surveys (Wellbore #1)         | MWD+HDGM  | OWSG MWD + HDGM |  |
| 12,042.00      | 17,619.00      | SDI MWD - Curve/Lateral (Wellbore #1) | MWD+HDGM  | OWSG MWD + HDGM |  |

|                       |                 |                   |                       |              |              |                         |                         |                        |                       |  |
|-----------------------|-----------------|-------------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|--|
| Survey                |                 |                   |                       |              |              |                         |                         |                        |                       |  |
| Measured Depth (usft) | Inclination (°) | Azimuth (bearing) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |  |
| 0.00                  | 0.00            | 0.00              | 0.00                  | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |  |
| 183.00                | 0.48            | 261.30            | 183.00                | -0.12        | -0.76        | -0.11                   | 0.26                    | 0.26                   | 0.00                  |  |
| 244.00                | 0.55            | 253.21            | 244.00                | -0.24        | -1.29        | -0.23                   | 0.17                    | 0.11                   | -13.26                |  |
| 335.00                | 0.88            | 249.23            | 334.99                | -0.61        | -2.36        | -0.59                   | 0.37                    | 0.36                   | -4.37                 |  |
| 426.00                | 0.71            | 217.97            | 425.98                | -1.31        | -3.36        | -1.27                   | 0.50                    | -0.19                  | -34.35                |  |
| 518.00                | 0.47            | 210.18            | 517.97                | -2.08        | -3.90        | -2.04                   | 0.27                    | -0.26                  | -8.47                 |  |
| 608.00                | 0.45            | 249.29            | 607.97                | -2.53        | -4.42        | -2.48                   | 0.34                    | -0.02                  | 43.46                 |  |
| 700.00                | 0.60            | 270.73            | 699.97                | -2.65        | -5.24        | -2.59                   | 0.27                    | 0.16                   | 23.30                 |  |
| 792.00                | 0.41            | 295.98            | 791.96                | -2.50        | -6.02        | -2.43                   | 0.31                    | -0.21                  | 27.45                 |  |
| 884.00                | 0.66            | 301.76            | 883.96                | -2.07        | -6.76        | -2.00                   | 0.28                    | 0.27                   | 6.28                  |  |

# Scientific Drilling, Intl

## Survey Report

Company: Marathon Oil Permian, LLC  
 Project: Lea County, NM (NAD27-NME)  
 Site: Cave Lion Pad  
 Well: Cave Lion 5 WA Federal #9H  
 Wellbore: Wellbore #1  
 Design: Actual

Local Co-ordinate Reference: Well Cave Lion 5 WA Federal #9H  
 TVD Reference: KB=26.5 @ 3288.50usft  
 MD Reference: KB=26.5 @ 3288.50usft  
 North Reference: Grid  
 Survey Calculation Method: Minimum Curvature  
 Database: Midland District

