

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENTFORM APPROVED  
OMB NO. 1004-0137  
Expires: January 31, 2018

## SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.

5. Lease Serial No.  
NMLC063228

6. Indian, Allottee or Tribe Name

7. BLM or CA/Agreement, Name and/or No.

SUBMIT IN TRIPLICATE - Other instructions on page 2

|   |  |  |
|---|--|--|
| 1. Type of Well<br><input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other                      |  | 8. Well Name and No.<br>TRISTE DRAW 25 FEDERAL 5H              |
| 2. Name of Operator<br>CIMAREX ENERGY COMPANY   |  | 9. API Well No.<br>30-025-42105-00-X1                          |
| 3a. Address<br>202 S CHEYENNE AVE SUITE 1000<br>TULSA, OK 74103   |  | 10. Field and Pool or Exploratory Area<br>TRISTE DRAW-DELAWARE |
| 3b. Phone No. (include area code)<br>Ph: 918.560.7060   |  | 11. County or Parish, State<br>LEA COUNTY, NM                  |
| 4. Location of Well (Footage, Sec., T., R., M., or Survey Description)<br>Sec 25 T23S R32E SESE 370FSL 1270FEL ✓<br>32.269494 N Lat, 103.623858 W Lon |  |  |

## 12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

| TYPE OF SUBMISSION                                   | TYPE OF ACTION                                |   |  |   |
|--|---|---|--|---|
| <input checked="" type="checkbox"/> Notice of Intent | <input type="checkbox"/> Acidize              | <input type="checkbox"/> Deepen               | <input type="checkbox"/> Production (Start/Resume) | <input type="checkbox"/> Water Shut-Off   |
| <input type="checkbox"/> Subsequent Report           | <input type="checkbox"/> Alter Casing         | <input type="checkbox"/> Hydraulic Fracturing | <input type="checkbox"/> Reclamation               | <input type="checkbox"/> Well Integrity   |
| <input type="checkbox"/> Final Abandonment Notice    | <input type="checkbox"/> Casing Repair        | <input type="checkbox"/> New Construction     | <input type="checkbox"/> Recomplete                | <input checked="" type="checkbox"/> Other |
|  | <input type="checkbox"/> Change Plans         | <input type="checkbox"/> Plug and Abandon     | <input type="checkbox"/> Temporarily Abandon       | Change to Original A                      |
|  | <input type="checkbox"/> Convert to Injection | <input type="checkbox"/> Plug Back            | <input type="checkbox"/> Water Disposal            | PD  |

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.

Cimarex respectfully request approval to change the original drilling plan for the above referenced well. Cimarex proposes to change the SHL there by changing the directional plan. No additional disturbance is required for the well pad.

Approved:  
370 FSL & 1270 FEL, Sec 25-23S-23E  
Proposed:  
310 FSL & 1270 FEL, Sec 25-23S-32E

Please also change the casing design as indicated below:  
Surface:

SEE ATTACHED FOR  
CONDITIONS OF APPROVAL

|   |                          |
|---|--------------------------|
| 14. I hereby certify that the foregoing is true and correct.<br><b>Electronic Submission #358826 verified by the BLM Well Information System<br/>For CIMAREX ENERGY COMPANY, sent to the Hobbs<br/>Committed to AFMSS for processing by CHRISTOPHER WALLS on 11/30/2016 (17CRW0008SE)</b> |                          |
| Name (Printed/Typed) ARICKA EASTERLING  | Title REGULATORY ANALYST |
| Signature (Electronic Submission)   | Date 11/22/2016          |

## THIS SPACE FOR FEDERAL OR STATE OFFICE USE

|   |                              |              |
|---|------------------------------|--------------|
| Approved By <i>Cody A. Hunter</i>   | Title AFM - Lands & Minerals | Date 12/2/16 |
| Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon. | Office Carlsbad Field Office |              |

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.

(Instructions on page 2)

\*\* BLM REVISED \*\* BLM REVISED \*\* BLM REVISED \*\* BLM REVISED \*\* BLM REVISED \*\*

**Additional data for EC transaction #358826 that would not fit on the form**

**32. Additional remarks, continued**

Hole size: 17-1/2"  
Csg size: 13-3/8"  
Weight: 48  
Grade: H-40/J-55 Hybrid  
Conn: STC  
Set Depth: 1270'

Intermediate:  
Hole size: 12-1/4"  
Csg size: 9-5/8"  
Weight: 36  
Grade: J-55  
Conn: LTC  
Set Depth: 5000'

Production  
Hole size: 8-3/4"  
Csg size: 5-1/2"  
Weight: 17  
Grade: L-80  
Conn: LTC/BTC  
Set Depth: 14464'

Please see the attached drilling plan for changes to cement design and other wellbore changes.



**1. Geological Formations**

TVD of target 9,860  
MD at TD 14,464

Pilot Hole TD N/A  
Deepest expected fresh water

| Formation      | Depth (TVD) from KB | Water/Mineral Bearing/Target Zone | Hazards |
|----------------|---------------------|-----------------------------------|---------|
| Rustler        | 1240                | N/A                               |         |
| Salt           | 1730                | N/A                               |         |
| Base of salt   | 4800                | N/A                               |         |
| Lamar          | 4990                | N/A                               |         |
| Delaware Sands | 5030                | N/A                               |         |
| Brushy Canyon  | 7360                | Hydrocarbons                      |         |
| Bone Spring    | 8850                | Hydrocarbons                      |         |
| Avalon Shale   | 9370                | Hydrocarbons                      |         |
| Avalon Target  | 9860                | Hydrocarbons                      |         |

