

12-250

OCD-HOBBS

HOBBS OCD

FEB 29 2012

Form 3160-3  
(April 2004)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

RECEIVED

FORM APPROVED  
OMB No 1004-0137  
Expires March 31, 2007

APPLICATION FOR PERMIT TO DRILL OR REENTER

|                                                                                                                                                                                                                       |  |                                                                        |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------|
| 1a Type of Work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER <i>NOS RCVD 1/4/12</i>                                                                                                    |  | 5. Lease Serial No.<br>NM-0392082-A                                    |
| 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<br>Cimarex Energy Co. of Colorado <i>162683</i>                                                                                                                                                   |  | 7. If Unit or CA Agreement, Name and No                                |
| 3a Address<br>600 N. Marienfeld St., Ste. 600; Midland, TX 79701                                                                                                                                                      |  | 8. Lease Name and Well No<br>Hallertau 4 Federal No. 7H <i>39100</i>   |
| 3b. Phone No (include area code)<br>432-571-7800                                                                                                                                                                      |  | 9 API Well No<br>30-025- <i>40476</i>                                  |
| 4 Location of Well (Report location clearly and in accordance with any State requirements. *)<br>At Surface 330 FNL & 1650 FEL<br>At proposed prod Zone 330 FSL & 1670 FEL <i>Horizontal Bone Spring test</i>         |  | 10. Field and Pool, or Exploratory<br>Bone Spring Wildcat <i>97903</i> |
| 14 Distance in miles and direction from nearest town or post office*                                                                                                                                                  |  | 11 Sec., T. R. M or Blk and Survey or Area<br>4-26S-32E                |
| 15 Distance from proposed* location to nearest property or lease line, ft (Also to nearest drig. unit line if any) <i>330'</i>                                                                                        |  | 12 County or Parish<br>Lea                                             |
| 16. No of acres in lease<br><i>1720.49 acres</i>                                                                                                                                                                      |  | 13 State<br>NM                                                         |
| 17 Spacing Unit dedicated to this well<br><i>W2E2 160 acres</i>                                                                                                                                                       |  |                                                                        |
| 18 Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. <i>467'</i>                                                                                                 |  |                                                                        |
| 19 Proposed Depth<br><i>MD 14013 TVD 9472</i>                                                                                                                                                                         |  |                                                                        |
| 20 BLM/BIA Bond No. on File<br><i>NM-2575</i>                                                                                                                                                                         |  |                                                                        |
| 21. Elevations (Show whether DF, KDB, RT, GL, etc.)<br><i>3308' GR</i>                                                                                                                                                |  |                                                                        |
| 22 Approximate date work will start*<br><i>03.01.12</i>                                                                                                                                                               |  |                                                                        |
| 23. Estimated duration<br><i>25-30 days</i>                                                                                                                                                                           |  |                                                                        |

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No 1, shall 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 shall be filed with the appropriate Forest Service Office) | 6 Such other site specific information and/or plans as may be required by the authorized officer |

|                                                    |                                     |                            |
|----------------------------------------------------|-------------------------------------|----------------------------|
| 25. Signature<br><i>Zeno Farris</i>                | Name (Printed/Typed)<br>Zeno Farris | Date<br>01.22.12           |
| Title<br>Manager Operations Administration         |                                     |                            |
| Approved By (Signature)<br><i>/s/ Don Peterson</i> | Name (Printed/Typed)                | Date<br><i>FEB 28 2012</i> |
| Title<br>FIELD MANAGER                             |                                     |                            |
| Office<br>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

Title 18 U.S.S. 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)

APPROVAL FOR TWO YEARS

SEE ATTACHED FOR  
CONDITIONS OF APPROVAL

*KZ 03/05/12*

Carlsbad Controlled Water Basin

Approval Subject to General Requirements  
& Special Stipulations Attached

MAR 06 2012

Application to Drill  
**Hallertau 4 Federal No. 7H**  
Cimarex Energy Co. of Colorado  
Unit B, Section 4  
T26S-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 & 1650 FEL  
                          BHL    330 FSL & 1670 FEL
  
- 2 Elevation above sea level:       3308' 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 14013               TVD 9472
  
- 6 Estimated tops of geological markers:  
Rustler                               1215  
T. Salt                               1338  
B. Salt                               4325  
Delaware                            4554  
Cherry Canyon                    5568  
Brushy Canyon                    7202  
Lower Brushy Canyon            8445  
Bone Spring                       8639  
2nd Bone Spring Sand            10000
  
- 7 Possible mineral bearing formation:  
Bone Spring               Oil

8 Proposed Mud Circulating System:

| Depth           | Mud Wt    | Visc  | Fluid Loss | Type Mud                             |
|-----------------|-----------|-------|------------|--------------------------------------|
| 0' to 1235'     | 8.4 - 8.6 | 28    | NC         | FW                                   |
| 1235' to 4534'  | 10.0      | 30-32 | NC         | Brine water                          |
| 4534' to 14013' | 8.4 - 9.5 | 30-32 | NC         | FW, brine, and 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.