### Survey

| Measured Depth (usft) | Inclination (°) | Azimuth (bearing) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
|-----------------------|-----------------|-------------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|
| 974.00                | 0.78            | 285.97            | 973.95                | -1.63        | -7.79        | -1.55                   | 0.26                    | 0.13                   | -17.54                |
| 1,174.00              | 1.07            | 291.43            | 1,173.93              | -0.58        | -10.84       | -0.46                   | 0.15                    | 0.15                   | 2.73                  |
| 1,247.00              | 0.85            | 288.71            | 1,246.92              | -0.15        | -11.99       | -0.02                   | 0.31                    | -0.30                  | -3.73                 |
| 1,341.00              | 0.26            | 100.35            | 1,340.91              | 0.03         | -12.44       | 0.17                    | 1.18                    | -0.63                  | 182.60                |
| 1,436.00              | 0.53            | 115.61            | 1,435.91              | -0.20        | -11.83       | -0.07                   | 0.30                    | 0.28                   | 16.06                 |
| 1,530.00              | 0.36            | 119.73            | 1,529.91              | -0.53        | -11.18       | -0.41                   | 0.18                    | -0.18                  | 4.38                  |
| 1,624.00              | 0.21            | 103.51            | 1,623.91              | -0.72        | -10.76       | -0.60                   | 0.18                    | -0.16                  | -17.26                |
| 1,719.00              | 0.14            | 43.21             | 1,718.91              | -0.67        | -10.51       | -0.56                   | 0.20                    | -0.07                  | -63.47                |
| 1,813.00              | 0.31            | 69.01             | 1,812.91              | -0.50        | -10.19       | -0.39                   | 0.21                    | 0.18                   | 27.45                 |
| 1,907.00              | 0.12            | 50.00             | 1,906.91              | -0.34        | -9.88        | -0.24                   | 0.21                    | -0.20                  | -20.22                |
| 2,002.00              | 1.43            | 97.94             | 2,001.90              | -0.44        | -8.63        | -0.35                   | 1.42                    | 1.38                   | 50.46                 |
| 2,096.00              | 2.83            | 104.47            | 2,095.83              | -1.19        | -5.22        | -1.13                   | 1.51                    | 1.49                   | 6.95                  |
| 2,190.00              | 5.15            | 102.32            | 2,189.59              | -2.67        | 1.15         | -2.68                   | 2.47                    | 2.47                   | -2.29                 |
| 2,285.00              | 6.73            | 101.91            | 2,284.08              | -4.72        | 10.76        | -4.84                   | 1.66                    | 1.66                   | -0.43                 |
| 2,379.00              | 7.76            | 104.33            | 2,377.33              | -7.43        | 22.30        | -7.67                   | 1.14                    | 1.10                   | 2.57                  |
| 2,474.00              | 9.82            | 108.72            | 2,471.21              | -11.62       | 36.19        | -12.00                  | 2.28                    | 2.17                   | 4.62                  |
| 2,568.00              | 10.76           | 108.94            | 2,563.70              | -17.04       | 52.08        | -17.59                  | 1.00                    | 1.00                   | 0.23                  |
| 2,662.00              | 10.99           | 107.97            | 2,656.01              | -22.65       | 68.90        | -23.39                  | 0.31                    | 0.24                   | -1.03                 |
| 2,757.00              | 11.35           | 105.09            | 2,749.21              | -27.88       | 86.54        | -28.80                  | 0.70                    | 0.38                   | -3.03                 |
| 2,851.00              | 11.16           | 109.46            | 2,841.40              | -33.32       | 104.05       | -34.42                  | 0.93                    | -0.20                  | 4.65                  |
| 2,945.00              | 11.66           | 112.18            | 2,933.55              | -39.94       | 121.42       | -41.23                  | 0.78                    | 0.53                   | 2.89                  |
| 3,040.00              | 11.86           | 113.02            | 3,026.55              | -47.38       | 139.30       | -48.86                  | 0.28                    | 0.21                   | 0.88                  |
| 3,134.00              | 11.56           | 114.35            | 3,118.60              | -55.04       | 156.77       | -56.70                  | 0.43                    | -0.32                  | 1.41                  |
| 3,228.00              | 11.72           | 114.37            | 3,210.66              | -62.86       | 174.05       | -64.71                  | 0.17                    | 0.17                   | 0.02                  |
| 3,323.00              | 11.76           | 113.20            | 3,303.68              | -70.66       | 191.73       | -72.69                  | 0.25                    | 0.04                   | -1.23                 |
| 3,417.00              | 10.81           | 114.46            | 3,395.86              | -78.08       | 208.56       | -80.30                  | 1.04                    | -1.01                  | 1.34                  |
| 3,512.00              | 10.44           | 114.37            | 3,489.23              | -85.32       | 224.51       | -87.71                  | 0.39                    | -0.39                  | -0.09                 |
| 3,606.00              | 9.60            | 114.97            | 3,581.79              | -92.14       | 239.38       | -94.69                  | 0.90                    | -0.89                  | 0.64                  |
| 3,701.00              | 9.01            | 114.57            | 3,675.54              | -98.58       | 253.32       | -101.27                 | 0.62                    | -0.62                  | -0.42                 |
| 3,795.00              | 8.83            | 112.17            | 3,768.41              | -104.36      | 266.70       | -107.20                 | 0.44                    | -0.19                  | -2.55                 |
| 3,890.00              | 8.04            | 112.68            | 3,862.38              | -109.68      | 279.58       | -112.65                 | 0.84                    | -0.83                  | 0.54                  |
| 3,984.00              | 7.13            | 112.72            | 3,955.56              | -114.46      | 291.03       | -117.56                 | 0.97                    | -0.97                  | 0.04                  |
| 4,079.00              | 7.65            | 110.41            | 4,049.77              | -118.95      | 302.39       | -122.16                 | 0.63                    | 0.55                   | -2.43                 |
| 4,173.00              | 8.90            | 109.58            | 4,142.79              | -123.57      | 315.11       | -126.91                 | 1.34                    | 1.33                   | -0.88                 |
| 4,267.00              | 8.40            | 110.25            | 4,235.72              | -128.38      | 328.40       | -131.87                 | 0.54                    | -0.53                  | 0.71                  |
| 4,362.00              | 8.54            | 112.45            | 4,329.68              | -133.47      | 341.43       | -137.10                 | 0.37                    | 0.15                   | 2.32                  |
| 4,456.00              | 8.42            | 113.88            | 4,422.65              | -138.93      | 354.17       | -142.69                 | 0.26                    | -0.13                  | 1.52                  |
| 4,550.00              | 8.18            | 113.36            | 4,515.67              | -144.36      | 366.61       | -148.26                 | 0.27                    | -0.26                  | -0.55                 |
| 4,645.00              | 8.15            | 108.72            | 4,609.71              | -149.20      | 379.19       | -153.23                 | 0.69                    | -0.03                  | -4.88                 |
| 4,739.00              | 8.23            | 111.33            | 4,702.75              | -153.79      | 391.76       | -157.95                 | 0.40                    | 0.09                   | 2.78                  |
| 4,834.00              | 7.39            | 110.75            | 4,796.87              | -158.43      | 403.81       | -162.72                 | 0.89                    | -0.88                  | -0.61                 |
| 4,928.00              | 5.58            | 114.36            | 4,890.26              | -162.46      | 413.63       | -166.85                 | 1.97                    | -1.93                  | 3.84                  |
| 5,023.00              | 5.89            | 116.23            | 4,984.79              | -166.51      | 422.21       | -171.00                 | 0.38                    | 0.33                   | 1.97                  |

# Scientific Drilling, Intl

## Survey Report

**Company:** Marathon Oil Permian, LLC  
**Project:** Lea County, NM (NAD27-NME)  
**Site:** Cave Lion Pad  
**Well:** Cave Lion 5 WA Federal #9H  
**Wellbore:** Wellbore #1  
**Design:** Actual

**Local Co-ordinate Reference:** Well Cave Lion 5 WA Federal #9H  
**TVD Reference:** KB=26.5 @ 3288.50usft  
**MD Reference:** KB=26.5 @ 3288.50usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** Midland District