**2. Casing Program**

| Hole Size                 | Casing Depth From | Casing Depth To | Casing Size | Weight (lb/ft) | Grade            | Conn. | SF Collapse | SF Burst | SF Tension         |
|---------------------------|-------------------|-----------------|-------------|----------------|------------------|-------|-------------|----------|--------------------|
| 17 1/2                    | 0                 | 1270<br>1315    | 13-3/8"     | 48.00          | H-40/J-55 Hybrid | ST&C  | 1.27        | 2.98     | 5.28               |
| 12 1/4                    | 0                 | 5000            | 9-5/8"      | 36.00          | J-55             | LT&C  | 1.17        | 1.34     | 2.52               |
| 8 3/4                     | 0                 | 9122            | 5-1/2"      | 17.00          | L-80             | LT&C  | 1.44        | 1.77     | 2.02               |
| 8 3/4                     | 9122              | 14464           | 5-1/2"      | 17.00          | L-80             | BT&C  | 1.33        | 1.64     | 31.64              |
| BLM Minimum Safety Factor |                   |                 |             |                |                  |       | 1.125       | 1        | 1.6 Dry<br>1.8 Wet |

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

|  | Y or N |
|--|--------|
| Is casing new? If used, attach certification as required in Onshore Order #1   | Y      |
| Does casing meet API specifications? If no, attach casing specification sheet.   | Y      |
| Is premium or uncommon casing planned? If yes attach casing specification sheet.   | N      |
| Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria). | Y      |
| Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?                | Y      |
| Is well located within Capitan Reef?   | N      |
| If yes, does production casing cement tie back a minimum of 50' above the Reef?  | N      |
| Is well within the designated 4 string boundary.   | N      |
| Is well located in SOPA but not in R-111-P?  | N      |
| If yes, are the first 2 strings cemented to surface and 3rd string cement tied back 500' into previous casing?                                   | N      |
| Is well located in R-111-P and SOPA?   | N      |
| If yes, are the first three strings cemented to surface?   | N      |
| Is 2nd string set 100' to 600' below the base of salt?   | N      |
| Is well located in high Cave/Karst?  | N      |
| If yes, are there two strings cemented to surface?   | N      |
| (For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?   | N      |
| Is well located in critical Cave/Karst?  | N      |
| If yes, are there three strings cemented to surface?   | N      |

**3. Cementing Program**

| Casing       | # Sk | Wt.<br>lb/gal | Yld<br>ft <sup>3</sup> /sack | H <sub>2</sub> O<br>gal/sk | 500# Comp.<br>Strength<br>(hours) | Slurry Description   |
|--------------|------|---------------|------------------------------|----------------------------|-----------------------------------|--|
| Surface      | 605  | 13.50         | 1.75                         | 8.83                       | 15.5                              | Lead: Class C + Bentonite + Calcium Chloride + LCM                     |
|              | 165  | 14.80         | 1.34                         | 6.32                       | 9.5                               | Tail: Class C + LCM  |
|              |      |               |                              |                            |                                   |  |
| Intermediate | 937  | 12.90         | 1.88                         | 9.65                       | 30                                | Lead: 35:65 (Poz:C) + Salt + Bentonite + LCM + Retarder                |
|              | 292  | 14.80         | 1.34                         | 6.32                       | 9.5                               | Tail: Class C + Retarder + LCM   |
|              |      |               |                              |                            |                                   |  |
| Production   | 578  | 10.80         | 2.35                         | 9.60                       | 17:43                             | Lead: Tuned Light I Class H  |
|              | 1143 | 14.20         | 1.30                         | 5.86                       | 14:30                             | Tail: 50:50 (Poz:H) + Salt + Bentonite + Fluid Loss + Dispersant + SMS |
|              |      |               |                              |                            |                                   |  |

| Casing String | TOC  | % Excess |
|---------------|------|----------|
| Surface       | 0    | 45       |
| Intermediate  | 0    | 44       |
| Production    | 4800 | 17       |

**4. Pressure Control Equipment**

| A variance is requested for the use of a diverter on the surface casing. See attached for schematic. |        |                 |            |   |                         |
|--|--------|-----------------|------------|---|-------------------------|
| BOP installed and tested before drilling which hole?   | Size   | Min Required WP | Type       |   | Tested To               |
| 8 3/4  | 13 5/8 | 3M              | Annular    | X | 50% of working pressure |
|  |        |                 | Blind Ram  | X | 3M                      |
|  |        |                 | Pipe Ram   |   |                         |
|  |        |                 | Double Ram | X |                         |
|  |        |                 | Other      |   |                         |

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. See attached schematics.

|   |   |  |  |  |  |
|---|---|--|--|--|--|
|   | Formation integrity test will be performed per Onshore Order #2.<br>On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i. |  |  |  |  |
| X | A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.   |  |  |  |  |
| N | Are anchors required by manufacturer?   |  |  |  |  |

**5. Mud Program**

| Depth            | Type         | Weight (ppg) | Viscosity | Water Loss |
|------------------|--------------|--------------|-----------|------------|
| 0' to 1270' 1315 | FW Spud Mud  | 8.30 - 8.80  | 28        | N/C        |
| 1270' to 5000'   | Brine Water  | 9.60 - 10.10 | 30-32     | N/C        |
| 5000' to 14464'  | FW/Cut Brine | 8.70 - 9.20  | 30-32     | N/C        |

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times.

|   |                             |
|---|-----------------------------|
| What will be used to monitor the loss or gain of fluid? | PVT/Pason/Visual Monitoring |
|---|-----------------------------|

**6. Logging and Testing Procedures**

| Logging, Coring and Testing |   |
|-----------------------------|---|
| X                           | Will run GR/CNL from TD to surface (horizontal well – vertical portion of hole). Stated logs run will be in the Completion Report and submitted to the BLM. |
|                             | No logs are planned based on well control or offset log information.  |
|                             | Drill stem test?  |
|                             | Coring?   |

| Additional Logs Planned | Interval |
|-------------------------|----------|
|-------------------------|----------|

**7. Drilling Conditions**

| Condition                  |          |
|----------------------------|----------|
| BH Pressure at deepest TVD | 4717 psi |
| Abnormal Temperature       | No       |

Hydrogen Sulfide (H<sub>2</sub>S) monitors will be installed prior to drilling out the surface shoe. If H<sub>2</sub>S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM.

