

ATS-13-184

Form 3160-5  
(March 2012)

HOBBS OCD  
SEP 19 2013

OCD Hobbs

FORM APPROVED  
OMB No. 1004-0137  
Expires October 31, 2014

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

RECEIVED

APPLICATION FOR PERMIT TO DRILL OR REENTER

|                                                                                                                                                                                                                             |                                                          |                                                               |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------|---------------------------------------------------------------|--|
| 1a. Type of work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER                                                                                                                                |                                                          | 5. Lease Serial No.<br>NMNM 081274                            |  |
| 1b. Type of Well: <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other <input checked="" type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone      |                                                          | 6. If Indian, Allottee or Tribe Name                          |  |
| 2. Name of Operator Cimarex Energy Co. of Colorado                                                                                                                                                                          |                                                          | 7. If Unit or CA Agreement, Name and No.                      |  |
| 3a. Address 600 N. Marienfeld, Ste 600<br>Midland, TX 79701                                                                                                                                                                 |                                                          | 8. Lease Name and Well No.<br>Thyme APY Federal No. 5         |  |
| 3b. Phone No. (include area code)<br>432-571-7800                                                                                                                                                                           |                                                          | 9. API Well No.<br>30-025- 41420                              |  |
| 4. Location of Well (Report location clearly and in accordance with any State requirements.)*<br>At surface 330' FNL & 990' FWL Unit 1 D<br>At proposed prod. zone 330' FSL & 990' FWL Horizontal Bone Spring test Unit 1 M |                                                          | 10. Field and Pool or Exploratory<br>Diamondtail, Bone Spring |  |
| 14. Distance in miles and direction from nearest town or post office*<br>28.5 miles WSW of Eunice, NM                                                                                                                       |                                                          | 11. Sec., T. R. M. or Blk. and Survey or Area<br>1-23S-32E    |  |
| 15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 330'                                                                                                  | 16. No. of acres in lease 479.25                         | 17. Spacing Unit dedicated to this well 159.65                |  |
| 18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 615'                                                                                                             | 19. Proposed Depth MD 14087' TVD 9600' Pilot Hole 10200' | 20. BLM/BIA Bond No. on file NM2575; NMB000835                |  |
| 21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3738' GR                                                                                                                                                                | 22. Approximate date work will start* 02/27/2013         | 23. Estimated duration 25-30 days                             |  |

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, must be attached to this form:

- |                                                                                                                                                |                                                                                                 |
|------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|
| 1. Well plat certified by a registered surveyor.                                                                                               | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). |
| 2. A Drilling Plan.                                                                                                                            | 5. Operator certification                                                                       |
| 3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office). | 6. Such other site specific information and/or plans as may be required by the BLM.             |

|                                    |                                    |                 |
|------------------------------------|------------------------------------|-----------------|
| 25. Signature <i>Paula Brunson</i> | Name (Printed/Typed) Paula Brunson | Date 10/31/2012 |
|------------------------------------|------------------------------------|-----------------|

Title

Regulatory Analyst

|                                                      |                      |                  |
|------------------------------------------------------|----------------------|------------------|
| Approved by (Signature) <i>/s/ STEPHEN J. CAFFEY</i> | Name (Printed/Typed) | Date SEP 17 2013 |
|------------------------------------------------------|----------------------|------------------|

Title

FIELD MANAGER

Office

CARLSBAD FIELD OFFICE

Application approval 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.

Conditions of approval, if any, are attached.

APPROVAL FOR TWO YEARS

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.

(Continued on page 2)

\*(Instructions on page 2)

Carlsbad Controlled Water Basin

SEE ATTACHED FOR  
CONDITIONS OF APPROVAL

Approval Subject to General Requirements  
& Special Stipulations Attached

SEP 25 2013

Application to Drill  
**Thyme APY Federal 5**  
 Cimarex Energy Co. of Colorado  
 Lot 4, Section 1  
 T23S-R32E; Lea County, NM

In response to questions asked under Section II B of Bulletin NTL-6, the following information is provided for your consideration:

- 1 Location:                SHL    330 FNL & 990 FWL  
                                       BHL    330 FSL & 990 FWL
  
- 2 Elevation above sea level:                3738   GR
  
- 3 Geologic name of surface formation:                Quaternary Alluvium Deposits
  
- 4 Drilling tools and associated equipment:                Conventional rotary drilling rig using fluid as a circulating medium for solids removal.
  
- 5 Proposed drilling depth:                                MD-14087'                                TVD 9600'                                Pilot hole 10200'
  
- 6 Estimated tops of geological markers:

|                         |       |                       |
|-------------------------|-------|-----------------------|
| Groundwater per OSE     | 510   |                       |
| Rustler                 | 1220  |                       |
| T. Salt                 | 1295  |                       |
| B. Salt                 | 4680  |                       |
| Bell Canyon             | 5000  | Possible Hydrocarbons |
| Cherry Canyon           | 5875  |                       |
| Brushy Canyon           | 7150  |                       |
| Basal Brushy Canyon     | 8500  | Possible Hydrocarbons |
| Bone Spring             | 8600  |                       |
| Upper Bone Spring Shale | 9250  | Possible Hydrocarbons |
| 1st Bone Spring SS      | 9975  | Possible Hydrocarbons |
| TD Pilot Hole           | 10200 |                       |
| 2nd BSS                 | 10580 |                       |
| 3rd BSS                 | 11810 |                       |
| Wolfcamp                | 12175 |                       |
  
- 7 Possible mineral bearing formation:  
     Shown above

8 Proposed Mud Circulating System:

| Depth                           | Mud Wt    | Visc  | Fluid Loss | Type Mud                            |
|---------------------------------|-----------|-------|------------|-------------------------------------|
| 0' to <del>1270'</del><br>1315' | 8.4 - 8.6 | 28    | NC         | FW                                  |
| <del>1270'</del> to 4980'       | 10.0      | 30-32 | NC         | Brine water                         |
| 4980' to 14087'                 | 8.4       | 30-32 | NC         | FW and brine, 2% KCL in the lateral |

Sufficient mud materials will be kept on location at all times in order to combat lost circulation or unexpected kicks. In order to run DSTs, open hole logs, and casing, the viscosity and water loss may have to be adjusted in order to meet these needs.

The Mud Monitoring System is an electronic Pason System satisfying requirements of Onshore Order 1.

Proposed Drilling Plan

After drilling and setting surface and intermediate casing, drill 7 7/8" or 8 3/4" hole to 10200' and log. Pump 30 bbls MUDPUSHII 12 ppg, followed by 230 sks Type H Cement, + 0.5% Halad-322 + 0.2% HR-601; 15.6 ppg, 1.2 yield from 10200' to 9314'. Set whipstock and kick off 7 7/8" or 8 3/4" lateral @ 9314' and drill to TD @ 14087' MD, 9600' TVD. Run 5 1/2" casing and cement per plan.

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 T23S-R32E; Lea County, NM

See COA

**8 Casing & Cementing Program:**

| String       | Hole Size        | Depth           | Casing OD   | Weight | Collar | Grade |
|--------------|------------------|-----------------|-------------|--------|--------|-------|
| Surface      | 17 1/2"          | 0' to 1270'     | New 13 3/8" | 48#    | STC    | H-40  |
| Intermediate | 12 1/4"          | 0' to 3400'     | New 9 5/8"  | 36#    | LTC    | J-55  |
| Intermediate | 12 1/4"          | 3400' to 4980'  | New 9 5/8"  | 40#    | LTC    | J-55  |
| Production   | 7 7/8" or 8 3/4" | 0' to 9314'     | New 5 1/2"  | 17#    | LTC    | P-110 |
| Production   | 7 7/8" or 8 3/4" | 9314' to 14087' | New 5 1/2"  | 17#    | BTC    | P-110 |

**9 Cementing:**

|         |       |                 |              |            |                                              |
|---------|-------|-----------------|--------------|------------|----------------------------------------------|
| Surface | Sacks | Yield (cuft/sx) | Weight (ppg) | Cubic Feet | Cement Blend                                 |
| Lead    | 810   | 1.75            | 13.5         | 1417       | Class C + Bentonite + Calcium Chloride + LCM |
| Tail    | 165   | 1.34            | 14.8         | 221        | Class C + LCM                                |

**TOC: Surface 85% Excess**

**Centralizers per Onshore Order 2.III.B.1f**

|              |       |                 |              |            |                                                   |
|--------------|-------|-----------------|--------------|------------|---------------------------------------------------|
| Intermediate | Sacks | Yield (cuft/sx) | Weight (ppg) | Cubic Feet | Cement Blend                                      |
| Lead         | 1067  | 1.88            | 12.9         | 2006       | 35:65 (poz/C) + Salt + Bentonite + LCM + retarder |
| Tail         | 280   | 1.34            | 14.8         | 376        | Class C + retarder + LCM                          |

**TOC: Surface 80% Excess**

|            |       |                 |              |            |                                                                                                   |
|------------|-------|-----------------|--------------|------------|---------------------------------------------------------------------------------------------------|
| Production | Sacks | Yield (cuft/sx) | Weight (ppg) | Cubic Feet | Cement Blend                                                                                      |
| Lead       | 564   | 2.4             | 11.9         | 1353       | 35:65 (poz/H) + salt + Sodium Metasilicate + Bentonite + Fluid Loss + Dispersant + LCM + Retarder |
| Tail       | 1346  | 1.24            | 14.5         | 1669       | 50:50 (poz/H) + Bentonite + Salt + Fluid Loss + Dispersant + LCM + Retarder                       |

See COA

**Cement volumes will be adjusted depending on hole size.**

**TOC: 4,300' 25% Excess** No centralizers planned in the lateral section. 1 every jt from EOC to KOP. 1 every 4th joint from KOP to 500' inside previous casing.

|                        |                     |                       |
|------------------------|---------------------|-----------------------|
| <u>Collapse Factor</u> | <u>Burst Factor</u> | <u>Tension Factor</u> |
| 1.125                  | 1.125               | 1.6                   |

**10 Pressure Control Equipment:**

Exhibit "E". A 13 3/8" 5000 PSI working pressure BOP, tested to 3000 psi on the surface casing and 5000 psi on the intermediate, consisting of one set of blind rams and one set of pipe rams and a 5000# annular type preventer. A choke manifold and 120 gallon accumulator with floor and remote operating stations and auxiliary power system. Rotating head as needed. A kelly cock will be installed and maintained in operable condition and a drill string safety valve in the open position will be available on the rig floor.