Proposed drilling Plan

Drill 8¾" hole to KOP 9166 and drill 8 3/4" lateral to TD @ 14013 MD, 9472 TVD. Run 5½" 17# P-110 LTC from 0-14013 and cement.

Application to Drill  
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9 Casing & Cementing Program:

| String       | Hole Size | Depth        | Casing OD | Weight | Collar | Grade |
|--------------|-----------|--------------|-----------|--------|--------|-------|
| Surface      | 17½"      | 0' to 1235'  | New 13¾"  | 48#    | STC    | H-40  |
| Intermediate | 12¼"      | 0' to 4534'  | New 9¾"   | 40 #   | LTC    | J-55  |
| Production   | 8¾"       | 0' to 14013' | New 5½"   | 17#    | LTC    | P-110 |

*Per Operator 2/21/12*

10 Cementing:

|              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Surface      | 835SKS Class C Cement + 4% Bentomite + 2% CaCl 13.5ppg 1.75yield 100% Excess<br>TOC Surface Centralizers per Onshorder 2.III.B.1.f                                                                                                                                                                                                                                                                                                                                                         |
| Intermediate | Lead:1240SKS Type C Cement, 5% NaCl WOW, D132 (ext) 27.522 lb/sk, D020 (ext) 6%, D042 (ext) 3lb/sk, D130 (LCM) 0.125lb/sk 12.6ppg 2.06yield 70% Excess<br>Tail:200SKS Type C Cement 14.8ppg 1.33 yield 25% Excess<br>TOC Surface                                                                                                                                                                                                                                                           |
| Production   | Lead:945SKS Type H cement, NaCl 5% WOW, D132 (ext) 39.39lb/sk, D020 (ext) 10%, D046 Antifoam 0.20%, D130 LCM 0.125lb/sk, D112 1% 11.8ppg 2.56 yield 45% Excess<br>Tail:745SKS D049 Cement, 1.3% NaCl, 0.4% D207 fluid loss, 0.2% AnitFoam, 0.3% retarder, 2.0% D174 Expanding Agent 14.5ppg 1.44 yield 25% Excess<br>TOC 4300' Centralizers every 3rd joint in lateral to provide adequate cement coverage every 100' unless lateral doglegs require greater spacing between centralizers. |

Depth to ground water is 275 according to the State Engineer. Fresh water zones will be protected by setting 13¾" casing at 1235 and cementing to surface. Hydrocarbon zones will be protected by setting 9¾" casing at 4538 and cementing to surface, and by setting 5½" casing at 14013 and cementing to 4300.

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

11 Pressure control Equipment:

A 13¾" 5000 PSI working pressure BOP tested to 3000 psi 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. Mud gas separator to be used when drilling in H2S areas.

BOP unit will be hydraulically operated. BOP will be nipped up 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. From the base of the 13¾" casing through the running of production casing, the well will be equipped with a 5000 psi BOP system tested to 3000 psi.

BOPs will be tested by an independent service company to 250 psi low and 3000 psi high. Hydril will be tested to 250 psi low and 1500 psi high.

Cimarex Energy Co. of Colorado (operator) requests a variance if Cactus 101 (rig name) is used to drill this well to use a co-flex line between the BOP and choke manifold.

Manufacturer: Midwest Hose & Specialty

Serial Number: 59473

Length: 35' Size: 4-1/16" Ends flanges/clamps

WP rating: 10,000 psi Anchors required by manufacturer – Yes/No No

Application to Drill  
**Hallertau 4 Federal No. 7H**  
Cimarex Energy Co. of Colorado  
Unit B, Section 4  
T26S-R32E; Lea County, NM

12. Testing, Logging and Coring Program: *See COA*
- A. Mud logging program: 2 man unit from 4534' to TD
  - B. Electric logging program: CNL / LDT / CAL / GR, DLL / CAL / GR
  - C. No DSTs or cores are planned at this time.

13 Potential Hazards:

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      **4400 psi**      Estimated BHT      **130°**

- 14 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.