### Survey

| Measured Depth (usft) | Inclination (°) | Azimuth (bearing) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
|-----------------------|-----------------|-------------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|
| 5,117.00              | 5.17            | 113.82            | 5,078.35              | -170.36      | 430.41       | -174.93                 | 0.80                    | -0.77                  | -2.56                 |
| 5,212.00              | 2.66            | 115.28            | 5,173.12              | -173.03      | 436.32       | -177.66                 | 2.64                    | -2.64                  | 1.54                  |
| 5,306.00              | 1.39            | 126.57            | 5,267.06              | -174.64      | 439.21       | -179.30                 | 1.41                    | -1.35                  | 12.01                 |
| 5,367.00              | 0.95            | 144.67            | 5,328.05              | -175.49      | 440.10       | -180.17                 | 0.93                    | -0.72                  | 29.67                 |
| 5,490.00              | 0.77            | 117.34            | 5,451.03              | -176.70      | 441.42       | -181.39                 | 0.36                    | -0.15                  | -22.22                |
| 5,585.00              | 1.17            | 113.56            | 5,546.02              | -177.38      | 442.87       | -182.09                 | 0.43                    | 0.42                   | -3.98                 |
| 5,680.00              | 1.24            | 114.57            | 5,641.00              | -178.20      | 444.70       | -182.92                 | 0.08                    | 0.07                   | 1.06                  |
| 5,774.00              | 0.94            | 110.73            | 5,734.98              | -178.89      | 446.35       | -183.64                 | 0.33                    | -0.32                  | -4.09                 |
| 5,868.00              | 1.04            | 121.73            | 5,828.97              | -179.62      | 447.79       | -184.37                 | 0.23                    | 0.11                   | 11.70                 |
| 5,963.00              | 1.20            | 107.87            | 5,923.95              | -180.37      | 449.47       | -185.15                 | 0.33                    | 0.17                   | -14.59                |
| 6,057.00              | 0.99            | 113.80            | 6,017.93              | -181.00      | 451.15       | -185.80                 | 0.25                    | -0.22                  | 6.31                  |
| 6,152.00              | 0.93            | 116.77            | 6,112.92              | -181.68      | 452.59       | -186.49                 | 0.08                    | -0.06                  | 3.13                  |
| 6,246.00              | 0.93            | 124.76            | 6,206.90              | -182.46      | 453.90       | -187.28                 | 0.14                    | 0.00                   | 8.50                  |
| 6,340.00              | 0.89            | 98.17             | 6,300.89              | -183.00      | 455.25       | -187.84                 | 0.45                    | -0.04                  | -28.29                |
| 6,435.00              | 0.44            | 115.38            | 6,395.89              | -183.26      | 456.31       | -188.11                 | 0.51                    | -0.47                  | 18.12                 |
| 6,529.00              | 0.74            | 94.34             | 6,489.88              | -183.46      | 457.24       | -188.32                 | 0.39                    | 0.32                   | -22.38                |
| 6,624.00              | 0.78            | 73.19             | 6,584.87              | -183.32      | 458.47       | -188.19                 | 0.30                    | 0.04                   | -22.26                |
| 6,718.00              | 0.81            | 65.53             | 6,678.86              | -182.86      | 459.69       | -187.74                 | 0.12                    | 0.03                   | -8.15                 |
| 6,813.00              | 0.84            | 67.80             | 6,773.85              | -182.32      | 460.94       | -187.22                 | 0.05                    | 0.03                   | 2.39                  |
| 6,907.00              | 0.88            | 70.60             | 6,867.84              | -181.82      | 462.26       | -186.73                 | 0.06                    | 0.04                   | 2.98                  |
| 7,002.00              | 0.64            | 55.38             | 6,962.84              | -181.28      | 463.39       | -186.20                 | 0.33                    | -0.25                  | -16.02                |
| 7,096.00              | 0.84            | 65.30             | 7,056.83              | -180.69      | 464.44       | -185.62                 | 0.25                    | 0.21                   | 10.55                 |
| 7,190.00              | 0.64            | 35.37             | 7,150.82              | -179.97      | 465.37       | -184.92                 | 0.46                    | -0.21                  | -31.84                |
| 7,285.00              | 0.68            | 55.82             | 7,245.81              | -179.22      | 466.15       | -184.18                 | 0.25                    | 0.04                   | 21.53                 |
| 7,379.00              | 0.71            | 28.11             | 7,339.81              | -178.40      | 466.88       | -183.36                 | 0.36                    | 0.03                   | -29.48                |
| 7,473.00              | 0.66            | 18.42             | 7,433.80              | -177.37      | 467.33       | -182.34                 | 0.13                    | -0.05                  | -10.31                |
| 7,568.00              | 0.69            | 41.24             | 7,528.79              | -176.42      | 467.88       | -181.39                 | 0.28                    | 0.03                   | 24.02                 |
| 7,662.00              | 0.76            | 83.32             | 7,622.79              | -175.92      | 468.87       | -180.90                 | 0.56                    | 0.07                   | 44.77                 |
| 7,757.00              | 0.87            | 87.60             | 7,717.78              | -175.82      | 470.22       | -180.82                 | 0.13                    | 0.12                   | 4.51                  |
| 7,851.00              | 0.37            | 63.23             | 7,811.77              | -175.65      | 471.20       | -180.66                 | 0.59                    | -0.53                  | -25.93                |
| 7,946.00              | 0.50            | 118.73            | 7,906.77              | -175.71      | 471.84       | -180.73                 | 0.44                    | 0.14                   | 58.42                 |
| 8,040.00              | 0.65            | 220.37            | 8,000.77              | -176.32      | 471.85       | -181.33                 | 0.95                    | 0.16                   | 108.13                |
| 8,134.00              | 1.23            | 260.19            | 8,094.76              | -176.90      | 470.51       | -181.89                 | 0.89                    | 0.62                   | 42.36                 |
| 8,229.00              | 1.21            | 261.17            | 8,189.73              | -177.22      | 468.52       | -182.20                 | 0.03                    | -0.02                  | 1.03                  |
| 8,323.00              | 0.88            | 241.76            | 8,283.72              | -177.72      | 466.90       | -182.68                 | 0.51                    | -0.35                  | -20.65                |
| 8,418.00              | 1.61            | 222.15            | 8,378.70              | -179.05      | 465.36       | -184.00                 | 0.88                    | 0.77                   | -20.64                |
| 8,512.00              | 1.17            | 229.38            | 8,472.67              | -180.66      | 463.75       | -185.58                 | 0.50                    | -0.47                  | 7.69                  |
| 8,607.00              | 1.27            | 249.94            | 8,567.65              | -181.65      | 462.02       | -186.56                 | 0.47                    | 0.11                   | 21.64                 |
| 8,701.00              | 0.85            | 264.54            | 8,661.63              | -182.07      | 460.35       | -186.96                 | 0.53                    | -0.45                  | 15.53                 |
| 8,795.00              | 0.81            | 239.60            | 8,755.62              | -182.47      | 459.08       | -187.35                 | 0.38                    | -0.04                  | -26.53                |
| 8,890.00              | 0.54            | 246.37            | 8,850.61              | -182.99      | 458.09       | -187.86                 | 0.30                    | -0.28                  | 7.13                  |
| 8,984.00              | 0.51            | 254.65            | 8,944.61              | -183.28      | 457.29       | -188.14                 | 0.09                    | -0.03                  | 8.81                  |
| 9,079.00              | 0.84            | 268.68            | 9,039.60              | -183.41      | 456.18       | -188.26                 | 0.39                    | 0.35                   | 14.77                 |