|   |                                   |
|---|-----------------------------------|
| X | H <sub>2</sub> S is present       |
| X | H <sub>2</sub> S plan is attached |

**8. Other Facets of Operation**





| Comments                       | MD<br>(ft) | Incl<br>(°) | Azim Grid<br>(°) | TVD<br>(ft) | VSEC<br>(ft) | NS<br>(ft) | EW<br>(ft) | DLS<br>(°/100ft) | Northing<br>(ftUS) | Easting<br>(ftUS) | Latitude<br>(N/S ° ' ") | Longitude<br>(E/W ° ' ") |
|--------------------------------|------------|-------------|------------------|-------------|--------------|------------|------------|------------------|--------------------|-------------------|-------------------------|--------------------------|
|                                | 8400.00    | 4.40        | 89.39            | 8391.67     | 39.68        | 2.37       | 222.48     | 0.00             | 462442.07          | 760846.07         | N 32 16 9.59 W          | 103 37 23.30             |
|                                | 8500.00    | 4.40        | 89.39            | 8491.37     | 41.05        | 2.45       | 230.15     | 0.00             | 462442.15          | 760853.74         | N 32 16 9.59 W          | 103 37 23.21             |
|                                | 8600.00    | 4.40        | 89.39            | 8591.08     | 42.42        | 2.53       | 237.82     | 0.00             | 462442.23          | 760861.41         | N 32 16 9.59 W          | 103 37 23.12             |
|                                | 8700.00    | 4.40        | 89.39            | 8690.78     | 43.79        | 2.61       | 245.50     | 0.00             | 462442.31          | 760869.09         | N 32 16 9.59 W          | 103 37 23.03             |
|                                | 8800.00    | 4.40        | 89.39            | 8790.49     | 45.16        | 2.70       | 253.17     | 0.00             | 462442.40          | 760876.76         | N 32 16 9.59 W          | 103 37 22.94             |
|                                | 8900.00    | 4.40        | 89.39            | 8890.20     | 46.53        | 2.78       | 260.84     | 0.00             | 462442.48          | 760884.43         | N 32 16 9.59 W          | 103 37 22.85             |
|                                | 9000.00    | 4.40        | 89.39            | 8989.90     | 47.89        | 2.86       | 268.51     | 0.00             | 462442.56          | 760892.10         | N 32 16 9.59 W          | 103 37 22.76             |
|                                | 9100.00    | 4.40        | 89.39            | 9089.61     | 49.26        | 2.94       | 276.18     | 0.00             | 462442.64          | 760899.77         | N 32 16 9.59 W          | 103 37 22.67             |
| KOP - Build @<br>10°/100' DLS  | 9122.29    | 4.40        | 89.39            | 9111.83     | 49.57        | 2.96       | 277.89     | 0.00             | 462442.66          | 760901.48         | N 32 16 9.59 W          | 103 37 22.65             |
|                                | 9200.00    | 12.16       | 86.89            | 9188.67     | 51.91        | 3.44       | 289.06     | 10.00            | 462443.14          | 760912.65         | N 32 16 9.60 W          | 103 37 22.52             |
|                                | 9300.00    | 22.16       | 86.24            | 9284.10     | 58.64        | 5.25       | 318.48     | 10.00            | 462444.95          | 760942.07         | N 32 16 9.61 W          | 103 37 22.18             |
|                                | 9400.00    | 32.16       | 85.98            | 9372.96     | 69.35        | 8.36       | 363.97     | 10.00            | 462448.06          | 760987.55         | N 32 16 9.64 W          | 103 37 21.65             |
|                                | 9500.00    | 42.16       | 85.83            | 9452.55     | 83.71        | 12.68      | 424.14     | 10.00            | 462452.38          | 761047.73         | N 32 16 9.68 W          | 103 37 20.95             |
| Build & Turn @<br>10°/100' DLS | 9528.38    | 45.00       | 85.80            | 9473.11     | 88.39        | 14.11      | 443.66     | 10.00            | 462453.81          | 761067.24         | N 32 16 9.69 W          | 103 37 20.72             |
|                                | 9600.00    | 45.77       | 75.79            | 9523.47     | 104.86       | 22.27      | 493.85     | 10.00            | 462461.97          | 761117.43         | N 32 16 9.77 W          | 103 37 20.13             |
|                                | 9700.00    | 48.24       | 62.53            | 9591.82     | 141.98       | 48.34      | 561.84     | 10.00            | 462488.04          | 761185.42         | N 32 16 10.03 W         | 103 37 19.34             |
|                                | 9800.00    | 52.10       | 50.50            | 9655.99     | 194.48       | 90.75      | 625.54     | 10.00            | 462530.45          | 761249.12         | N 32 16 10.44 W         | 103 37 18.60             |
|                                | 9900.00    | 57.06       | 39.82            | 9714.05     | 260.78       | 148.22     | 683.00     | 10.00            | 462587.92          | 761306.58         | N 32 16 11.01 W         | 103 37 17.92             |
|                                | 10000.00   | 62.81       | 30.37            | 9764.21     | 338.86       | 219.00     | 732.49     | 10.00            | 462658.70          | 761356.06         | N 32 16 11.70 W         | 103 37 17.34             |
|                                | 10100.00   | 69.14       | 21.88            | 9804.96     | 426.36       | 300.94     | 772.49     | 10.00            | 462740.63          | 761396.06         | N 32 16 12.51 W         | 103 37 16.87             |
|                                | 10200.00   | 75.85       | 14.10            | 9835.06     | 520.60       | 391.55     | 801.79     | 10.00            | 462831.24          | 761425.36         | N 32 16 13.41 W         | 103 37 16.52             |
|                                | 10300.00   | 82.80       | 6.78             | 9853.59     | 618.73       | 488.08     | 819.50     | 10.00            | 462927.76          | 761443.07         | N 32 16 14.36 W         | 103 37 16.31             |
|                                | 10400.00   | 89.86       | 359.68           | 9859.99     | 717.76       | 587.59     | 825.08     | 10.00            | 463027.27          | 761448.65         | N 32 16 15.34 W         | 103 37 16.23             |
| Landing Point                  | 10401.98   | 90.00       | 359.54           | 9860.00     | 719.71       | 589.57     | 825.07     | 10.00            | 463029.25          | 761448.64         | N 32 16 15.36 W         | 103 37 16.23             |
|                                | 10500.00   | 90.00       | 359.54           | 9860.00     | 816.21       | 687.59     | 824.27     | 0.00             | 463127.26          | 761447.84         | N 32 16 16.33 W         | 103 37 16.23             |
|                                | 10600.00   | 90.00       | 359.54           | 9860.00     | 914.65       | 787.59     | 823.46     | 0.00             | 463227.26          | 761447.03         | N 32 16 17.32 W         | 103 37 16.24             |
|                                | 10700.00   | 90.00       | 359.54           | 9860.00     | 1013.09      | 887.58     | 822.65     | 0.00             | 463327.25          | 761446.22         | N 32 16 18.31 W         | 103 37 16.24             |