BOP unit will be hydraulically operated. BOP will be installed and operated at least once a day while drilling and the blind rams will be operated when out of hole during trips. No abnormal pressure or temperature is expected while drilling.

BOPS will be tested by an independent service company to 250 psi low and 3000 psi high on the surface casing and 250 psi low and 5000 psi high on the intermediate. Hydril will be tested to 250 psi low and 2500 psi high on the surface and intermediate casings.

See COA

Cimarex Energy Co. of Colorado requests a variance to drill this well using a co-flex line between the BOP and choke manifold. Certification for proposed co-flex hose is attached. The hose is not required by the manufacturer to be anchored. In the event the specific hose is not available, one of equal or higher rating will be used.

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Cimarex Energy Co. of Colorado  
Lot 4, Section 1  
T23S-R32E; Lea County, NM

11 Testing, Logging and Coring Program:

- A. Mud logging program: 2 man unit from 4980 to TD
- B. Electric logging program: CNL / LDT / CAL / GR, DLL / GR - Inter. Csg to TD  
CNL/GR - Surf Csg to Inter. Csg
- C. No DSTs or cores are planned at this time.

12 Potential Hazards:

*See COA*  
No abnormal pressures or temperatures are expected. In accordance with Onshore Order 6, Cimarex does not anticipate that there will be enough H<sub>2</sub>S from the surface to the Bone Spring formations to meet the BLM's minimum requirements for the submission of an "H<sub>2</sub>S Drilling Operation Plan" or "Public Protection Plan" for the drilling and completion of this well. Since we have an H<sub>2</sub>S Safety package on all wells, attached is an "H<sub>2</sub>S Drilling Operations Plan." Adequate flare lines will be installed off the mud / gas separator where gas may be flared safely. All personnel will be familiar with all aspects of safe operation of equipment being used.

Estimated BHP      **4320 psi**      Estimated BHT      **138°**

13 Road and location construction will begin after BLM approval of APD. Anticipated spud date as soon as approved.

Drilling expected to take      30-35 days

If production casing is run an additional 30 days will be required to complete and construct surface facilities.

14 Other Facets of Operations:

After running casing, cased hole gamma ray neutron collar logs will be run from total depth over possible pay intervals.

Bone Spring pay will be perforated and stimulated.

The proposed well will be tested and potentialiaed as      **an oil well.**



# Cimarex Energy Co.

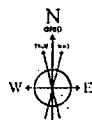
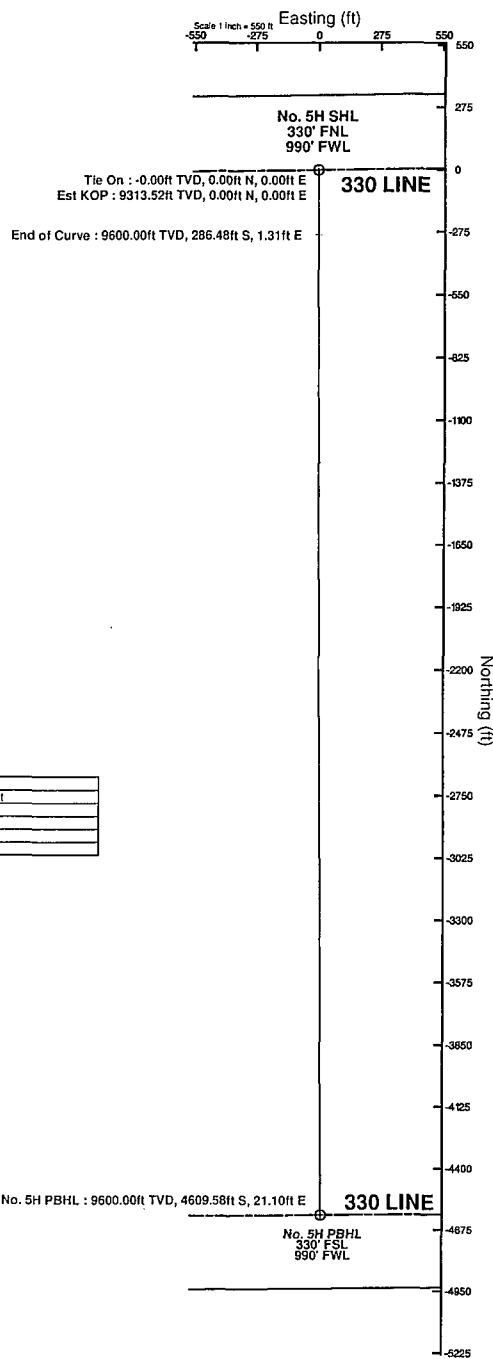
Location: Lea County, NM  
Field: (Thyme) Sec 1 T23S, R32E  
Facility: Thyme "APY" Federal

Slot: No. 5H SHL  
Well: No. 5H  
Wellbore: No. 5H PWB



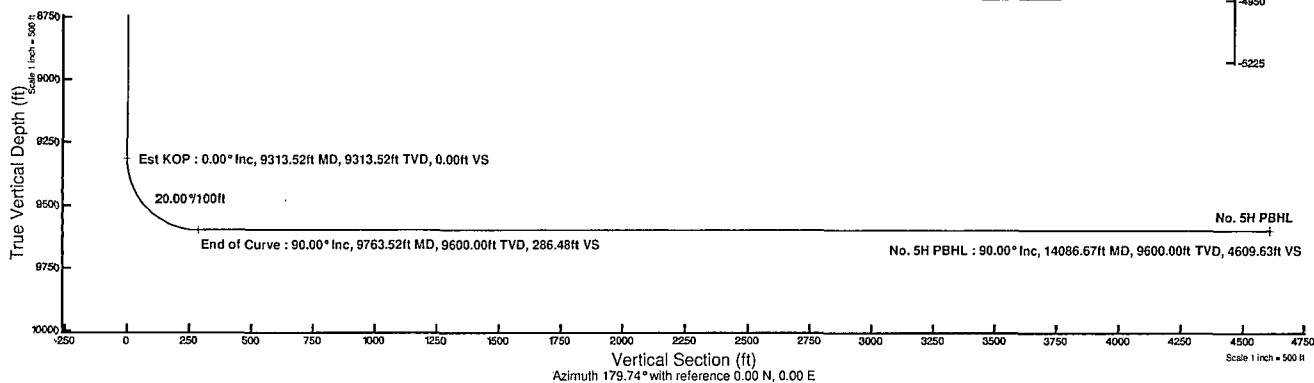
## Well Profile Data

| Design Comment | MD (ft)  | Inc (°) | Az (°)  | TVD (ft) | Local N (ft) | Local E (ft) | DLS (°/100ft) | VS (ft) |
|----------------|----------|---------|---------|----------|--------------|--------------|---------------|---------|
| Tie On         | 0.00     | 0.000   | 179.738 | 0.00     | 0.00         | 0.00         | 0.00          | 0.00    |
| Est KOP        | 9313.52  | 0.000   | 179.738 | 9313.52  | 0.00         | 0.00         | 0.00          | 0.00    |
| End of Curve   | 9763.52  | 90.000  | 179.738 | 9600.00  | -286.48      | 1.31         | 20.00         | 286.48  |
| No. 5H PBHL    | 14086.67 | 90.000  | 179.738 | 9600.00  | -4609.58     | 21.10        | 0.00          | 4609.63 |



BQGM (1945.0 to 2012.0) Dip: 69.28° Field: 48660 nT  
Magnetic North is 7.61 degrees East of True North (at 1/28/2011)  
Grid North is 0.37 degrees East of True North  
To correct azimuth from True to Grid subtract 0.37 degrees  
To correct azimuth from Magnetic to Grid add 7.23 degrees  
For example: if the Magnetic North Azimuth = 90 degs, then the Grid North Azimuth = 90 + 7.23 = 97.23

|                                                               |                                                                     |
|---------------------------------------------------------------|---------------------------------------------------------------------|
| Plot reference wellpath is Prelim 1                           | Grid System: NAD83 / TM New Mexico SP, Eastern Zone (3001), US feet |
| True vertical depths are referenced to Rlg on No. 5H SHL (KB) | North Reference: Grid north                                         |
| Measured depths are referenced to Rlg on No. 5H SHL (KB)      | Scale: True distance                                                |
| Rlg on No. 5H SHL (KB) to Mean Sea Level: 3738 feet           | Depths are in feet                                                  |
| Mean Sea Level to Mud line (At Slot: No. 5H SHL): 0 feet      | Created by: calhoun on 11/29/2011                                   |
| Coordinates are in feet referenced to Slot                    |                                                                     |





# Planned Wellpath Report

Prelim\_1  
Page 1 of 5



## REFERENCE WELLPATH IDENTIFICATION

|          |                           |          |            |
|----------|---------------------------|----------|------------|
| Operator | Cimarex Energy Co.        | Slot     | No. 5H SHL |
| Area     | Lea County, NM            | Well     | No. 5H     |
| Field    | (Thyme) Sec 1, T23S, R32E | Wellbore | No. 5H PWB |
| Facility | Thyme "APY" Federal       |          |            |

## REPORT SETUP INFORMATION

|                     |                                                        |                      |                           |
|---------------------|--------------------------------------------------------|----------------------|---------------------------|
| Projection System   | NAD83 / TM New Mexico SP, Eastern Zone (3001), US feet | Software System      | WellArchitect® 3.0.0      |
| North Reference     | Grid                                                   | User                 | Calhphik                  |
| Scale               | 0.999963                                               | Report Generated     | 11/29/2011 at 10:33:00 AM |
| Convergence at slot | 0.37° East                                             | Database/Source file | WA_Midland/No._5H_PWB.xml |

## WELLPATH LOCATION

|                       | Local coordinates |          | Grid coordinates |                 | Geographic coordinates |                 |
|-----------------------|-------------------|----------|------------------|-----------------|------------------------|-----------------|
|                       | North[ft]         | East[ft] | Easting[US ft]   | Northing[US ft] | Latitude               | Longitude       |
| Slot Location         | 7.40              | 614.72   | 757428.00        | 488178.50       | 32°20'24.482"N         | 103°38'01.149"W |
| Facility Reference Pt |                   |          | 756813.30        | 488171.10       | 32°20'24.448"N         | 103°38'08.315"W |
| Field Reference Pt    |                   |          | 756813.30        | 488171.10       | 32°20'24.448"N         | 103°38'08.315"W |