# Scientific Drilling, Intl

## Survey Report

Company: Marathon Oil Permian, LLC  
 Project: Lea County, NM (NAD27-NME)  
 Site: Cave Lion Pad  
 Well: Cave Lion 5 WA Federal #9H  
 Wellbore: Wellbore #1  
 Design: Actual

Local Co-ordinate Reference: Well Cave Lion 5 WA Federal #9H  
 TVD Reference: KB=26.5 @ 3288.50usft  
 MD Reference: KB=26.5 @ 3288.50usft  
 North Reference: Grid  
 Survey Calculation Method: Minimum Curvature  
 Database: Midland District

### Survey

| Measured Depth (usft) | Inclination (°) | Azimuth (bearing) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
|-----------------------|-----------------|-------------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|
| 9,173.00              | 0.64            | 238.74            | 9,133.60              | -183.70      | 455.04       | -188.53                 | 0.46                    | -0.21                  | -31.85                |
| 9,268.00              | 0.38            | 285.99            | 9,228.59              | -183.89      | 454.29       | -188.71                 | 0.50                    | -0.27                  | 49.74                 |
| 9,362.00              | 0.12            | 175.81            | 9,322.59              | -183.90      | 453.99       | -188.72                 | 0.46                    | -0.28                  | -117.21               |
| 9,456.00              | 0.50            | 305.83            | 9,416.59              | -183.76      | 453.67       | -188.58                 | 0.62                    | 0.40                   | 138.32                |
| 9,550.00              | 0.11            | 352.68            | 9,510.59              | -183.43      | 453.33       | -188.24                 | 0.46                    | -0.41                  | 49.84                 |
| 9,644.00              | 0.50            | 298.94            | 9,604.59              | -183.14      | 452.96       | -187.95                 | 0.47                    | 0.41                   | -57.17                |
| 9,739.00              | 0.72            | 271.59            | 9,699.58              | -182.92      | 452.00       | -187.72                 | 0.38                    | 0.23                   | -28.79                |
| 9,833.00              | 0.95            | 259.08            | 9,793.57              | -183.05      | 450.64       | -187.84                 | 0.31                    | 0.24                   | -13.31                |
| 9,928.00              | 1.00            | 266.43            | 9,888.56              | -183.25      | 449.04       | -188.02                 | 0.14                    | 0.05                   | 7.74                  |
| 10,022.00             | 1.10            | 257.63            | 9,982.54              | -183.50      | 447.34       | -188.25                 | 0.20                    | 0.11                   | -9.36                 |
| 10,116.00             | 1.13            | 238.20            | 10,076.53             | -184.18      | 445.67       | -188.91                 | 0.40                    | 0.03                   | -20.67                |
| 10,211.00             | 1.25            | 216.44            | 10,171.51             | -185.51      | 444.26       | -190.23                 | 0.49                    | 0.13                   | -22.91                |
| 10,305.00             | 1.17            | 229.64            | 10,265.49             | -186.95      | 442.92       | -191.66                 | 0.31                    | -0.09                  | 14.04                 |
| 10,399.00             | 1.21            | 248.22            | 10,359.47             | -187.94      | 441.27       | -192.63                 | 0.41                    | 0.04                   | 19.77                 |
| 10,494.00             | 1.70            | 247.78            | 10,454.43             | -188.85      | 439.03       | -193.51                 | 0.52                    | 0.52                   | -0.46                 |
| 10,588.00             | 2.09            | 250.14            | 10,548.38             | -189.96      | 436.13       | -194.59                 | 0.42                    | 0.41                   | 2.51                  |
| 10,683.00             | 1.59            | 274.56            | 10,643.33             | -190.44      | 433.18       | -195.04                 | 0.97                    | -0.53                  | 25.71                 |
| 10,777.00             | 1.71            | 299.26            | 10,737.30             | -189.65      | 430.66       | -194.23                 | 0.76                    | 0.13                   | 26.28                 |
| 10,872.00             | 2.00            | 307.76            | 10,832.25             | -187.94      | 428.11       | -192.49                 | 0.42                    | 0.31                   | 8.95                  |
| 10,966.00             | 1.68            | 318.23            | 10,926.20             | -185.91      | 425.90       | -190.44                 | 0.49                    | -0.34                  | 11.14                 |
| 11,061.00             | 1.03            | 340.28            | 11,021.17             | -184.07      | 424.68       | -188.58                 | 0.87                    | -0.68                  | 23.21                 |