|                                | 10800.00   | 90.00       | 359.54           | 9860.00     | 1111.53      | 987.58     | 821.84     | 0.00             | 463427.24          | 761445.41         | N 32 16 19.30 W         | 103 37 16.24             |
|                                | 10900.00   | 90.00       | 359.54           | 9860.00     | 1209.97      | 1087.58    | 821.03     | 0.00             | 463527.23          | 761444.60         | N 32 16 20.29 W         | 103 37 16.24             |
|                                | 11000.00   | 90.00       | 359.54           | 9860.00     | 1308.41      | 1187.57    | 820.22     | 0.00             | 463627.23          | 761443.79         | N 32 16 21.28 W         | 103 37 16.24             |
|                                | 11100.00   | 90.00       | 359.54           | 9860.00     | 1406.86      | 1287.57    | 819.41     | 0.00             | 463727.22          | 761442.98         | N 32 16 22.27 W         | 103 37 16.25             |
|                                | 11200.00   | 90.00       | 359.54           | 9860.00     | 1505.30      | 1387.57    | 818.60     | 0.00             | 463827.21          | 761442.17         | N 32 16 23.26 W         | 103 37 16.25             |
|                                | 11300.00   | 90.00       | 359.54           | 9860.00     | 1603.74      | 1487.56    | 817.79     | 0.00             | 463927.21          | 761441.36         | N 32 16 24.25 W         | 103 37 16.25             |
|                                | 11400.00   | 90.00       | 359.54           | 9860.00     | 1702.18      | 1587.56    | 816.98     | 0.00             | 464027.20          | 761440.55         | N 32 16 25.24 W         | 103 37 16.25             |
|                                | 11500.00   | 90.00       | 359.54           | 9860.00     | 1800.62      | 1687.56    | 816.17     | 0.00             | 464127.19          | 761439.73         | N 32 16 26.23 W         | 103 37 16.25             |
|                                | 11600.00   | 90.00       | 359.54           | 9860.00     | 1899.06      | 1787.55    | 815.35     | 0.00             | 464227.19          | 761438.92         | N 32 16 27.22 W         | 103 37 16.25             |
|                                | 11700.00   | 90.00       | 359.54           | 9860.00     | 1997.50      | 1887.55    | 814.54     | 0.00             | 464327.18          | 761438.11         | N 32 16 28.21 W         | 103 37 16.26             |
|                                | 11800.00   | 90.00       | 359.54           | 9860.00     | 2095.95      | 1987.55    | 813.73     | 0.00             | 464427.17          | 761437.30         | N 32 16 29.20 W         | 103 37 16.26             |
|                                | 11900.00   | 90.00       | 359.54           | 9860.00     | 2194.39      | 2087.54    | 812.92     | 0.00             | 464527.16          | 761436.49         | N 32 16 30.19 W         | 103 37 16.26             |
|                                | 12000.00   | 90.00       | 359.54           | 9860.00     | 2292.83      | 2187.54    | 812.11     | 0.00             | 464627.16          | 761435.68         | N 32 16 31.18 W         | 103 37 16.26             |
|                                | 12100.00   | 90.00       | 359.54           | 9860.00     | 2391.27      | 2287.54    | 811.30     | 0.00             | 464727.15          | 761434.87         | N 32 16 32.17 W         | 103 37 16.26             |
|                                | 12200.00   | 90.00       | 359.54           | 9860.00     | 2489.71      | 2387.53    | 810.49     | 0.00             | 464827.14          | 761434.06         | N 32 16 33.15 W         | 103 37 16.26             |
|                                | 12300.00   | 90.00       | 359.54           | 9860.00     | 2588.15      | 2487.53    | 809.68     | 0.00             | 464927.14          | 761433.25         | N 32 16 34.14 W         | 103 37 16.27             |
|                                | 12400.00   | 90.00       | 359.54           | 9860.00     | 2686.59      | 2587.53    | 808.87     | 0.00             | 465027.13          | 761432.44         | N 32 16 35.13 W         | 103 37 16.27             |
|                                | 12500.00   | 90.00       | 359.54           | 9860.00     | 2785.04      | 2687.52    | 808.06     | 0.00             | 465127.12          | 761431.63         | N 32 16 36.12 W         | 103 37 16.27             |
|                                | 12600.00   | 90.00       | 359.54           | 9860.00     | 2883.48      | 2787.52    | 807.25     | 0.00             | 465227.11          | 761430.82         | N 32 16 37.11 W         | 103 37 16.27             |
|                                | 12700.00   | 90.00       | 359.54           | 9860.00     | 2981.92      | 2887.52    | 806.44     | 0.00             | 465327.11          | 761430.00         | N 32 16 38.10 W         | 103 37 16.27             |
|                                | 12800.00   | 90.00       | 359.54           | 9860.00     | 3080.36      | 2987.51    | 805.62     | 0.00             | 465427.10          | 761429.19         | N 32 16 39.09 W         | 103 37 16.27             |
|                                | 12900.00   | 90.00       | 359.54           | 9860.00     | 3178.80      | 3087.51    | 804.81     | 0.00             | 465527.09          | 761428.38         | N 32 16 40.08 W         | 103 37 16.28             |
|                                | 13000.00   | 90.00       | 359.54           | 9860.00     | 3277.24      | 3187.51    | 804.00     | 0.00             | 465627.09          | 761427.57         | N 32 16 41.07 W         | 103 37 16.28             |
|                                | 13100.00   | 90.00       | 359.54           | 9860.00     | 3375.68      | 3287.50    | 803.19     | 0.00             | 465727.08          | 761426.76         | N 32 16 42.06 W         | 103 37 16.28             |
|                                | 13200.00   | 90.00       | 359.54           | 9860.00     | 3474.13      | 3387.50    | 802.38     | 0.00             | 465827.07          | 761425.95         | N 32 16 43.05 W         | 103 37 16.28             |
|                                | 13300.00   | 90.00       | 359.54           | 9860.00     | 3572.57      | 3487.50    | 801.57     | 0.00             | 465927.06          | 761425.14         | N 32 16 44.04 W         | 103 37 16.28             |
|                                | 13400.00   | 90.00       | 359.54           | 9860.00     | 3671.01      | 3587.49    | 800.76     | 0.00             | 466027.06          | 761424.33         | N 32 16 45.03 W         | 103 37 16.28             |
|                                | 13500.00   | 90.00       | 359.54           | 9860.00     | 3769.45      | 3687.49    | 799.95     | 0.00             | 466127.05          | 761423.52         | N 32 16 46.02 W         | 103 37 16.29             |
|                                | 13600.00   | 90.00       | 359.54           | 9860.00     | 3867.89      | 3787.49    | 799.14     | 0.00             | 466227.04          | 761422.71         | N 32 16 47.01 W         | 103 37 16.29             |
|                                | 13700.00   | 90.00       | 359.54           | 9860.00     | 3966.33      | 3887.48    | 798.33     | 0.00             | 466327.04          | 761421.90         | N 32 16 48.00 W         | 103 37 16.29             |