## WELLPATH DATUM

|                          |                        |                                                         |                   |
|--------------------------|------------------------|---------------------------------------------------------|-------------------|
| Calculation method       | Minimum curvature      | Rig on No. 5H SHL (KB) to GL                            | 3738.00ft         |
| Horizontal Reference Pt  | Slot                   | Rig on No. 5H SHL (KB) to Mean Sea Level                | 3738.00ft         |
| Vertical Reference Pt    | Rig on No. 5H SHL (KB) | Rig on No. 5H SHL (KB) to Mud Line at Slot (No. 5H SHL) | 3738.00ft         |
| MD Reference Pt          | Rig on No. 5H SHL (KB) | Section Origin                                          | N 0.00, E 0.00 ft |
| Field Vertical Reference | Mean Sea Level         | Section Azimuth                                         | 179.74°           |



# Planned Wellpath Report

Prelim\_1  
Page 2 of 5



## REFERENCE WELLPATH IDENTIFICATION

|          |                           |          |            |
|----------|---------------------------|----------|------------|
| Operator | Cimarex Energy Co.        | Slot     | No. 5H SHL |
| Area     | Lea County, NM            | Well     | No. 5H     |
| Field    | (Thyme) Sec 1, T23S, R32E | Wellbore | No. 5H PWB |
| Facility | Thyme "APY" Federal       |          |            |

## WELLPATH DATA (145 stations) † = interpolated/extrapolated station

| MD<br>[ft] | Inclination<br>[°] | Azimuth<br>[°] | TVD<br>[ft] | Vert Sect<br>[ft] | North<br>[ft] | East<br>[ft] | Grid East<br>[US ft] | Grid North<br>[US ft] | Latitude       | Longitude       | DLS<br>[°/100ft] | Comments |
|------------|--------------------|----------------|-------------|-------------------|---------------|--------------|----------------------|-----------------------|----------------|-----------------|------------------|----------|
| 0.00       | 0.000              | 179.738        | 0.00        | 0.00              | 0.00          | 0.00         | 757428.00            | 488178.50             | 32°20'24.482"N | 103°38'01.149"W | 0.00             | Tie On   |
| 100.00†    | 0.000              | 179.738        | 100.00      | 0.00              | 0.00          | 0.00         | 757428.00            | 488178.50             | 32°20'24.482"N | 103°38'01.149"W | 0.00             |          |
| 200.00†    | 0.000              | 179.738        | 200.00      | 0.00              | 0.00          | 0.00         | 757428.00            | 488178.50             | 32°20'24.482"N | 103°38'01.149"W | 0.00             |          |
| 300.00†    | 0.000              | 179.738        | 300.00      | 0.00              | 0.00          | 0.00         | 757428.00            | 488178.50             | 32°20'24.482"N | 103°38'01.149"W | 0.00             |          |
| 400.00†    | 0.000              | 179.738        | 400.00      | 0.00              | 0.00          | 0.00         | 757428.00            | 488178.50             | 32°20'24.482"N | 103°38'01.149"W | 0.00             |          |
| 500.00†    | 0.000              | 179.738        | 500.00      | 0.00              | 0.00          | 0.00         | 757428.00            | 488178.50             | 32°20'24.482"N | 103°38'01.149"W | 0.00             |          |
| 600.00†    | 0.000              | 179.738        | 600.00      | 0.00              | 0.00          | 0.00         | 757428.00            | 488178.50             | 32°20'24.482"N | 103°38'01.149"W | 0.00             |          |
| 700.00†    | 0.000              | 179.738        | 700.00      | 0.00              | 0.00          | 0.00         | 757428.00            | 488178.50             | 32°20'24.482"N | 103°38'01.149"W | 0.00             |          |
| 800.00†    | 0.000              | 179.738        | 800.00      | 0.00              | 0.00          | 0.00         | 757428.00            | 488178.50             | 32°20'24.482"N | 103°38'01.149"W | 0.00             |          |
| 900.00†    | 0.000              | 179.738        | 900.00      | 0.00              | 0.00          | 0.00         | 757428.00            | 488178.50             | 32°20'24.482"N | 103°38'01.149"W | 0.00             |          |
| 1000.00†   | 0.000              | 179.738        | 1000.00     | 0.00              | 0.00          | 0.00         | 757428.00            | 488178.50             | 32°20'24.482"N | 103°38'01.149"W | 0.00             |          |
| 1100.00†   | 0.000              | 179.738        | 1100.00     | 0.00              | 0.00          | 0.00         | 757428.00            | 488178.50             | 32°20'24.482"N | 103°38'01.149"W | 0.00             |          |
| 1200.00†   | 0.000              | 179.738        | 1200.00     | 0.00              | 0.00          | 0.00         | 757428.00            | 488178.50             | 32°20'24.482"N | 103°38'01.149"W | 0.00             |          |
| 1300.00†   | 0.000              | 179.738        | 1300.00     | 0.00              | 0.00          | 0.00         | 757428.00            | 488178.50             | 32°20'24.482"N | 103°38'01.149"W | 0.00             |          |
| 1400.00†   | 0.000              | 179.738        | 1400.00     | 0.00              | 0.00          | 0.00         | 757428.00            | 488178.50             | 32°20'24.482"N | 103°38'01.149"W | 0.00             |          |
| 1500.00†   | 0.000              | 179.738        | 1500.00     | 0.00              | 0.00          | 0.00         | 757428.00            | 488178.50             | 32°20'24.482"N | 103°38'01.149"W | 0.00             |          |
| 1600.00†   | 0.000              | 179.738        | 1600.00     | 0.00              | 0.00          | 0.00         | 757428.00            | 488178.50             | 32°20'24.482"N | 103°38'01.149"W | 0.00             |          |
| 1700.00†   | 0.000              | 179.738        | 1700.00     | 0.00              | 0.00          | 0.00         | 757428.00            | 488178.50             | 32°20'24.482"N | 103°38'01.149"W | 0.00             |          |
| 1800.00†   | 0.000              | 179.738        | 1800.00     | 0.00              | 0.00          | 0.00         | 757428.00            | 488178.50             | 32°20'24.482"N | 103°38'01.149"W | 0.00             |          |
| 1900.00†   | 0.000              | 179.738        | 1900.00     | 0.00              | 0.00          | 0.00         | 757428.00            | 488178.50             | 32°20'24.482"N | 103°38'01.149"W | 0.00             |          |
| 2000.00†   | 0.000              | 179.738        | 2000.00     | 0.00              | 0.00          | 0.00         | 757428.00            | 488178.50             | 32°20'24.482"N | 103°38'01.149"W | 0.00             |          |
| 2100.00†   | 0.000              | 179.738        | 2100.00     | 0.00              | 0.00          | 0.00         | 757428.00            | 488178.50             | 32°20'24.482"N | 103°38'01.149"W | 0.00             |          |
| 2200.00†   | 0.000              | 179.738        | 2200.00     | 0.00              | 0.00          | 0.00         | 757428.00            | 488178.50             | 32°20'24.482"N | 103°38'01.149"W | 0.00             |          |
| 2300.00†   | 0.000              | 179.738        | 2300.00     | 0.00              | 0.00          | 0.00         | 757428.00            | 488178.50             | 32°20'24.482"N | 103°38'01.149"W | 0.00             |          |
| 2400.00†   | 0.000              | 179.738        | 2400.00     | 0.00              | 0.00          | 0.00         | 757428.00            | 488178.50             | 32°20'24.482"N | 103°38'01.149"W | 0.00             |          |
| 2500.00†   | 0.000              | 179.738        | 2500.00     | 0.00              | 0.00          | 0.00         | 757428.00            | 488178.50             | 32°20'24.482"N | 103°38'01.149"W | 0.00             |          |
| 2600.00†   | 0.000              | 179.738        | 2600.00     | 0.00              | 0.00          | 0.00         | 757428.00            | 488178.50             | 32°20'24.482"N | 103°38'01.149"W | 0.00             |          |
| 2700.00†   | 0.000              | 179.738        | 2700.00     | 0.00              | 0.00          | 0.00         | 757428.00            | 488178.50             | 32°20'24.482"N | 103°38'01.149"W | 0.00             |          |
| 2800.00†   | 0.000              | 179.738        | 2800.00     | 0.00              | 0.00          | 0.00         | 757428.00            | 488178.50             | 32°20'24.482"N | 103°38'01.149"W | 0.00             |          |
| 2900.00†   | 0.000              | 179.738        | 2900.00     | 0.00              | 0.00          | 0.00         | 757428.00            | 488178.50             | 32°20'24.482"N | 103°38'01.149"W | 0.00             |          |
| 3000.00†   | 0.000              | 179.738        | 3000.00     | 0.00              | 0.00          | 0.00         | 757428.00            | 488178.50             | 32°20'24.482"N | 103°38'01.149"W | 0.00             |          |
| 3100.00†   | 0.000              | 179.738        | 3100.00     | 0.00              | 0.00          | 0.00         | 757428.00            | 488178.50             | 32°20'24.482"N | 103°38'01.149"W | 0.00             |          |
| 3200.00†   | 0.000              | 179.738        | 3200.00     | 0.00              | 0.00          | 0.00         | 757428.00            | 488178.50             | 32°20'24.482"N | 103°38'01.149"W | 0.00             |          |
| 3300.00†   | 0.000              | 179.738        | 3300.00     | 0.00              | 0.00          | 0.00         | 757428.00            | 488178.50             | 32°20'24.482"N | 103°38'01.149"W | 0.00             |          |
| 3400.00†   | 0.000              | 179.738        | 3400.00     | 0.00              | 0.00          | 0.00         | 757428.00            | 488178.50             | 32°20'24.482"N | 103°38'01.149"W | 0.00             |          |
| 3500.00†   | 0.000              | 179.738        | 3500.00     | 0.00              | 0.00          | 0.00         | 757428.00            | 488178.50             | 32°20'24.482"N | 103°38'01.149"W | 0.00             |          |
| 3600.00†   | 0.000              | 179.738        | 3600.00     | 0.00              | 0.00          | 0.00         | 757428.00            | 488178.50             | 32°20'24.482"N | 103°38'01.149"W | 0.00             |          |
| 3700.00†   | 0.000              | 179.738        | 3700.00     | 0.00              | 0.00          | 0.00         | 757428.00            | 488178.50             | 32°20'24.482"N | 103°38'01.149"W | 0.00             |          |
| 3800.00†   | 0.000              | 179.738        | 3800.00     | 0.00              | 0.00          | 0.00         | 757428.00            | 488178.50             | 32°20'24.482"N | 103°38'01.149"W | 0.00             |          |
| 3900.00†   | 0.000              | 179.738        | 3900.00     | 0.00              | 0.00          | 0.00         | 757428.00            | 488178.50             | 32°20'24.482"N | 103°38'01.149"W | 0.00             |          |
| 4000.00†   | 0.000              | 179.738        | 4000.00     | 0.00              | 0.00          | 0.00         | 757428.00            | 488178.50             | 32°20'24.482"N | 103°38'01.149"W | 0.00             |          |
| 4100.00†   | 0.000              | 179.738        | 4100.00     | 0.00              | 0.00          | 0.00         | 757428.00            | 488178.50             | 32°20'24.482"N | 103°38'01.149"W | 0.00             |          |
| 4200.00†   | 0.000              | 179.738        | 4200.00     | 0.00              | 0.00          | 0.00         | 757428.00            | 488178.50             | 32°20'24.482"N | 103°38'01.149"W | 0.00             |          |
| 4300.00†   | 0.000              | 179.738        | 4300.00     | 0.00              | 0.00          | 0.00         | 757428.00            | 488178.50             | 32°20'24.482"N | 103°38'01.149"W | 0.00             |          |
| 4400.00†   | 0.000              | 179.738        | 4400.00     | 0.00              | 0.00          | 0.00         | 757428.00            | 488178.50             | 32°20'24.482"N | 103°38'01.149"W | 0.00             |          |