| 11,155.00             | 0.51            | 295.60            | 11,115.16             | -183.09      | 424.02       | -187.60                 | 0.81                    | -0.55                  | -47.53                |
| 11,249.00             | 1.01            | 245.96            | 11,209.16             | -183.25      | 422.89       | -187.74                 | 0.83                    | 0.53                   | -52.81                |
| 11,343.00             | 0.96            | 221.08            | 11,303.14             | -184.18      | 421.61       | -188.66                 | 0.45                    | -0.05                  | -26.47                |
| 11,438.00             | 1.41            | 244.92            | 11,398.12             | -185.28      | 420.03       | -189.74                 | 0.69                    | 0.47                   | 25.09                 |
| 11,532.00             | 0.29            | 152.33            | 11,492.11             | -185.98      | 419.09       | -190.43                 | 1.54                    | -1.19                  | -98.50                |
| 11,627.00             | 0.50            | 147.47            | 11,587.11             | -186.54      | 419.43       | -191.00                 | 0.22                    | 0.22                   | -5.12                 |
| 11,721.00             | 1.25            | 211.88            | 11,681.10             | -187.76      | 419.11       | -192.21                 | 1.20                    | 0.80                   | 68.52                 |
| 11,815.00             | 1.97            | 227.86            | 11,775.06             | -189.71      | 417.37       | -194.14                 | 0.90                    | 0.77                   | 17.00                 |
| 11,910.00             | 2.07            | 234.17            | 11,870.00             | -191.81      | 414.77       | -196.22                 | 0.26                    | 0.11                   | 6.64                  |
| 11,946.00             | 2.19            | 235.74            | 11,905.98             | -192.58      | 413.67       | -196.97                 | 0.37                    | 0.33                   | 4.36                  |
| 12,042.00             | 2.37            | 244.40            | 12,001.90             | -194.47      | 410.36       | -198.83                 | 0.40                    | 0.19                   | 9.02                  |
| 12,105.00             | 1.58            | 266.45            | 12,064.87             | -195.09      | 408.32       | -199.42                 | 1.72                    | -1.25                  | 35.00                 |
| 12,183.00             | 0.88            | 323.46            | 12,142.85             | -194.67      | 406.89       | -198.99                 | 1.70                    | -0.90                  | 73.09                 |
| 12,200.00             | 0.69            | 281.82            | 12,159.85             | -194.55      | 406.71       | -198.87                 | 3.44                    | -1.12                  | -244.94               |
| 12,295.00             | 7.10            | 7.17              | 12,254.60             | -188.60      | 406.89       | -192.92                 | 7.45                    | 6.75                   | 89.84                 |
| 12,389.00             | 21.16           | 4.09              | 12,345.53             | -165.80      | 408.83       | -170.14                 | 14.97                   | 14.96                  | -3.28                 |
| 12,483.00             | 29.03           | 2.74              | 12,430.59             | -126.03      | 411.14       | -130.40                 | 8.39                    | 8.37                   | -1.44                 |
| 12,577.00             | 40.01           | 0.94              | 12,507.92             | -72.87       | 412.73       | -77.26                  | 11.73                   | 11.68                  | -1.91                 |
| 12,658.80             | 47.62           | 1.47              | 12,566.90             | -16.29       | 413.93       | -20.70                  | 9.32                    | 9.31                   | 0.64                  |
| FTP[CL#9H]            |                 |                   |                       |              |              |                         |                         |                        |                       |
| 12,672.00             | 48.85           | 1.54              | 12,575.70             | -6.45        | 414.19       | -10.86                  | 9.32                    | 9.31                   | 0.55                  |
| 12,766.00             | 59.61           | 1.19              | 12,630.56             | 69.69        | 415.99       | 65.25                   | 11.45                   | 11.45                  | -0.37                 |
| 12,860.00             | 66.27           | 4.51              | 12,673.31             | 153.23       | 420.22       | 148.74                  | 7.75                    | 7.09                   | 3.53                  |

# Scientific Drilling, Intl

## Survey Report

Company: Marathon Oil Permian, LLC  
Project: Lea County, NM (NAD27-NME)  
Site: Cave Lion Pad  
Well: Cave Lion 5 WA Federal #9H  
Wellbore: Wellbore #1  
Design: Actual