# Cimarex Triste Draw 25 Federal #5H Rev2 RM 16Nov16 Proposal Geodetic Report

(Non-Def Plan)



Report Date: November 16, 2016 - 10:09 AM  
Client: Cimarex  
Field: NM Lea County (NAD 83)  
Structure / Slot: Cimarex Triste Draw 25 Federal #5H / Triste Draw 25 Federal #5H  
Well: Triste Draw 25 Federal #5H  
Borehole: Original Borehole  
UWI / API#: Unknown / Unknown  
Survey Name: Cimarex Triste Draw 25 Federal #5H Rev2 RM 16Nov16  
Survey Date: November 16, 2016  
Tort / AHD / DDI / ERD Ratio: 132.369 ° / 5261.088 ft / 6.009 / 0.534  
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet  
Location Lat / Long: N 32° 16' 9.58349", W 103° 37' 25.88767"  
Location Grid N/E Y/X: N 462439.700 ftUS, E 760623.600 ftUS  
CRS Grid Convergence Angle: 0.3788 °  
Grid Scale Factor: 0.99996416  
Version / Patch: 2.10.254.0

Survey / DLS Computation: Minimum Curvature / Lubinski  
Vertical Section Azimuth: 9.664 ° (Grid North)  
Vertical Section Origin: 0.000 ft, 0.000 ft  
TVD Reference Datum: RKB  
TVD Reference Elevation: 3719.000 ft above MSL  
Seabed / Ground Elevation: 3692.000 ft above MSL  
Magnetic Declination: 6.944 °  
Total Gravity Field Strength: 998.4364mgn (9.80665 Based)  
Gravity Model: GARM  
Total Magnetic Field Strength: 48233.642 nT  
Magnetic Dip Angle: 60.080 °  
Declination Date: November 16, 2016  
Magnetic Declination Model: HDGM 2016  
North Reference: Grid North  
Grid Convergence Used: 0.3788 °  
Total Corr Mag North->Grid North: 6.5655 °  
Local Coord Referenced To: Well Head