# Planned Wellpath Report

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## REFERENCE WELLPATH IDENTIFICATION

|          |                           |          |            |
|----------|---------------------------|----------|------------|
| Operator | Cimarex Energy Co.        | Slot     | No. 5H SHL |
| Area     | Lea County, NM            | Well     | No. 5H     |
| Field    | (Thyme) Sec 1, T23S, R32E | Wellbore | No. 5H PWB |
| Facility | Thyme "APY" Federal       |          |            |

## WELLPATH DATA (145 stations) † = interpolated/extrapolated station

| MD [ft]  | Inclination [°] | Azimuth [°] | TVD [ft] | Vert Sect [ft] | North [ft] | East [ft] | Grid East [US ft] | Grid North [US ft] | Latitude       | Longitude       | DLS [°/100ft] | Comments            |
|----------|-----------------|-------------|----------|----------------|------------|-----------|-------------------|--------------------|----------------|-----------------|---------------|---------------------|
| 4500.00† | 0.000           | 179.738     | 4500.00  | 0.00           | 0.00       | 0.00      | 757428.00         | 488178.50          | 32°20'24.482"N | 103°38'01.149"W | 0.00          |                     |
| 4600.00† | 0.000           | 179.738     | 4600.00  | 0.00           | 0.00       | 0.00      | 757428.00         | 488178.50          | 32°20'24.482"N | 103°38'01.149"W | 0.00          |                     |
| 4700.00† | 0.000           | 179.738     | 4700.00  | 0.00           | 0.00       | 0.00      | 757428.00         | 488178.50          | 32°20'24.482"N | 103°38'01.149"W | 0.00          |                     |
| 4800.00† | 0.000           | 179.738     | 4800.00  | 0.00           | 0.00       | 0.00      | 757428.00         | 488178.50          | 32°20'24.482"N | 103°38'01.149"W | 0.00          |                     |
| 4900.00† | 0.000           | 179.738     | 4900.00  | 0.00           | 0.00       | 0.00      | 757428.00         | 488178.50          | 32°20'24.482"N | 103°38'01.149"W | 0.00          |                     |
| 5000.00† | 0.000           | 179.738     | 5000.00  | 0.00           | 0.00       | 0.00      | 757428.00         | 488178.50          | 32°20'24.482"N | 103°38'01.149"W | 0.00          | Delaware            |
| 5100.00† | 0.000           | 179.738     | 5100.00  | 0.00           | 0.00       | 0.00      | 757428.00         | 488178.50          | 32°20'24.482"N | 103°38'01.149"W | 0.00          |                     |
| 5200.00† | 0.000           | 179.738     | 5200.00  | 0.00           | 0.00       | 0.00      | 757428.00         | 488178.50          | 32°20'24.482"N | 103°38'01.149"W | 0.00          |                     |
| 5300.00† | 0.000           | 179.738     | 5300.00  | 0.00           | 0.00       | 0.00      | 757428.00         | 488178.50          | 32°20'24.482"N | 103°38'01.149"W | 0.00          |                     |
| 5400.00† | 0.000           | 179.738     | 5400.00  | 0.00           | 0.00       | 0.00      | 757428.00         | 488178.50          | 32°20'24.482"N | 103°38'01.149"W | 0.00          |                     |
| 5500.00† | 0.000           | 179.738     | 5500.00  | 0.00           | 0.00       | 0.00      | 757428.00         | 488178.50          | 32°20'24.482"N | 103°38'01.149"W | 0.00          |                     |
| 5600.00† | 0.000           | 179.738     | 5600.00  | 0.00           | 0.00       | 0.00      | 757428.00         | 488178.50          | 32°20'24.482"N | 103°38'01.149"W | 0.00          |                     |
| 5700.00† | 0.000           | 179.738     | 5700.00  | 0.00           | 0.00       | 0.00      | 757428.00         | 488178.50          | 32°20'24.482"N | 103°38'01.149"W | 0.00          |                     |
| 5800.00† | 0.000           | 179.738     | 5800.00  | 0.00           | 0.00       | 0.00      | 757428.00         | 488178.50          | 32°20'24.482"N | 103°38'01.149"W | 0.00          |                     |
| 5900.00† | 0.000           | 179.738     | 5900.00  | 0.00           | 0.00       | 0.00      | 757428.00         | 488178.50          | 32°20'24.482"N | 103°38'01.149"W | 0.00          |                     |
| 6000.00† | 0.000           | 179.738     | 6000.00  | 0.00           | 0.00       | 0.00      | 757428.00         | 488178.50          | 32°20'24.482"N | 103°38'01.149"W | 0.00          |                     |
| 6100.00† | 0.000           | 179.738     | 6100.00  | 0.00           | 0.00       | 0.00      | 757428.00         | 488178.50          | 32°20'24.482"N | 103°38'01.149"W | 0.00          |                     |
| 6200.00† | 0.000           | 179.738     | 6200.00  | 0.00           | 0.00       | 0.00      | 757428.00         | 488178.50          | 32°20'24.482"N | 103°38'01.149"W | 0.00          |                     |
| 6300.00† | 0.000           | 179.738     | 6300.00  | 0.00           | 0.00       | 0.00      | 757428.00         | 488178.50          | 32°20'24.482"N | 103°38'01.149"W | 0.00          |                     |
| 6400.00† | 0.000           | 179.738     | 6400.00  | 0.00           | 0.00       | 0.00      | 757428.00         | 488178.50          | 32°20'24.482"N | 103°38'01.149"W | 0.00          |                     |
| 6500.00† | 0.000           | 179.738     | 6500.00  | 0.00           | 0.00       | 0.00      | 757428.00         | 488178.50          | 32°20'24.482"N | 103°38'01.149"W | 0.00          |                     |
| 6600.00† | 0.000           | 179.738     | 6600.00  | 0.00           | 0.00       | 0.00      | 757428.00         | 488178.50          | 32°20'24.482"N | 103°38'01.149"W | 0.00          |                     |
| 6700.00† | 0.000           | 179.738     | 6700.00  | 0.00           | 0.00       | 0.00      | 757428.00         | 488178.50          | 32°20'24.482"N | 103°38'01.149"W | 0.00          |                     |
| 6800.00† | 0.000           | 179.738     | 6800.00  | 0.00           | 0.00       | 0.00      | 757428.00         | 488178.50          | 32°20'24.482"N | 103°38'01.149"W | 0.00          |                     |
| 6900.00† | 0.000           | 179.738     | 6900.00  | 0.00           | 0.00       | 0.00      | 757428.00         | 488178.50          | 32°20'24.482"N | 103°38'01.149"W | 0.00          |                     |
| 7000.00† | 0.000           | 179.738     | 7000.00  | 0.00           | 0.00       | 0.00      | 757428.00         | 488178.50          | 32°20'24.482"N | 103°38'01.149"W | 0.00          |                     |
| 7100.00† | 0.000           | 179.738     | 7100.00  | 0.00           | 0.00       | 0.00      | 757428.00         | 488178.50          | 32°20'24.482"N | 103°38'01.149"W | 0.00          |                     |
| 7200.00† | 0.000           | 179.738     | 7200.00  | 0.00           | 0.00       | 0.00      | 757428.00         | 488178.50          | 32°20'24.482"N | 103°38'01.149"W | 0.00          |                     |
| 7300.00† | 0.000           | 179.738     | 7300.00  | 0.00           | 0.00       | 0.00      | 757428.00         | 488178.50          | 32°20'24.482"N | 103°38'01.149"W | 0.00          |                     |
| 7400.00† | 0.000           | 179.738     | 7400.00  | 0.00           | 0.00       | 0.00      | 757428.00         | 488178.50          | 32°20'24.482"N | 103°38'01.149"W | 0.00          |                     |
| 7500.00† | 0.000           | 179.738     | 7500.00  | 0.00           | 0.00       | 0.00      | 757428.00         | 488178.50          | 32°20'24.482"N | 103°38'01.149"W | 0.00          |                     |
| 7600.00† | 0.000           | 179.738     | 7600.00  | 0.00           | 0.00       | 0.00      | 757428.00         | 488178.50          | 32°20'24.482"N | 103°38'01.149"W | 0.00          |                     |
| 7700.00† | 0.000           | 179.738     | 7700.00  | 0.00           | 0.00       | 0.00      | 757428.00         | 488178.50          | 32°20'24.482"N | 103°38'01.149"W | 0.00          |                     |
| 7800.00† | 0.000           | 179.738     | 7800.00  | 0.00           | 0.00       | 0.00      | 757428.00         | 488178.50          | 32°20'24.482"N | 103°38'01.149"W | 0.00          |                     |
| 7900.00† | 0.000           | 179.738     | 7900.00  | 0.00           | 0.00       | 0.00      | 757428.00         | 488178.50          | 32°20'24.482"N | 103°38'01.149"W | 0.00          |                     |
| 8000.00† | 0.000           | 179.738     | 8000.00  | 0.00           | 0.00       | 0.00      | 757428.00         | 488178.50          | 32°20'24.482"N | 103°38'01.149"W | 0.00          |                     |
| 8100.00† | 0.000           | 179.738     | 8100.00  | 0.00           | 0.00       | 0.00      | 757428.00         | 488178.50          | 32°20'24.482"N | 103°38'01.149"W | 0.00          |                     |
| 8200.00† | 0.000           | 179.738     | 8200.00  | 0.00           | 0.00       | 0.00      | 757428.00         | 488178.50          | 32°20'24.482"N | 103°38'01.149"W | 0.00          |                     |
| 8300.00† | 0.000           | 179.738     | 8300.00  | 0.00           | 0.00       | 0.00      | 757428.00         | 488178.50          | 32°20'24.482"N | 103°38'01.149"W | 0.00          |                     |
| 8400.00† | 0.000           | 179.738     | 8400.00  | 0.00           | 0.00       | 0.00      | 757428.00         | 488178.50          | 32°20'24.482"N | 103°38'01.149"W | 0.00          |                     |
| 8500.00† | 0.000           | 179.738     | 8500.00  | 0.00           | 0.00       | 0.00      | 757428.00         | 488178.50          | 32°20'24.482"N | 103°38'01.149"W | 0.00          | Basal Brushy Canyon |
| 8600.00† | 0.000           | 179.738     | 8600.00  | 0.00           | 0.00       | 0.00      | 757428.00         | 488178.50          | 32°20'24.482"N | 103°38'01.149"W | 0.00          | Bone Spring         |
| 8700.00† | 0.000           | 179.738     | 8700.00  | 0.00           | 0.00       | 0.00      | 757428.00         | 488178.50          | 32°20'24.482"N | 103°38'01.149"W | 0.00          |                     |
| 8800.00† | 0.000           | 179.738     | 8800.00  | 0.00           | 0.00       | 0.00      | 757428.00         | 488178.50          | 32°20'24.482"N | 103°38'01.149"W | 0.00          |                     |
| 8900.00† | 0.000           | 179.738     | 8900.00  | 0.00           | 0.00       | 0.00      | 757428.00         | 488178.50          | 32°20'24.482"N | 103°38'01.149"W | 0.00          |                     |