Local Co-ordinate Reference: Well Cave Lion 5 WA Federal #9H  
TVD Reference: KB=26.5 @ 3288.50usft  
MD Reference: KB=26.5 @ 3288.50usft  
North Reference: Grid  
Survey Calculation Method: Minimum Curvature  
Database: Midland District

### Survey

| Measured Depth (usft) | Inclination (°) | Azimuth (bearing) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
|-----------------------|-----------------|-------------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|
| 12,955.00             | 76.89           | 2.51              | 12,703.29             | 243.06       | 425.68       | 238.51                  | 11.36                   | 11.18                  | -2.11                 |
| 13,049.00             | 80.63           | 1.95              | 12,721.61             | 335.17       | 429.27       | 330.58                  | 4.02                    | 3.98                   | -0.60                 |
| 13,143.00             | 85.51           | 0.66              | 12,732.95             | 428.43       | 431.39       | 423.81                  | 5.37                    | 5.19                   | -1.37                 |
| 13,237.00             | 87.25           | 359.18            | 12,738.88             | 522.23       | 431.25       | 517.61                  | 2.43                    | 1.85                   | -1.57                 |
| 13,332.00             | 92.14           | 0.64              | 12,739.39             | 617.20       | 431.11       | 612.58                  | 5.37                    | 5.15                   | 1.54                  |
| 13,426.00             | 89.36           | 358.32            | 12,738.16             | 711.17       | 430.25       | 706.55                  | 3.85                    | -2.96                  | -2.47                 |
| 13,521.00             | 90.87           | 359.81            | 12,737.97             | 806.16       | 428.70       | 801.55                  | 2.23                    | 1.59                   | 1.57                  |
| 13,615.00             | 90.71           | 359.16            | 12,736.67             | 900.14       | 427.86       | 895.54                  | 0.71                    | -0.17                  | -0.69                 |
| 13,710.00             | 89.97           | 358.14            | 12,736.11             | 995.11       | 425.62       | 990.52                  | 1.33                    | -0.78                  | -1.07                 |
| 13,804.00             | 91.04           | 359.86            | 12,735.28             | 1,089.09     | 423.98       | 1,084.51                | 2.15                    | 1.14                   | 1.83                  |
| 13,899.00             | 89.56           | 359.18            | 12,734.78             | 1,184.08     | 423.18       | 1,179.51                | 1.71                    | -1.56                  | -0.72                 |
| 13,993.00             | 91.21           | 0.64              | 12,734.15             | 1,278.07     | 423.03       | 1,273.50                | 2.34                    | 1.76                   | 1.55                  |
| 14,088.00             | 90.03           | 357.86            | 12,733.12             | 1,373.05     | 421.79       | 1,368.48                | 3.18                    | -1.24                  | -2.93                 |
| 14,182.00             | 92.49           | 0.02              | 12,731.05             | 1,467.00     | 420.05       | 1,462.44                | 3.48                    | 2.62                   | 2.30                  |
| 14,276.00             | 90.10           | 357.81            | 12,728.93             | 1,560.94     | 418.27       | 1,556.40                | 3.46                    | -2.54                  | -2.35                 |
| 14,371.00             | 92.25           | 0.80              | 12,726.98             | 1,655.90     | 417.12       | 1,651.37                | 3.88                    | 2.26                   | 3.15                  |
| 14,466.00             | 92.72           | 356.36            | 12,722.86             | 1,750.76     | 414.77       | 1,746.24                | 4.70                    | 0.49                   | -4.67                 |
| 14,560.00             | 92.18           | 358.62            | 12,718.84             | 1,844.58     | 410.66       | 1,840.10                | 2.47                    | -0.57                  | 2.40                  |
| 14,654.00             | 91.81           | 2.25              | 12,715.57             | 1,938.50     | 411.37       | 1,934.01                | 3.88                    | -0.39                  | 3.86                  |
| 14,749.00             | 91.61           | 358.96            | 12,712.73             | 2,033.44     | 412.37       | 2,028.93                | 3.47                    | -0.21                  | -3.46                 |
| 14,843.00             | 88.93           | 356.13            | 12,712.29             | 2,127.33     | 408.35       | 2,122.87                | 4.15                    | -2.85                  | -3.01                 |
| 14,937.00             | 90.17           | 1.01              | 12,713.03             | 2,221.27     | 406.00       | 2,216.82                | 5.36                    | 1.32                   | 5.19                  |
| 15,032.00             | 90.60           | 2.18              | 12,712.39             | 2,316.23     | 408.65       | 2,311.75                | 1.31                    | 0.45                   | 1.23                  |
| 15,126.00             | 89.66           | 1.46              | 12,712.18             | 2,410.18     | 411.63       | 2,405.66                | 1.26                    | -1.00                  | -0.77                 |
| 15,221.00             | 90.47           | 3.15              | 12,712.07             | 2,505.10     | 415.45       | 2,500.53                | 1.97                    | 0.85                   | 1.78                  |
| 15,315.00             | 90.60           | 2.52              | 12,711.19             | 2,598.98     | 420.10       | 2,594.36                | 0.68                    | 0.14                   | -0.67                 |
| 15,410.00             | 91.98           | 1.42              | 12,709.05             | 2,693.90     | 423.37       | 2,689.24                | 1.86                    | 1.45                   | -1.16                 |
| 15,505.00             | 90.44           | 0.54              | 12,707.05             | 2,788.86     | 424.99       | 2,784.17                | 1.87                    | -1.62                  | -0.93                 |
| 15,599.00             | 90.60           | 0.16              | 12,706.19             | 2,882.85     | 425.56       | 2,878.16                | 0.44                    | 0.17                   | -0.40                 |
| 15,694.00             | 92.25           | 359.72            | 12,703.83             | 2,977.82     | 425.46       | 2,973.12                | 1.80                    | 1.74                   | -0.46                 |
| 15,788.00             | 92.51           | 0.01              | 12,699.93             | 3,071.74     | 425.24       | 3,067.04                | 0.41                    | 0.28                   | 0.31                  |
| 15,882.00             | 90.77           | 358.24            | 12,697.24             | 3,165.68     | 423.81       | 3,160.99                | 2.64                    | -1.85                  | -1.88                 |
| 15,977.00             | 91.98           | 359.18            | 12,694.96             | 3,260.63     | 421.67       | 3,255.95                | 1.61                    | 1.27                   | 0.99                  |
| 16,070.00             | 90.97           | 359.49            | 12,692.56             | 3,353.59     | 420.59       | 3,348.92                | 1.14                    | -1.09                  | 0.33                  |
| 16,164.00             | 89.66           | 357.59            | 12,692.05             | 3,447.55     | 418.20       | 3,442.90                | 2.46                    | -1.39                  | -2.02                 |
| 16,258.00             | 91.61           | 0.16              | 12,691.00             | 3,541.51     | 416.35       | 3,536.88                | 3.43                    | 2.07                   | 2.73                  |
| 16,353.00             | 91.47           | 358.94            | 12,688.45             | 3,636.47     | 415.60       | 3,631.84                | 1.29                    | -0.15                  | -1.28                 |
| 16,448.00             | 90.94           | 358.03            | 12,686.45             | 3,731.42     | 413.09       | 3,726.81                | 1.11                    | -0.56                  | -0.96                 |
| 16,542.00             | 90.54           | 354.83            | 12,685.24             | 3,825.22     | 407.24       | 3,820.66                | 3.43                    | -0.43                  | -3.40                 |
| 16,659.00             | 93.12           | 355.79            | 12,681.50             | 3,941.75     | 397.68       | 3,937.30                | 2.35                    | 2.21                   | 0.82                  |
| 16,753.00             | 92.48           | 358.38            | 12,676.91             | 4,035.51     | 392.91       | 4,031.10                | 2.83                    | -0.68                  | 2.76                  |
| 16,847.00             | 88.99           | 355.10            | 12,675.70             | 4,129.32     | 387.56       | 4,124.96                | 5.09                    | -3.71                  | -3.49                 |
| 16,941.00             | 90.10           | 358.04            | 12,676.45             | 4,223.14     | 381.94       | 4,218.84                | 3.34                    | 1.18                   | 3.13                  |