| Comments                           | MD<br>(ft) | Incl<br>(°) | Azim Grid<br>(°) | TVD<br>(ft) | VSEC<br>(ft) | NS<br>(ft) | EW<br>(ft) | DLS<br>(°/100ft) | Northing<br>(ftUS) | Easting<br>(ftUS) | Latitude<br>(N/S ° ' ")     | Longitude<br>(E/W ° ' ") |
|------------------------------------|------------|-------------|------------------|-------------|--------------|------------|------------|------------------|--------------------|-------------------|-----------------------------|--------------------------|
| Tie-In SHL [310'<br>FSL, 1270 FEL] | 0.00       | 0.00        | 0.00             | 0.00        | 0.00         | 0.00       | 0.00       | N/A              | 462439.70          | 760623.60         | N 32 16 9.58 W 103 37 25.89 |                          |
|                                    | 100.00     | 0.00        | 89.39            | 100.00      | 0.00         | 0.00       | 0.00       | 0.00             | 462439.70          | 760623.60         | N 32 16 9.58 W 103 37 25.89 |                          |
|                                    | 200.00     | 0.00        | 89.39            | 200.00      | 0.00         | 0.00       | 0.00       | 0.00             | 462439.70          | 760623.60         | N 32 16 9.58 W 103 37 25.89 |                          |
|                                    | 300.00     | 0.00        | 89.39            | 300.00      | 0.00         | 0.00       | 0.00       | 0.00             | 462439.70          | 760623.60         | N 32 16 9.58 W 103 37 25.89 |                          |
|                                    | 400.00     | 0.00        | 89.39            | 400.00      | 0.00         | 0.00       | 0.00       | 0.00             | 462439.70          | 760623.60         | N 32 16 9.58 W 103 37 25.89 |                          |
|                                    | 500.00     | 0.00        | 89.39            | 500.00      | 0.00         | 0.00       | 0.00       | 0.00             | 462439.70          | 760623.60         | N 32 16 9.58 W 103 37 25.89 |                          |
|                                    | 600.00     | 0.00        | 89.39            | 600.00      | 0.00         | 0.00       | 0.00       | 0.00             | 462439.70          | 760623.60         | N 32 16 9.58 W 103 37 25.89 |                          |
|                                    | 700.00     | 0.00        | 89.39            | 700.00      | 0.00         | 0.00       | 0.00       | 0.00             | 462439.70          | 760623.60         | N 32 16 9.58 W 103 37 25.89 |                          |
|                                    | 800.00     | 0.00        | 89.39            | 800.00      | 0.00         | 0.00       | 0.00       | 0.00             | 462439.70          | 760623.60         | N 32 16 9.58 W 103 37 25.89 |                          |
|                                    | 900.00     | 0.00        | 89.39            | 900.00      | 0.00         | 0.00       | 0.00       | 0.00             | 462439.70          | 760623.60         | N 32 16 9.58 W 103 37 25.89 |                          |
|                                    | 1000.00    | 0.00        | 89.39            | 1000.00     | 0.00         | 0.00       | 0.00       | 0.00             | 462439.70          | 760623.60         | N 32 16 9.58 W 103 37 25.89 |                          |
|                                    | 1100.00    | 0.00        | 89.39            | 1100.00     | 0.00         | 0.00       | 0.00       | 0.00             | 462439.70          | 760623.60         | N 32 16 9.58 W 103 37 25.89 |                          |
|                                    | 1200.00    | 0.00        | 89.39            | 1200.00     | 0.00         | 0.00       | 0.00       | 0.00             | 462439.70          | 760623.60         | N 32 16 9.58 W 103 37 25.89 |                          |
|                                    | 1300.00    | 0.00        | 89.39            | 1300.00     | 0.00         | 0.00       | 0.00       | 0.00             | 462439.70          | 760623.60         | N 32 16 9.58 W 103 37 25.89 |                          |
|                                    | 1400.00    | 0.00        | 89.39            | 1400.00     | 0.00         | 0.00       | 0.00       | 0.00             | 462439.70          | 760623.60         | N 32 16 9.58 W 103 37 25.89 |                          |
|                                    | 1500.00    | 0.00        | 89.39            | 1500.00     | 0.00         | 0.00       | 0.00       | 0.00             | 462439.70          | 760623.60         | N 32 16 9.58 W 103 37 25.89 |                          |
|                                    | 1600.00    | 0.00        | 89.39            | 1600.00     | 0.00         | 0.00       | 0.00       | 0.00             | 462439.70          | 760623.60         | N 32 16 9.58 W 103 37 25.89 |                          |
|                                    | 1700.00    | 0.00        | 89.39            | 1700.00     | 0.00         | 0.00       | 0.00       | 0.00             | 462439.70          | 760623.60         | N 32 16 9.58 W 103 37 25.89 |                          |
|                                    | 1800.00    | 0.00        | 89.39            | 1800.00     | 0.00         | 0.00       | 0.00       | 0.00             | 462439.70          | 760623.60         | N 32 16 9.58 W 103 37 25.89 |                          |
|                                    | 1900.00    | 0.00        | 89.39            | 1900.00     | 0.00         | 0.00       | 0.00       | 0.00             | 462439.70          | 760623.60         | N 32 16 9.58 W 103 37 25.89 |                          |
|                                    | 2000.00    | 0.00        | 89.39            | 2000.00     | 0.00         | 0.00       | 0.00       | 0.00             | 462439.70          | 760623.60         | N 32 16 9.58 W 103 37 25.89 |                          |
|                                    | 2100.00    | 0.00        | 89.39            | 2100.00     | 0.00         | 0.00       | 0.00       | 0.00             | 462439.70          | 760623.60         | N 32 16 9.58 W 103 37 25.89 |                          |
|                                    | 2200.00    | 0.00        | 89.39            | 2200.00     | 0.00         | 0.00       | 0.00       | 0.00             | 462439.70          | 760623.60         | N 32 16 9.58 W 103 37 25.89 |                          |
|                                    | 2300.00    | 0.00        | 89.39            | 2300.00     | 0.00         | 0.00       | 0.00       | 0.00             | 462439.70          | 760623.60         | N 32 16 9.58 W 103 37 25.89 |                          |
|                                    | 2400.00    | 0.00        | 89.39            | 2400.00     | 0.00         | 0.00       | 0.00       | 0.00             | 462439.70          | 760623.60         | N 32 16 9.58 W 103 37 25.89 |                          |
|                                    | 2500.00    | 0.00        | 89.39            | 2500.00     | 0.00         | 0.00       | 0.00       | 0.00             | 462439.70          | 760623.60         | N 32 16 9.58 W 103 37 25.89 |                          |
|                                    | 2600.00    | 0.00        | 89.39            | 2600.00     | 0.00         | 0.00       | 0.00       | 0.00             | 462439.70          | 760623.60         | N 32 16 9.58 W 103 37 25.89 |                          |
|                                    | 2700.00    | 0.00        | 89.39            | 2700.00     | 0.00         | 0.00       | 0.00       | 0.00             | 462439.70          | 760623.60         | N 32 16 9.58 W 103 37 25.89 |                          |

All previous COAs still apply.

## I. DRILLING

### A. DRILLING OPERATIONS REQUIREMENTS

The BLM is to be notified in advance for a representative to witness:

- a. Spudding well (minimum of 24 hours)
- b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
- c. BOPE tests (minimum of 4 hours)

☒ **Lea County**

Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240,  
(575) 393-3612

1. A Hydrogen Sulfide (H<sub>2</sub>S) Drilling Plan shall be activated 500 feet prior to drilling into the Delaware formation. **As a result, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.**
2. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval. **If the drilling rig is removed without approval – an Incident of Non-Compliance will be written and will be a “Major” violation.**
3. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works is located, this does not include the dog house or stairway area.
4. **The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.**

### B. CASING

Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#).

Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.).



**Centralizers required on surface casing per Onshore Order 2.III.B.1.f.**

Wait on cement (WOC) time prior to drilling out for a primary cement job will be a minimum 18 hours for a water basin, 24 hours in the potash area, or 500 pounds compressive strength, whichever is greater for all casing strings. **DURING THIS WOC TIME, NO DRILL PIPE, ETC. SHALL BE RUN IN THE HOLE.** Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. **IF OPERATOR DOES NOT HAVE THE WELL SPECIFIC CEMENT DETAILS ONSITE PRIOR TO PUMPING THE CEMENT FOR EACH CASING STRING, THE WOC WILL BE 30 HOURS.** See individual casing strings for details regarding lead cement slurry requirements.

**No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.**

**Possible water and brine flows in the Salado and Castile Groups.  
Possible lost circulation in the Delaware and Bone Spring.**

1. The 13-3/8 inch surface casing shall be set at approximately 1315 feet (**in a competent bed below the Magenta Dolomite, which is a Member of the Rustler, and if salt is encountered, set casing at least 25 feet above the salt**) and cemented to the surface.
  - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
  - b. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.**
  - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
  - d. If cement falls back, remedial cementing will be done prior to drilling out that string.

**Intermediate casing shall be kept fluid filled while running into hole to meet BLM minimum collapse requirements.**

2. The minimum required fill of cement behind the 9-5/8 inch intermediate casing is:

☒ Cement to surface. If cement does not circulate see B.1.a, c-d above.

**Centralizers required on horizontal leg, must be type for horizontal service and a minimum of one every other joint.**



3. The minimum required fill of cement behind the 5-1/2 inch production casing is:

☒ Cement should tie-back at least 200 feet into previous casing string. Operator shall provide method of verification. **Excess calculates to 16% - Additional cement may be required.**

4. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

### C. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.
2. Variance approved to use flex line from BOP to choke manifold. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. **Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.** If the BLM inspector questions the straightness of the hose, a BLM engineer will be contacted and will review in the field or via picture supplied by inspector to determine if changes are required (operator shall expect delays if this occurs).
3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **2000 (2M)** psi
4. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the 9-5/8 intermediate casing shoe shall be **3000 (3M)** psi.
5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
  - a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

- b. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (18 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).
- c. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.
- d. The results of the test shall be reported to the appropriate BLM office.
- e. All tests are required to be recorded on a calibrated test chart. **A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.**
- f. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.

#### **D. DRILL STEM TEST**

If drill stem tests are performed, Onshore Order 2.III.D shall be followed.

#### **E. WASTE MATERIAL AND FLUIDS**

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

**TMAK 12022016**



Lesser Prairie-Chicken.

| 13 3/8   | surface csg in a | 17 1/2  | inch hole. | Design Factors |              |          | SURFACE |        |           |
|--|------------------|---------|------------|----------------|--------------|----------|---------|--------|-----------|
| Segment  | #/ft             | Grade   | Coupling   | Joint          | Collapse     | Burst    | Length  | Weight |           |
| "A"  | 48.00            | H 40    | ST&C       | 5.10           | 1.28         | 0.66     | 1,315   | 63,120 |           |
| "B"  |                  |         |            |                |              |          | 0       | 0      |           |
| w/8.4#/g mud, 30min Sfc Csg Test psig: 637                       |                  |         | Tail Cmt   | does not       | circ to sfc. | Totals:  | 1,315   | 63,120 |           |
| Comparison of Proposed to Minimum Required Cement Volumes        |                  |         |            |                |              |          |         |        |           |
| Hole   | Annular          | 1 Stage | 1 Stage    | Min            | 1 Stage      | Drilling | Calc    | Req'd  | Min Dist  |
| Size   | Volume           | Cmt Sx  | CuFt Cmt   | Cu Ft          | % Excess     | Mud Wt   | MASP    | BOPE   | Hole-Cplg |
| 17 1/2   | 0.6946           | 770     | 1280       | 968            | 32           | 8.80     | 1523    | 2M     | 1.56      |
| Burst Frac Gradient(s) for Segment(s) A, B = , b All > 0.70, OK. |                  |         |            |                |              |          |         |        |           |

| 9 5/8   | casing inside the | 13 3/8  | Design Factors |       |                      |          | INTERMEDIATE |          |           |
|---|-------------------|---------|----------------|-------|----------------------|----------|--------------|----------|-----------|
| Segment   | #/ft              | Grade   | Coupling       | Joint | Collapse             | Burst    | Length       | Weight   |           |
| "A"   | 36.00             | J 55    | LT&C           | 2.52  | 1.155                | 0.75     | 5,000        | 180,000  |           |
| "B"   |                   |         |                |       |                      |          | 0            | 0        |           |
| w/8.4#/g mud, 30min Sfc Csg Test psig:                |                   |         |                |       |                      | Totals:  | 5,000        | 180,000  |           |
| The cement volume(s) are intended to achieve a top of |                   |         |                | 0     | ft from surface or a |          | 1315         | overlap. |           |
| Hole  | Annular           | 1 Stage | 1 Stage        | Min   | 1 Stage              | Drilling | Calc         | Req'd    | Min Dist  |
| Size  | Volume            | Cmt Sx  | CuFt Cmt       | Cu Ft | % Excess             | Mud Wt   | MASP         | BOPE     | Hole-Cplg |
| 12 1/4  | 0.3132            | 1229    | 2153           | 1668  | 29                   | 10.10    | 2543         | 3M       | 0.81      |