# Planned Wellpath Report

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## REFERENCE WELLPATH IDENTIFICATION

|          |                           |          |            |
|----------|---------------------------|----------|------------|
| Operator | Cimarex Energy Co.        | Slot     | No. 5H SHL |
| Area     | Lea County, NM            | Well     | No. 5H     |
| Field    | (Thyme) Sec 1, T23S, R32E | Wellbore | No. 5H PWB |
| Facility | Thyme "APY" Federal       |          |            |

## WELLPATH DATA (145 stations) † = interpolated/extrapolated station

| MD<br>[ft] | Inclination<br>[°] | Azimuth<br>[°] | TVD<br>[ft] | Vert Sect<br>[ft] | North<br>[ft] | East<br>[ft] | Grid East<br>[US ft] | Grid North<br>[US ft] | Latitude       | Longitude       | DLS<br>[°/100ft] | Comments                |
|------------|--------------------|----------------|-------------|-------------------|---------------|--------------|----------------------|-----------------------|----------------|-----------------|------------------|-------------------------|
| 9000.00†   | 0.000              | 179.738        | 9000.00     | 0.00              | 0.00          | 0.00         | 757428.00            | 488178.50             | 32°20'24.482"N | 103°38'01.149"W | 0.00             |                         |
| 9100.00†   | 0.000              | 179.738        | 9100.00     | 0.00              | 0.00          | 0.00         | 757428.00            | 488178.50             | 32°20'24.482"N | 103°38'01.149"W | 0.00             |                         |
| 9200.00†   | 0.000              | 179.738        | 9200.00     | 0.00              | 0.00          | 0.00         | 757428.00            | 488178.50             | 32°20'24.482"N | 103°38'01.149"W | 0.00             |                         |
| 9250.00†   | 0.000              | 179.738        | 9250.00     | 0.00              | 0.00          | 0.00         | 757428.00            | 488178.50             | 32°20'24.482"N | 103°38'01.149"W | 0.00             | Upper Bone Spring Shale |
| 9300.00†   | 0.000              | 179.738        | 9300.00     | 0.00              | 0.00          | 0.00         | 757428.00            | 488178.50             | 32°20'24.482"N | 103°38'01.149"W | 0.00             |                         |
| 9313.52    | 0.000              | 179.738        | 9313.52     | 0.00              | 0.00          | 0.00         | 757428.00            | 488178.50             | 32°20'24.482"N | 103°38'01.149"W | 0.00             | Est KOP                 |
| 9400.00†   | 17.296             | 179.738        | 9398.69     | 12.95             | -12.95        | 0.06         | 757428.06            | 488165.55             | 32°20'24.353"N | 103°38'01.150"W | 20.00            |                         |
| 9500.00†   | 37.296             | 179.738        | 9487.11     | 58.58             | -58.58        | 0.27         | 757428.27            | 488119.92             | 32°20'23.902"N | 103°38'01.151"W | 20.00            |                         |
| 9600.00†   | 57.296             | 179.738        | 9554.58     | 131.69            | -131.69       | 0.60         | 757428.60            | 488046.81             | 32°20'23.178"N | 103°38'01.152"W | 20.00            |                         |
| 9700.00†   | 77.296             | 179.738        | 9592.99     | 223.48            | -223.47       | 1.02         | 757429.02            | 487955.03             | 32°20'22.270"N | 103°38'01.154"W | 20.00            |                         |
| 9763.52    | 90.000             | 179.738        | 9600.00     | 286.48            | -286.48       | 1.31         | 757429.31            | 487892.04             | 32°20'21.647"N | 103°38'01.156"W | 20.00            | End of Curve            |
| 9800.00†   | 90.000             | 179.738        | 9600.00     | 322.96            | -322.95       | 1.48         | 757429.48            | 487855.56             | 32°20'21.286"N | 103°38'01.157"W | 0.00             |                         |
| 9900.00†   | 90.000             | 179.738        | 9600.00     | 422.96            | -422.95       | 1.94         | 757429.94            | 487755.56             | 32°20'20.296"N | 103°38'01.159"W | 0.00             |                         |
| 10000.00†  | 90.000             | 179.738        | 9600.00     | 522.96            | -522.95       | 2.39         | 757430.39            | 487655.57             | 32°20'19.307"N | 103°38'01.161"W | 0.00             |                         |
| 10100.00†  | 90.000             | 179.738        | 9600.00     | 622.96            | -622.95       | 2.85         | 757430.85            | 487555.57             | 32°20'18.317"N | 103°38'01.163"W | 0.00             |                         |
| 10200.00†  | 90.000             | 179.738        | 9600.00     | 722.96            | -722.95       | 3.31         | 757431.31            | 487455.58             | 32°20'17.328"N | 103°38'01.166"W | 0.00             |                         |
| 10300.00†  | 90.000             | 179.738        | 9600.00     | 822.96            | -822.95       | 3.77         | 757431.77            | 487355.58             | 32°20'16.338"N | 103°38'01.168"W | 0.00             |                         |
| 10400.00†  | 90.000             | 179.738        | 9600.00     | 922.96            | -922.95       | 4.22         | 757432.22            | 487255.59             | 32°20'15.349"N | 103°38'01.170"W | 0.00             |                         |
| 10500.00†  | 90.000             | 179.738        | 9600.00     | 1022.96           | -1022.95      | 4.68         | 757432.68            | 487155.59             | 32°20'14.359"N | 103°38'01.173"W | 0.00             |                         |
| 10600.00†  | 90.000             | 179.738        | 9600.00     | 1122.96           | -1122.95      | 5.14         | 757433.14            | 487055.60             | 32°20'13.370"N | 103°38'01.175"W | 0.00             |                         |
| 10700.00†  | 90.000             | 179.738        | 9600.00     | 1222.96           | -1222.94      | 5.60         | 757433.60            | 486955.60             | 32°20'12.380"N | 103°38'01.177"W | 0.00             |                         |
| 10800.00†  | 90.000             | 179.738        | 9600.00     | 1322.96           | -1322.94      | 6.06         | 757434.06            | 486855.61             | 32°20'11.391"N | 103°38'01.179"W | 0.00             |                         |
| 10900.00†  | 90.000             | 179.738        | 9600.00     | 1422.96           | -1422.94      | 6.51         | 757434.51            | 486755.61             | 32°20'10.401"N | 103°38'01.182"W | 0.00             |                         |
| 11000.00†  | 90.000             | 179.738        | 9600.00     | 1522.96           | -1522.94      | 6.97         | 757434.97            | 486655.62             | 32°20'09.412"N | 103°38'01.184"W | 0.00             |                         |
| 11100.00†  | 90.000             | 179.738        | 9600.00     | 1622.96           | -1622.94      | 7.43         | 757435.43            | 486555.62             | 32°20'08.422"N | 103°38'01.186"W | 0.00             |                         |
| 11200.00†  | 90.000             | 179.738        | 9600.00     | 1722.96           | -1722.94      | 7.89         | 757435.89            | 486455.63             | 32°20'07.433"N | 103°38'01.188"W | 0.00             |                         |
| 11300.00†  | 90.000             | 179.738        | 9600.00     | 1822.96           | -1822.94      | 8.34         | 757436.34            | 486355.63             | 32°20'06.443"N | 103°38'01.191"W | 0.00             |                         |
| 11400.00†  | 90.000             | 179.738        | 9600.00     | 1922.96           | -1922.94      | 8.80         | 757436.80            | 486255.64             | 32°20'05.454"N | 103°38'01.193"W | 0.00             |                         |
| 11500.00†  | 90.000             | 179.738        | 9600.00     | 2022.96           | -2022.94      | 9.26         | 757437.26            | 486155.64             | 32°20'04.465"N | 103°38'01.195"W | 0.00             |                         |
| 11600.00†  | 90.000             | 179.738        | 9600.00     | 2122.96           | -2122.94      | 9.72         | 757437.72            | 486055.65             | 32°20'03.475"N | 103°38'01.198"W | 0.00             |                         |
| 11700.00†  | 90.000             | 179.738        | 9600.00     | 2222.96           | -2222.93      | 10.18        | 757438.18            | 485955.65             | 32°20'02.486"N | 103°38'01.200"W | 0.00             |                         |
| 11800.00†  | 90.000             | 179.738        | 9600.00     | 2322.96           | -2322.93      | 10.63        | 757438.63            | 485855.66             | 32°20'01.496"N | 103°38'01.202"W | 0.00             |                         |
| 11900.00†  | 90.000             | 179.738        | 9600.00     | 2422.96           | -2422.93      | 11.09        | 757439.09            | 485755.66             | 32°20'00.507"N | 103°38'01.204"W | 0.00             |                         |
| 12000.00†  | 90.000             | 179.738        | 9600.00     | 2522.96           | -2522.93      | 11.55        | 757439.55            | 485655.67             | 32°19'59.517"N | 103°38'01.207"W | 0.00             |                         |
| 12100.00†  | 90.000             | 179.738        | 9600.00     | 2622.96           | -2622.93      | 12.01        | 757440.01            | 485555.67             | 32°19'58.528"N | 103°38'01.209"W | 0.00             |                         |
| 12200.00†  | 90.000             | 179.738        | 9600.00     | 2722.96           | -2722.93      | 12.46        | 757440.46            | 485455.68             | 32°19'57.538"N | 103°38'01.211"W | 0.00             |                         |
| 12300.00†  | 90.000             | 179.738        | 9600.00     | 2822.96           | -2822.93      | 12.92        | 757440.92            | 485355.68             | 32°19'56.549"N | 103°38'01.214"W | 0.00             |                         |
| 12400.00†  | 90.000             | 179.738        | 9600.00     | 2922.96           | -2922.93      | 13.38        | 757441.38            | 485255.69             | 32°19'55.559"N | 103°38'01.216"W | 0.00             |                         |
| 12500.00†  | 90.000             | 179.738        | 9600.00     | 3022.96           | -3022.93      | 13.84        | 757441.84            | 485155.69             | 32°19'54.570"N | 103°38'01.218"W | 0.00             |                         |
| 12600.00†  | 90.000             | 179.738        | 9600.00     | 3122.96           | -3122.93      | 14.30        | 757442.29            | 485055.70             | 32°19'53.580"N | 103°38'01.220"W | 0.00             |                         |
| 12700.00†  | 90.000             | 179.738        | 9600.00     | 3222.96           | -3222.92      | 14.75        | 757442.75            | 484955.70             | 32°19'52.591"N | 103°38'01.223"W | 0.00             |                         |
| 12800.00†  | 90.000             | 179.738        | 9600.00     | 3322.96           | -3322.92      | 15.21        | 757443.21            | 484855.71             | 32°19'51.601"N | 103°38'01.225"W | 0.00             |                         |
| 12900.00†  | 90.000             | 179.738        | 9600.00     | 3422.96           | -3422.92      | 15.67        | 757443.67            | 484755.71             | 32°19'50.612"N | 103°38'01.227"W | 0.00             |                         |
| 13000.00†  | 90.000             | 179.738        | 9600.00     | 3522.96           | -3522.92      | 16.13        | 757444.13            | 484655.72             | 32°19'49.622"N | 103°38'01.229"W | 0.00             |                         |
| 13100.00†  | 90.000             | 179.738        | 9600.00     | 3622.96           | -3622.92      | 16.58        | 757444.58            | 484555.72             | 32°19'48.633"N | 103°38'01.232"W | 0.00             |                         |