# Scientific Drilling, Intl

## Survey Report

**Company:** Marathon Oil Permian, LLC  
**Project:** Lea County, NM (NAD27-NME)  
**Site:** Cave Lion Pad  
**Well:** Cave Lion 5 WA Federal #9H  
**Wellbore:** Wellbore #1  
**Design:** Actual

**Local Co-ordinate Reference:** Well Cave Lion 5 WA Federal #9H  
**TVD Reference:** KB=26.5 @ 3288.50usft  
**MD Reference:** KB=26.5 @ 3288.50usft  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** Midland District

### Survey

| Measured Depth (usft)              | Inclination (°) | Azimuth (bearing) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
|------------------------------------|-----------------|-------------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|
| 17,036.00                          | 91.31           | 0.27              | 12,675.28             | 4,318.12     | 380.54       | 4,313.82                | 2.67                    | 1.27                   | 2.35                  |
| 17,130.00                          | 92.92           | 0.37              | 12,671.81             | 4,412.05     | 381.06       | 4,407.74                | 1.72                    | 1.71                   | 0.11                  |
| 17,224.00                          | 93.25           | 359.89            | 12,666.75             | 4,505.91     | 381.27       | 4,501.60                | 0.62                    | 0.35                   | -0.51                 |
| 17,318.00                          | 92.21           | 359.00            | 12,662.28             | 4,599.80     | 380.37       | 4,595.49                | 1.46                    | -1.11                  | -0.95                 |
| 17,412.00                          | 91.84           | 358.92            | 12,658.96             | 4,693.72     | 378.66       | 4,689.43                | 0.40                    | -0.39                  | -0.09                 |
| 17,506.00                          | 89.19           | 356.90            | 12,658.11             | 4,787.64     | 375.23       | 4,783.38                | 3.54                    | -2.82                  | -2.15                 |
| 17,559.00                          | 91.11           | 359.15            | 12,657.97             | 4,840.61     | 373.41       | 4,836.36                | 5.58                    | 3.62                   | 4.25                  |
| <b>SDI MWD</b>                     |                 |                   |                       |              |              |                         |                         |                        |                       |
| 17,619.00                          | 91.11           | 359.15            | 12,656.81             | 4,900.59     | 372.52       | 4,896.34                | 0.00                    | 0.00                   | 0.00                  |
| <b>Bit Projection - BHL[CL#9H]</b> |                 |                   |                       |              |              |                         |                         |                        |                       |