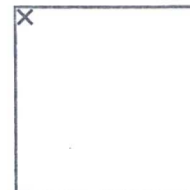
Burst Frac Gradient(s) for Segment(s): A, B, C, D = 0.7, b, c, d All > 0.70, OK. Collapse 1/3 full OK

| 5 1/2 casing inside the 9 5/8                         |         |         | Design Factors |        |                      |                                 | PRODUCTION |          |           |
|---|---------|---------|----------------|--------|----------------------|---------------------------------|------------|----------|-----------|
| Segment   | #/ft    | Grade   | Coupling       | Joint  | Collapse             | Burst                           | Length     | Weight   |           |
| "A"   | 17.00   | L 80    | LT&C           | 2.02   | 1.44                 | 1.64                            | 9,122      | 155,074  |           |
| "B"   | 17.00   | L 80    | BUTT           | 7.36   | 1.25                 | 1.64                            | 5,342      | 90,814   |           |
| w/8.4#/g mud, 30min Sfc Csg Test psig: 1,115          |         |         |                |        |                      | Totals:                         | 14,464     | 245,888  |           |
| B would be:   |         |         |                | 31.64  | 1.33                 | if it were a vertical wellbore. |            |          |           |
| No Pilot Hole Planned                                 |         | MTD     | Max VTD        | Csg VD | Curve KOP            | Dogleg°                         | Severity°  | MEOC     |           |
|   |         | 14464   | 9860           | 9860   | 9122                 | 90                              | 7          | 10402    |           |
| The cement volume(s) are intended to achieve a top of |         |         |                | 4800   | ft from surface or a |                                 | 200        | overlap. |           |
| Hole  | Annular | 1 Stage | 1 Stage        | Min    | 1 Stage              | Drilling                        | Calc       | Req'd    | Min Dist  |
| Size  | Volume  | Cmt Sx  | CuFt Cmt       | Cu Ft  | % Excess             | Mud Wt                          | MASP       | BOPE     | Hole-Cplg |
| 8 3/4   | 0.2526  | 1721    | 2844           | 2450   | 16                   | 9.20                            |            |          | 1.35      |
| Class 'H' tail cmt yld > 1.20                         |         |         |                |        |                      |                                 |            |          |           |





United States Department of the Interior  
Bureau of Land Management  
Carlsbad Field Office



Refer to: 3160-3

To: AFM, Lands & Minerals, CFO  
From: Geologist, CFO  
Subject: Geologic Review of Application for Permit to Drill

Operator: Cimarex Energy Co.  
Well Name and Number: Triste Draw 25 Federal-5H  
Potash: No  
Location: SHL:370'/S.& 1270'/S. SEC025 T023S, R032E.(SESE)  
County Lea Lease Number: LC063228 APD Received: 3-4-2014  
Ground Level Elevation: 3692 Surface Geology: Qe/Qp-Eolian deposits/Piedmont alluvial deposits  
TVD: 9800 MD: 14255 BH Mud Weight: 9  
BHP: 4586 MASP: 2430

1. Geologic Marker Tops (from reports on surrounding wells):

|                   | DIAMONDTAIL 24<br>FEDERAL A #001<br>3002533521<br>T23E R32E Sec 24<br>1980FNL 330FWL | DIAMONDTAIL 23<br>FEDERAL #002<br>3002533653<br>T23E R32E Sec 23<br>1980FNL 660FEL | TOMCAT 15<br>FEDERAL #002<br>3002533909<br>T23E R32E Sec 15<br>1980FSL 1980FEL | Proposed Well<br>Triste Draw 25<br>Federal-5H<br>T023S,<br>R032E.(SESESEC025<br>370'/S.& 1270'/S<br>Unit<br>Elevation<br>Estimated Depth |
|-------------------|--|--|--|--|
| Geologic Marker   | Elevation<br>Depth   | Elevation<br>Depth   | Elevation<br>Depth   |  |
| Rustler           | 1238   | 1222   | 1207   | 1217   |
| Top of Salt       | 1713   | 1703   | 1664   | 1687   |
| Lamar             | 4994   | 4965   | 4940   | 5032   |
| Bell Canyon       | 5033   | 5013   | 5000   | 5082   |
| Bone Springs Lime | 8850   | 8800   | 8760   | 8877   |
| 1st Bone Spring   | 10000  | 9990   | -  | 10037  |
| 2nd Bone Spring   | -  | 10660  | -  | 10662  |
| 3rd Bone Spring   | -  | -  | -  | 11932  |
| Wolfcamp          | -  | -  | -  | 12272  |

2. Fresh Water Information

a. Fresh Water: 1307  
b. Fresh Water Remarks:

According to well data from the New Mexico Office of the State Engineer's Water Rights Reporting System, there are 25 water wells within a six-mile radius of the proposed project. Depth to water ranges from 20 to 1533 feet. Usable water can also be found within the Magenta Dolomite Member of the Rustler Formation down to a depth of approximately 1307 feet.

**c. Water Basin:**

Carlsbad Water Basin

**3. Recommended Casing Setting Depth**

**a. Surface Casing Depth:** 1315

**b. Intermediate Casing Depth:** 5000

**c. 2nd Interm. Casing Depth**

**d. Casing Depth Remarks:**

The operator proposes to set surface casing at 1270 feet, which will be too shallow and not adequately protect usable water zones. Instead, set casing in the anhydrite just below the base of the Magenta Dolomite at approximately 1315 feet. If salt is encountered, set casing at least 25 feet above the salt. The operator proposes to set intermediate casing at 5000 feet, which will be in the basal anhydrite of the Castile Formation. This is an acceptable set point.

**4. Geologic Hazards**

**a. Cave/Karst Occurance:**

**b. Potential Cave/Karst Depth:**

**c. Possible Water Flows:** Castile, Salado,

**d. Possible Lost Circulation:** Rustler, Red Beds, Delaware,

**e. Possible Abnormal Pressure:** NO

**f. H2S within 1 mile:** NO

**g. H2S Remarks:**

H2S has been reported within one-mile of the proposed project. Measurements up to 1000 ppm have been reported from the Cruz and Cruz Draw Pools.

**5. Additional Remarks**

Run GR and CNL logs to the surface.

**Geologist:** Robert Salaz

**Sign Off Date:** 6-20-2014