# Planned Wellpath Report

Prelim\_1  
Page 5 of 5



## REFERENCE WELLPATH IDENTIFICATION

|          |                           |          |            |
|----------|---------------------------|----------|------------|
| Operator | Cimarex Energy Co.        | Slot     | No. 5H SHL |
| Area     | Lea County, NM            | Well     | No. 5H     |
| Field    | (Thyme) Sec 1, T23S, R32E | Wellbore | No. 5H PWB |
| Facility | Thyme "APY" Federal       |          |            |

## WELLPATH DATA (145 stations) † = interpolated/extrapolated station

| MD [ft]   | Inclination [°] | Azimuth [°] | TVD [ft] | Vert Sect [ft] | North [ft] | East [ft] | Grid East [US ft] | Grid North [US ft] | Latitude       | Longitude       | DLS [°/100ft] | Comments    |
|-----------|-----------------|-------------|----------|----------------|------------|-----------|-------------------|--------------------|----------------|-----------------|---------------|-------------|
| 13200.00† | 90.000          | 179.738     | 9600.00  | 3722.96        | -3722.92   | 17.04     | 757445.04         | 484455.73          | 32°19'47.643"N | 103°38'01.234"W | 0.00          |             |
| 13300.00† | 90.000          | 179.738     | 9600.00  | 3822.96        | -3822.92   | 17.50     | 757445.50         | 484355.73          | 32°19'46.654"N | 103°38'01.236"W | 0.00          |             |
| 13400.00† | 90.000          | 179.738     | 9600.00  | 3922.96        | -3922.92   | 17.96     | 757445.96         | 484255.74          | 32°19'45.664"N | 103°38'01.239"W | 0.00          |             |
| 13500.00† | 90.000          | 179.738     | 9600.00  | 4022.96        | -4022.92   | 18.42     | 757446.41         | 484155.74          | 32°19'44.675"N | 103°38'01.241"W | 0.00          |             |
| 13600.00† | 90.000          | 179.738     | 9600.00  | 4122.96        | -4122.91   | 18.87     | 757446.87         | 484055.75          | 32°19'43.685"N | 103°38'01.243"W | 0.00          |             |
| 13700.00† | 90.000          | 179.738     | 9600.00  | 4222.96        | -4222.91   | 19.33     | 757447.33         | 483955.75          | 32°19'42.696"N | 103°38'01.245"W | 0.00          |             |
| 13800.00† | 90.000          | 179.738     | 9600.00  | 4322.96        | -4322.91   | 19.79     | 757447.79         | 483855.76          | 32°19'41.706"N | 103°38'01.248"W | 0.00          |             |
| 13900.00† | 90.000          | 179.738     | 9600.00  | 4422.96        | -4422.91   | 20.25     | 757448.25         | 483755.76          | 32°19'40.717"N | 103°38'01.250"W | 0.00          |             |
| 14000.00† | 90.000          | 179.738     | 9600.00  | 4522.96        | -4522.91   | 20.70     | 757448.70         | 483655.77          | 32°19'39.727"N | 103°38'01.252"W | 0.00          |             |
| 14086.67  | 90.000          | 179.738     | 9600.00† | 4609.63        | -4609.58   | 21.10     | 757449.10         | 483569.10          | 32°19'38.869"N | 103°38'01.254"W | 0.00          | No. 5H PBHL |

## HOLE & CASING SECTIONS - Ref Wellbore: No. 5H PWB Ref Wellpath: Prelim\_1

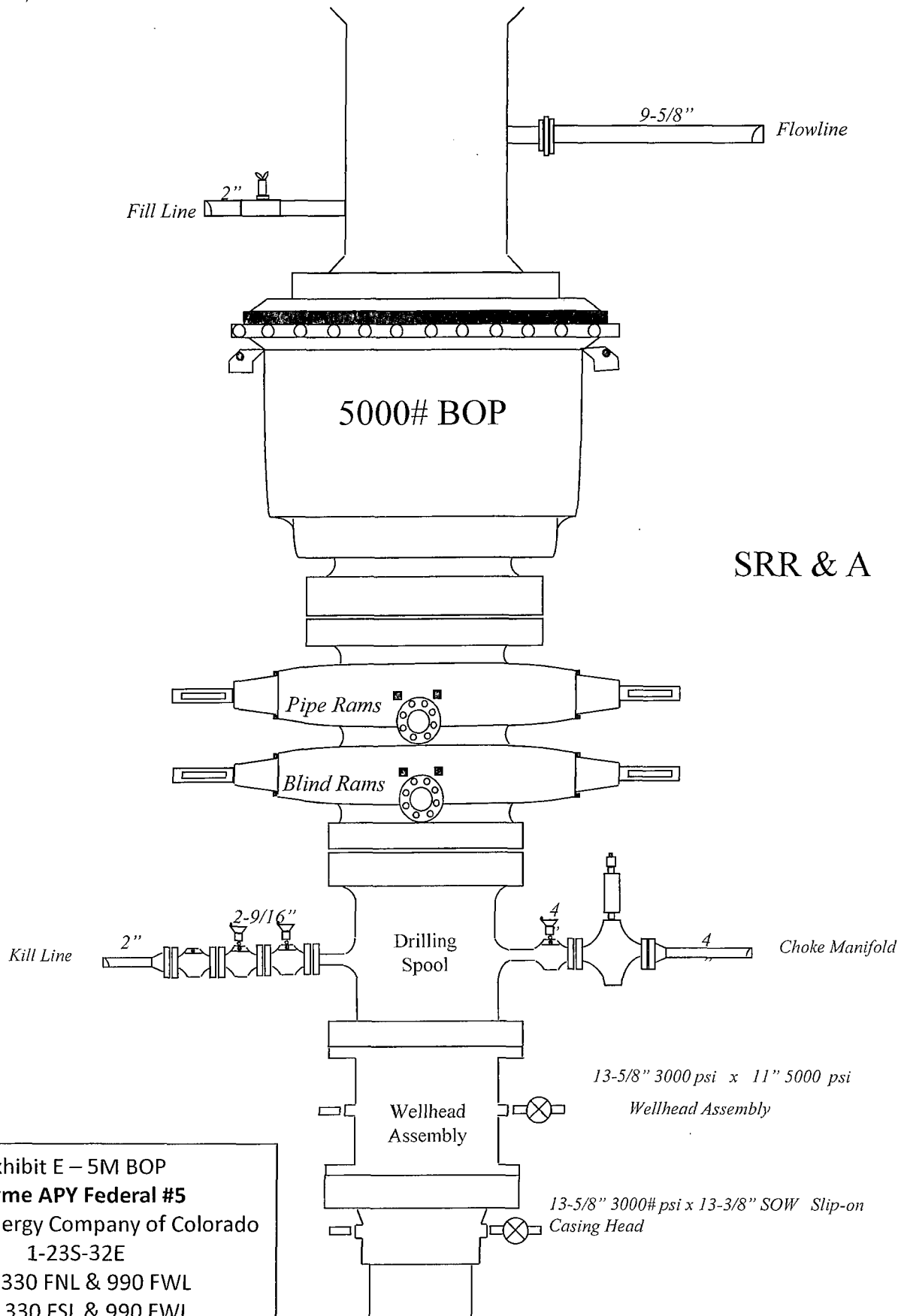
| String/Diameter   | Start MD [ft] | End MD [ft] | Interval [ft] | Start TVD [ft] | End TVD [ft] | Start N/S [ft] | Start E/W [ft] | End N/S [ft] | End E/W [ft] |
|-------------------|---------------|-------------|---------------|----------------|--------------|----------------|----------------|--------------|--------------|
| 12.25in Open Hole | 0.00          | 4500.00     | 4500.00       | 0.00           | 4500.00      | 0.00           | 0.00           | 0.00         | 0.00         |
| 9.625in Casing    | 0.00          | 4500.00     | 4500.00       | 0.00           | 4500.00      | 0.00           | 0.00           | 0.00         | 0.00         |
| 8.75in Open Hole  | 4500.00       | 14086.67    | 9586.67       | 4500.00        | 9600.00      | 0.00           | 0.00           | -4609.58     | 21.10        |
| 5.5in Casing      | 0.00          | 14086.67    | 14086.67      | 0.00           | 9600.00      | 0.00           | 0.00           | -4609.58     | 21.10        |