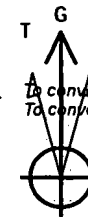
### Design Annotations

| Measured Depth (usft) | Vertical Depth (usft) | Local Coordinates |              | Comment        |
|-----------------------|-----------------------|-------------------|--------------|----------------|
|                       |                       | +N/-S (usft)      | +E/-W (usft) |                |
| 17,559.00             | 12,657.97             | 4,840.61          | 373.41       | SDI MWD        |
| 17,619.00             | 12,656.81             | 4,900.59          | 372.52       | Bit Projection |

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_



**Cave Lion 5 WA Federal #9H**  
**Lea County, NM (NAD27-NME)**  
**Northing: 388917.06**  
**Easting: 791754.71**  
**Actual**



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

Azimuths to Grid North  
 True North: -0.50°  
 Magnetic North: 6.10°

Magnetic Field  
 Strength: 47738.1snT  
 Dip Angle: 59.70°  
 Date: 2/14/2019  
 Model: HDGM

KB=26.5 @ 3288.50usft



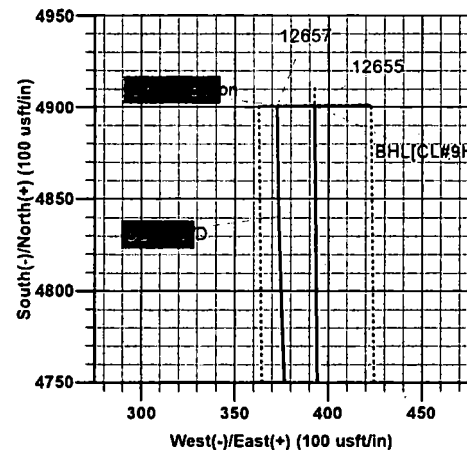
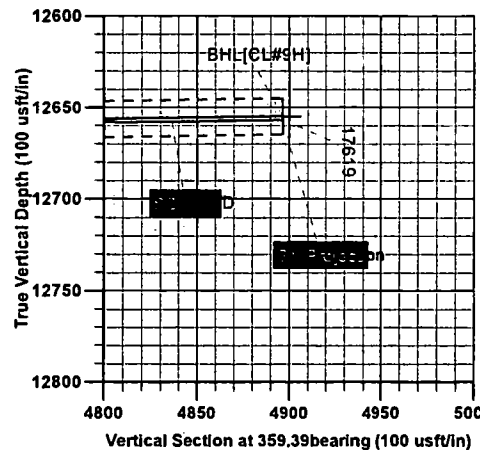
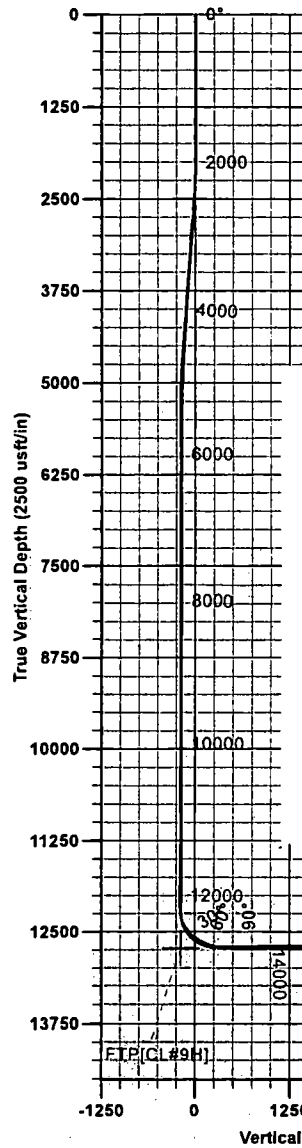
### WELL DETAILS: Cave Lion 5 WA Federal #9H

Ground Level: 3262.00

| +N/-S | +E/-W | Northing  | Easting   | Latitude                        | Longitude |
|-------|-------|-----------|-----------|---------------------------------|-----------|
| 0.00  | 0.00  | 388917.06 | 791754.71 | 32° 3' 56.695 103° 23' 29.468 W |           |

### SECTION DETAILS

| MD       | Inc   | Azi    | TVD      | +N/-S   | +E/-W  | Dleg  | TFace  | Vsect   |
|----------|-------|--------|----------|---------|--------|-------|--------|---------|
| 0.00     | 0.00  | 0.00   | 0.00     | 0.00    | 0.00   | 0.00  | 0.00   | 0.00    |
| 2010.00  | 0.00  | 0.00   | 2010.00  | 0.00    | 0.00   | 0.00  | 0.00   | 0.00    |
| 2509.55  | 9.99  | 112.34 | 2507.02  | -16.51  | 40.18  | 2.00  | 112.34 | -16.94  |
| 4790.09  | 9.99  | 112.34 | 4752.99  | -166.89 | 406.11 | 0.00  | 0.00   | -171.20 |
| 5289.59  | 0.00  | 0.00   | 5249.96  | -183.40 | 446.28 | 2.00  | 180.00 | -188.14 |
| 12281.45 | 0.00  | 0.00   | 12241.82 | -183.40 | 446.28 | 0.00  | 0.00   | -188.14 |
| 13038.12 | 90.80 | 359.40 | 12719.24 | 300.71  | 441.17 | 12.00 | 359.40 | 295.99  |
| 17638.97 | 90.80 | 359.40 | 12655.00 | 4900.86 | 392.62 | 0.00  | 0.00   | 4896.40 |



### ANNOTATIONS

| TVB      | MD       | Annotation     |
|----------|----------|----------------|
| 12657.97 | 17559.00 | SDI MWD        |
| 12656.81 | 17619.00 | Bit Projection |