15 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 potentialized as      **an oil well.**



# Cimarex Energy Co.

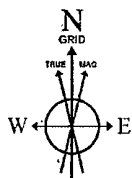
Location Lea County, NM  
Field (Hallertau) Sec 4, T26S, R32E  
Facility Hallertau 4 Fed No 7H

Slot No 7H SHL  
Well No 7H  
Wellbore No 7H PWB

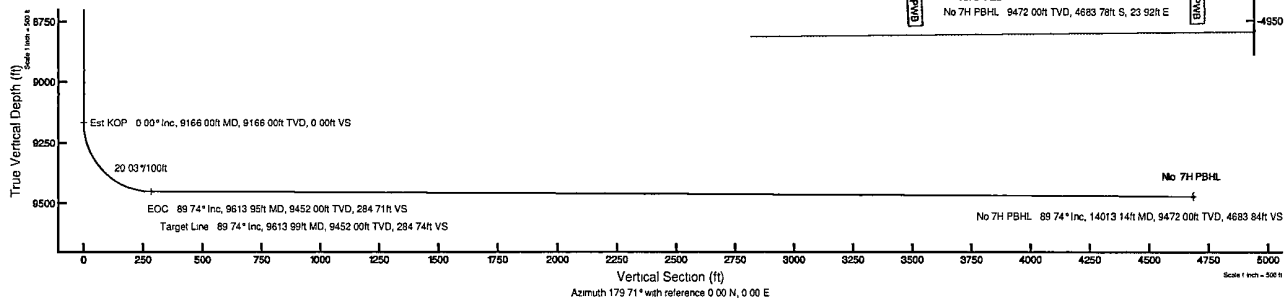
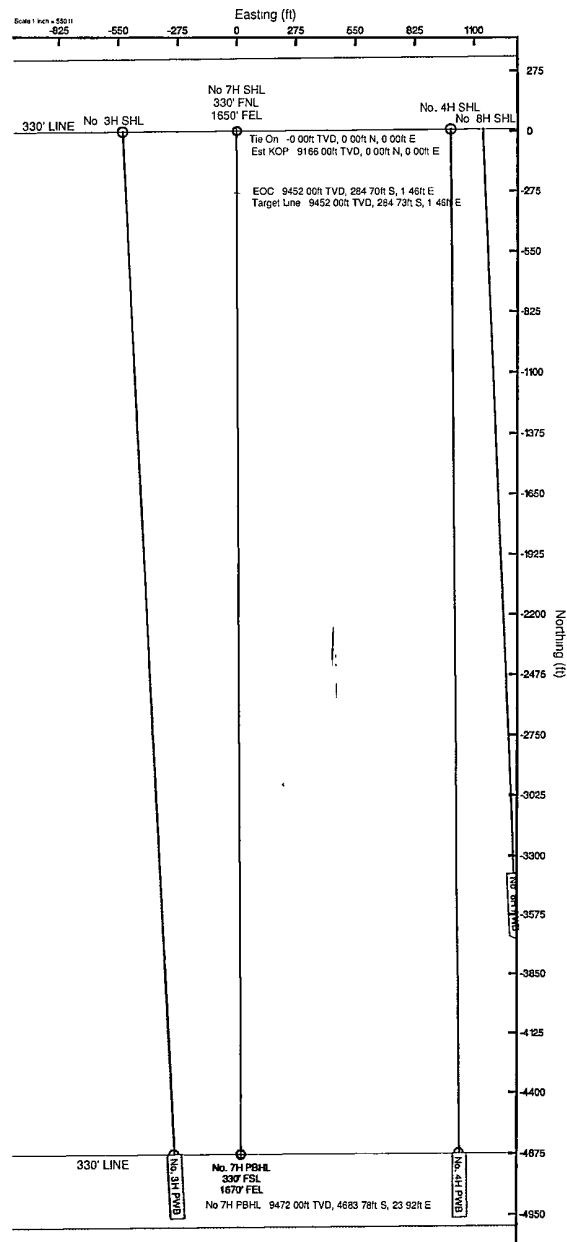


| Well Profile Data |          |         |         |          |              |              |         |
|-------------------|----------|---------|---------|----------|--------------|--------------|---------|
| Design Comment    | MD (ft)  | Inc (°) | Az (°)  | TVD (ft) | Local N (ft) | Local E (ft) | VS (ft) |
| Tie On            | 0.00     | 0.000   | 179.707 | 0.00     | 0.00         | 0.00         | 0.00    |
| Est KOP           | 9166.00  | 0.000   | 179.707 | 9166.00  | 0.00         | 0.00         | 0.00    |
| EOC               | 9613.95  | 89.740  | 179.707 | 9452.00  | -284.70      | 1.46         | 284.71  |
| Target Line       | 9613.99  | 89.740  | 179.707 | 9452.00  | -284.73      | 1.46         | 284.74  |
| No 7H PBHL        | 14013.14 | 89.740  | 179.707 | 9472.00  | -4683.78     | 23.92        | 4683.84 |