## TARGETS

| Name           | MD [ft]  | TVD [ft] | North [ft] | East [ft] | Grid East [US ft] | Grid North [US ft] | Latitude       | Longitude       | Shape |
|----------------|----------|----------|------------|-----------|-------------------|--------------------|----------------|-----------------|-------|
| 1) No. 5H PBHL | 14086.67 | 9600.00  | -4609.58   | 21.10     | 757449.10         | 483569.10          | 32°19'38.869"N | 103°38'01.254"W | point |

## SURVEY PROGRAM - Ref Wellbore: No. 5H PWB Ref Wellpath: Prelim\_1

| Start MD [ft] | End MD [ft] | Positional Uncertainty Model | Log Name/Comment | Wellbore   |
|---------------|-------------|------------------------------|------------------|------------|
| 3738.00       | 14086.67    | NaviTrak (Standard)          |                  | No. 5H PWB |

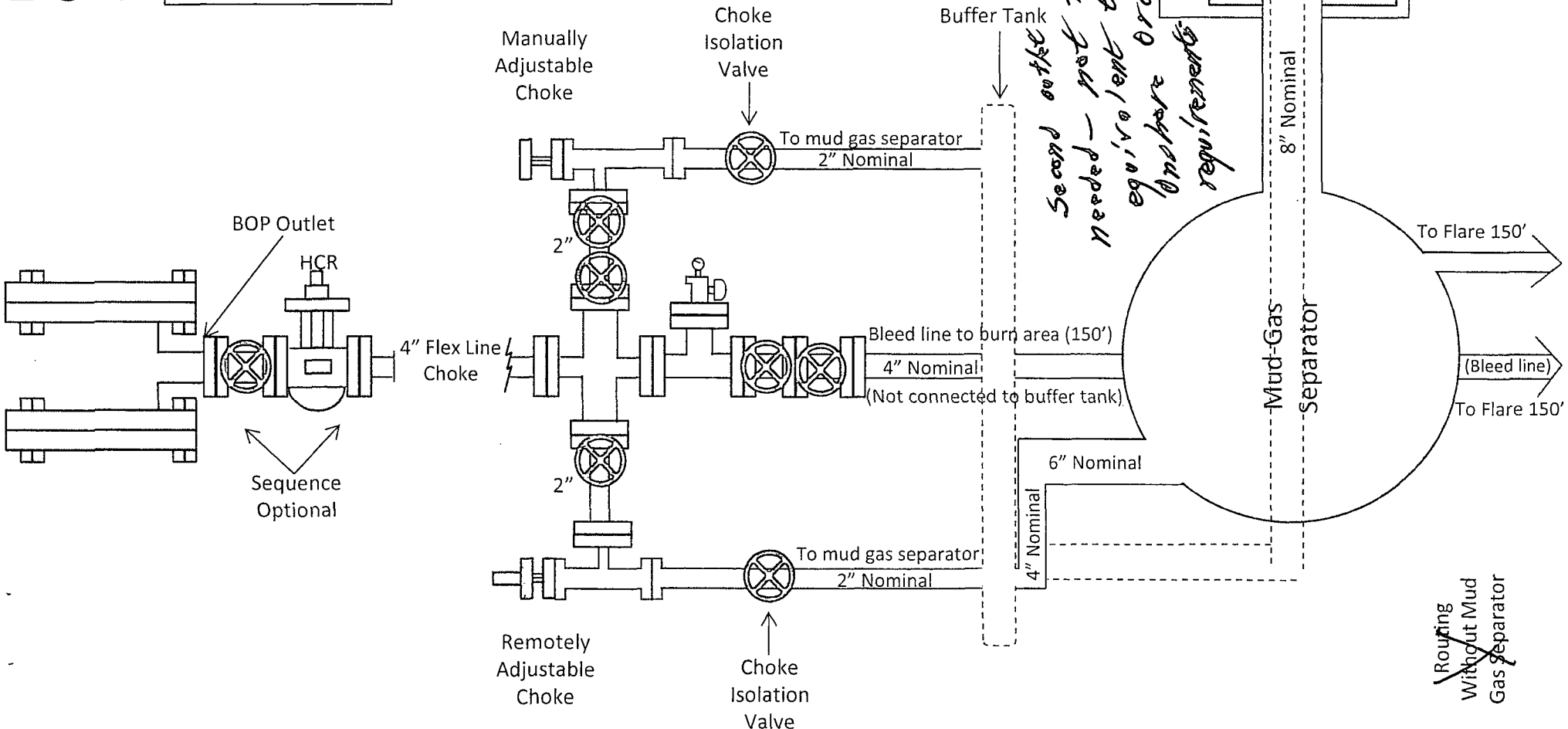


SRR & A

Exhibit E – 5M BOP  
**Thyme APY Federal #5**  
 Cimarex Energy Company of Colorado  
 1-23S-32E  
 SHL 330 FNL & 990 FWL  
 BHL 330 FSL & 990 FWL  
 Lea County, NM

# Drilling Operations Choke Manifold 5M Service

Exhibit E-1 – Choke Manifold Diagram  
**Thyme APY Federal #5**  
 Cimarex Energy Company of Colorado  
 1-23S-32E  
 SHL 330 FNL & 990 FWL  
 BHL 330 FSL & 990 FWL  
 Lea County, NM





Midwest Hose  
& Specialty, Inc.

| INTERNAL HYDROSTATIC TEST REPORT                                        |                                  |                                 |
|-------------------------------------------------------------------------|----------------------------------|---------------------------------|
| Customer: Oderco Inc                                                    |                                  | P.O. Number: odyd-271           |
| HOSE SPECIFICATIONS                                                     |                                  |                                 |
| Type: Stainless Steel Armor<br>Choke & Kill Hose                        |                                  | Hose Length: 45'ft.             |
| I.D. 4 INCHES                                                           | O.D. 9 INCHES                    |                                 |
| WORKING PRESSURE<br>10,000 PSI                                          | TEST PRESSURE<br>15,000 PSI      | BURST PRESSURE<br>0 PSI         |
| COUPLINGS                                                               |                                  |                                 |
| Stem Part No.<br>OKC<br>OKC                                             | Ferrule No.<br>OKC<br>OKC        |                                 |
| Type of Coupling:<br>Swage-It                                           |                                  |                                 |
| PROCEDURE                                                               |                                  |                                 |
| <i>Hose assembly pressure tested with water at ambient temperature.</i> |                                  |                                 |
| TIME HELD AT TEST PRESSURE<br>15 MIN.                                   | ACTUAL BURST PRESSURE:<br>0 PSI  |                                 |
| Hose Assembly Serial Number:<br>79793                                   | Hose Serial Number:<br>OKC       |                                 |
| Comments:                                                               |                                  |                                 |
| Date:<br>3/8/2011                                                       | Tested:<br><i>A. Jaime Sauer</i> | Approved:<br><i>[Signature]</i> |



Midwest Hose  
& Specialty, Inc.

## Internal Hydrostatic Test Graph

March 3, 2011

Customer: Houston

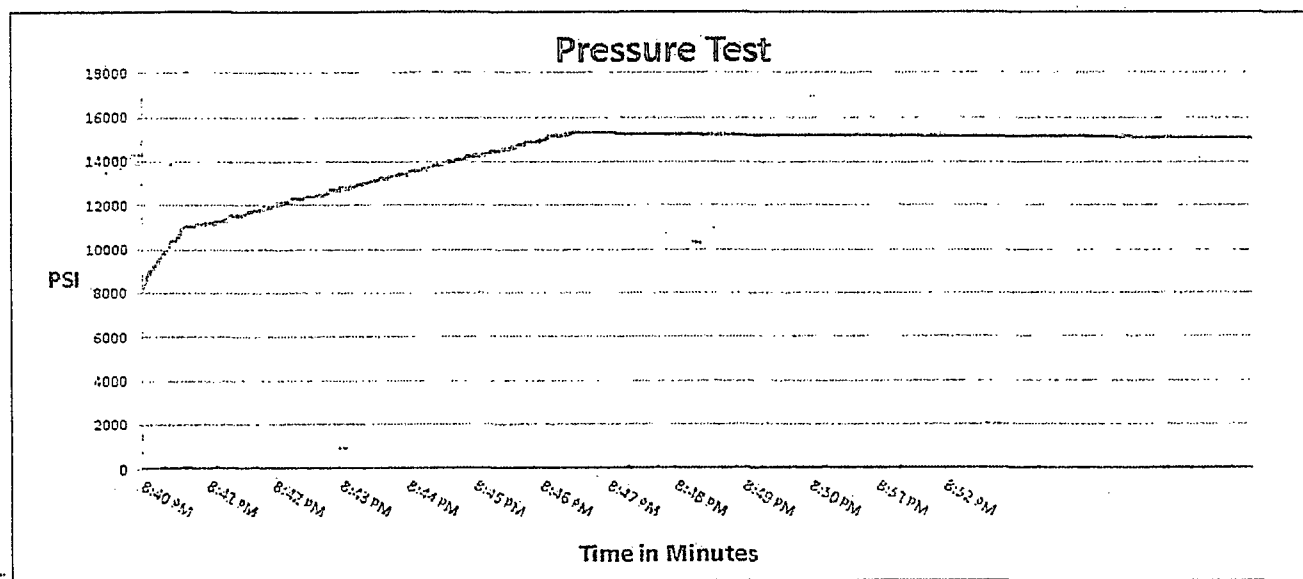
Pick Ticket #: 94260

### Hose Specifications

|                         |                                    |
|-------------------------|------------------------------------|
| <u>Hose Type</u>        | <u>Length</u>                      |
| C & K                   | 45'                                |
| <u>I.D.</u>             | <u>O.D.</u>                        |
| 4"                      | 6.09"                              |
| <u>Working Pressure</u> | <u>Burst Pressure</u>              |
| 10000 PSI               | Standard Safety Multiplier Applies |

### Verification

|                        |                               |
|------------------------|-------------------------------|
| <u>Type of Fitting</u> | <u>Coupling Method</u>        |
| 4 1/16 10K             | Swage                         |
| <u>Die Size</u>        | <u>Final O.D.</u>             |
| 6.38"                  | 6.25"                         |
| <u>Hose Serial #</u>   | <u>Hose Assembly Serial #</u> |
| 5544                   | 79793                         |



Test Pressure  
15000 PSI

Time Held at Test Pressure  
11 Minutes

Actual Burst Pressure

Peak Pressure  
15483 PSI

**Comments:** Hose assembly pressure tested with water at ambient temperature.

**Tested By:** Zac McConnell

**Approved By:** Kim Thomas



## Midwest Hose & Specialty, Inc.

### Certificate of Conformity

Customer:

DEM

PO

ODYD-271

### SPECIFICATIONS

Sales Order

79793

Dated:

3/8/2011

We hereby certify that the material supplied  
for the referenced purchase order to be true  
according to the requirements of the purchase  
order and current industry standards

Supplier:  
Midwest Hose & Specialty, Inc.  
10640 Tanner Road  
Houston, Texas 77041

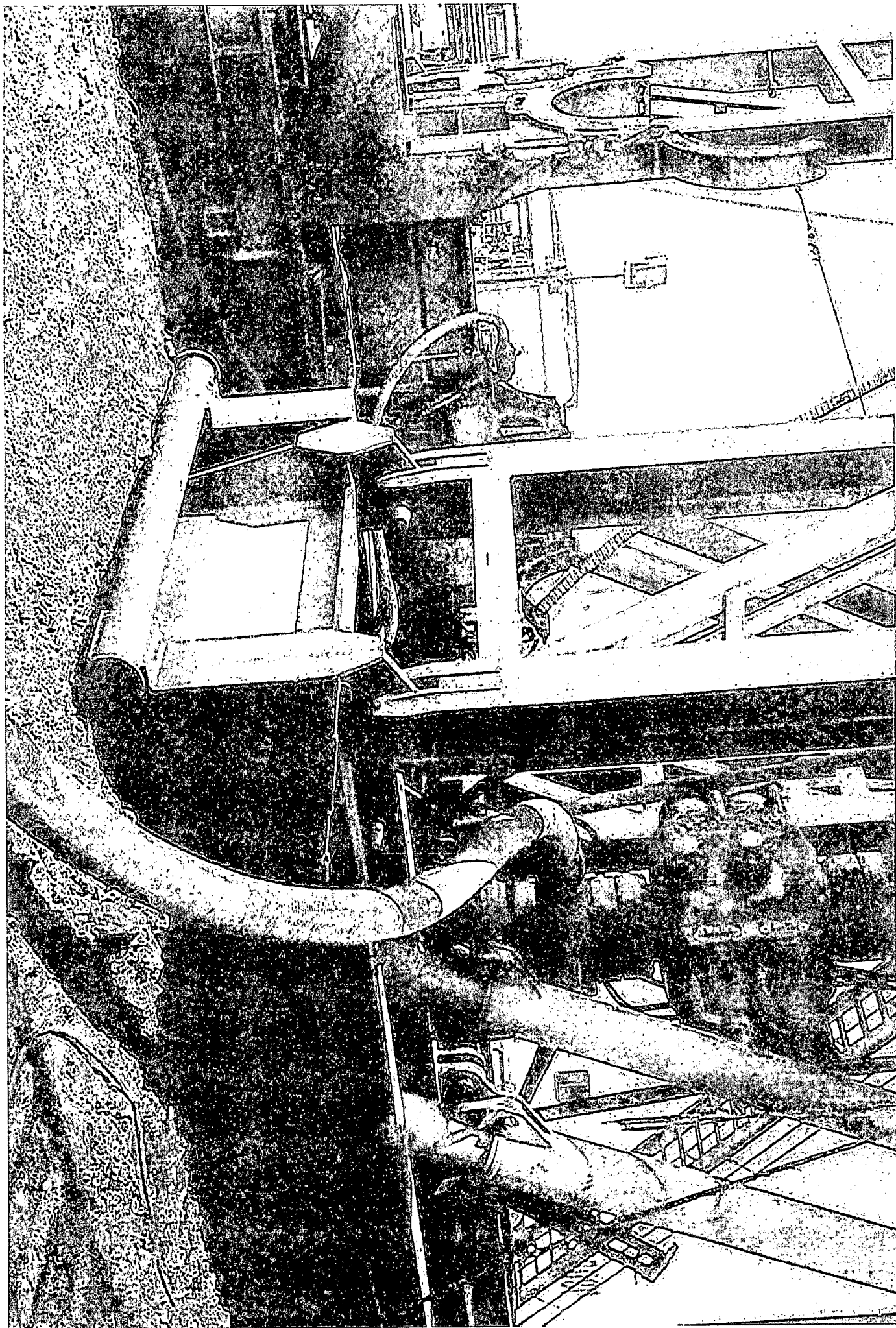
Comments:

Approved:

*James L. Grier*

Date:

3/8/2011



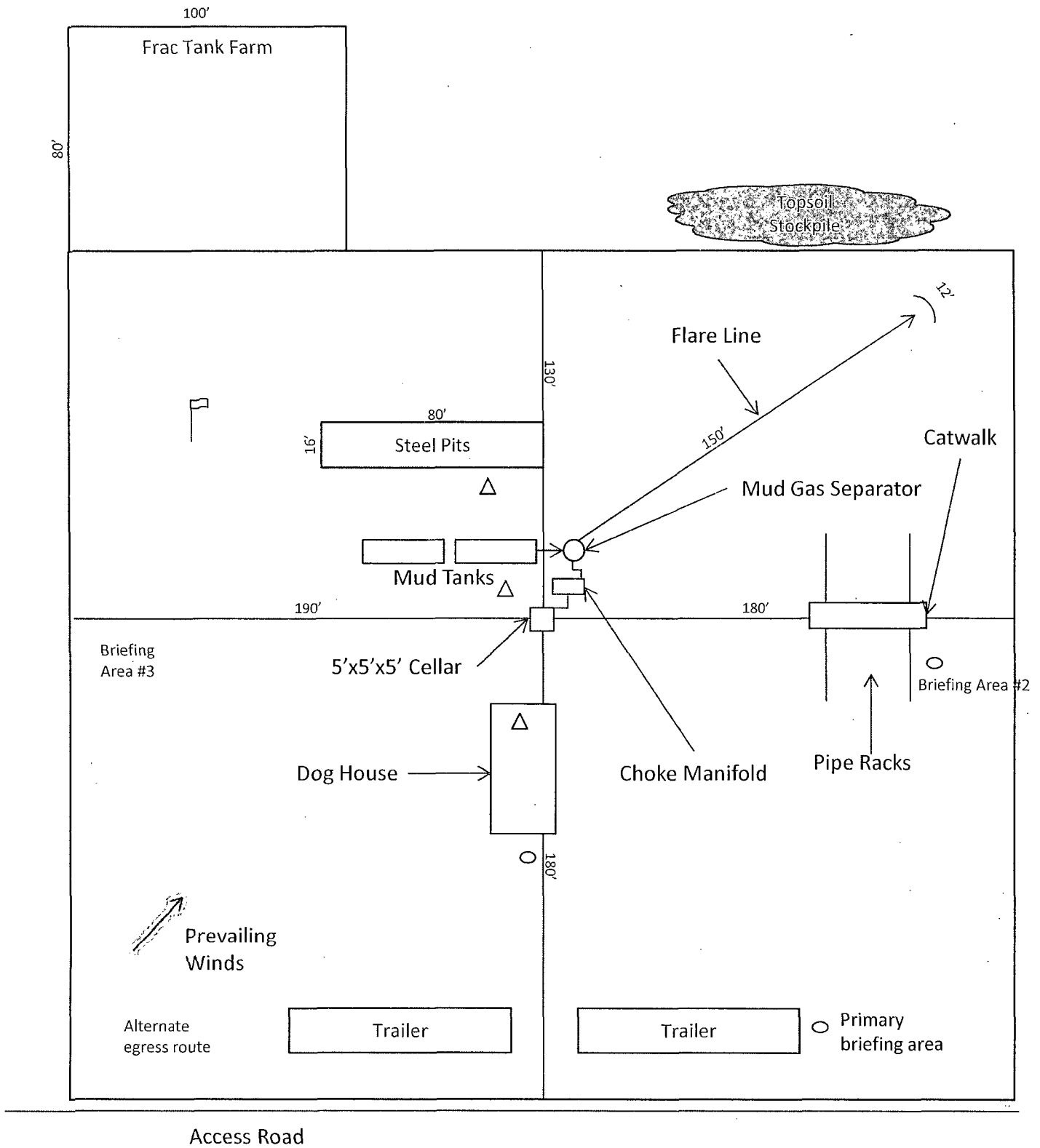
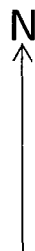


Exhibit D – Rig Diagram  
**Thyme APY Federal #5**  
 Cimarex Energy Company of Colorado  
 1-23S-32E  
 SHL 330 FNL & 990 FWL  
 BHL 330 FSL & 990 FWL  
 Lea County, NM



-  Wind Direction Indicators (wind sock or streamers)
-  • H2S Monitors (alarms at bell nipple and shale shaker)
-  Briefing Areas