|                                                              |                                                                     |
|--------------------------------------------------------------|---------------------------------------------------------------------|
| Plot reference wellpath is Prelim_1                          |                                                                     |
| True vertical depths are referenced to Rig on No 7H SHL (RT) | Grid System: NAD83 / TM New Mexico SP, Eastern Zone (3001), US feet |
| Measured depths are referenced to Rig on No 7H SHL (RT)      | North Reference: Grid north                                         |
| Rig on No 7H SHL (RT) to Mean Sea Level: 3308 feet           | Scale: True distance                                                |
| Mean Sea Level to Mud line (At Slot No 7H SHL): -3308 feet   | Depths are in feet                                                  |
| Coordinates are in feet referenced to Slot                   | Created by: genibry on 1/13/2012                                    |



BGGM (1945 0 to 2013 0) Dip: 59.99° Field: 48468.1 nT  
Magnetic North is 7.63 degrees East of True North (at 1/13/2012)  
Grid North is 0.35 degrees East of True North  
To correct azimuth from True to Grid subtract 0.35 degrees  
To correct azimuth from Magnetic to Grid add 7.28 degrees  
For example: if the Magnetic North Azimuth = 90 degs, then the Grid North Azimuth = 90 + 7.28 = 97.28





# Planned Wellpath Report

Prelim\_1

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## REFERENCE WELLPATH IDENTIFICATION

|          |                               |          |           |
|----------|-------------------------------|----------|-----------|
| Operator | Cimarex Energy Co.            | Slot     | No.7H SHL |
| Area     | Lea County, NM                | Well     | No.7H     |
| Field    | (Hallertau) Sec 4, T26S, R32E | Wellbore | No.7H PWB |
| Facility | Hallertau 4 Fed No.7H         |          |           |

## 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                 | Gentbry                  |
| Scale               | 0.999956                                               | Report Generated     | 1/13/2012 at 8:40:54 AM  |
| Convergence at slot | 0.35° East                                             | Database/Source file | WA Midland/No.7H_PWB.xml |

## WELLPATH LOCATION

|                       | Local coordinates |          | Grid coordinates |                 | Geographic coordinates |                 |
|-----------------------|-------------------|----------|------------------|-----------------|------------------------|-----------------|
|                       | North[ft]         | East[ft] | Easting[US ft]   | Northing[US ft] | Latitude               | Longitude       |
| Slot Location         | 0.00              | 0.00     | 744679.43        | 393003.67       | 32°04'43.485"N         | 103°40'36.519"W |
| Facility Reference Pt |                   |          | 744679.43        | 393003.67       | 32°04'43.485"N         | 103°40'36.519"W |
| Field Reference Pt    |                   |          | 745669.47        | 393012.62       | 32°04'43.514"N         | 103°40'25.012"W |

## WELLPATH DATUM

|                          |                       |                                                       |                   |
|--------------------------|-----------------------|-------------------------------------------------------|-------------------|
| Calculation method       | Minimum curvature     | Rig on No.7H SHL (RT) to Facility Vertical Datum      | 0.00ft            |
| Horizontal Reference Pt  | Slot                  | Rig on No.7H SHL (RT) to Mean Sea Level               | 3308.00ft         |
| Vertical Reference Pt    | Rig on No.7H SHL (RT) | Rig on No.7H SHL (RT) to Mud Line at Slot (No.7H SHL) | 0.00ft            |
| MD Reference Pt          | Rig on No.7H SHL (RT) | Section Origin                                        | N 0.00, E 0.00 ft |
| Field Vertical Reference | Mean Sea Level        | Section Azimuth                                       | 179.71°           |



# Planned Wellpath Report

Prelim\_1

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## REFERENCE WELLPATH IDENTIFICATION

|          |                               |          |           |
|----------|-------------------------------|----------|-----------|
| Operator | Cimarex Energy Co.            | Slot     | No.7H SHL |
| Area     | Lea County, NM                | Well     | No.7H     |
| Field    | (Hallertau) Sec 4, T26S, R32E | Wellbore | No.7H PWB |
| Facility | Hallertau 4 Fed No.7H         |          |           |

## WELLPATH DATA (156 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              | 179.707        | 0.00        | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             | Tie On   |
| 100.00†    | 0.000              | 179.707        | 100.00      | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |          |
| 200.00†    | 0.000              | 179.707        | 200.00      | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |          |
| 300.00†    | 0.000              | 179.707        | 300.00      | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |          |
| 400.00†    | 0.000              | 179.707        | 400.00      | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |          |
| 500.00†    | 0.000              | 179.707        | 500.00      | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |          |
| 600.00†    | 0.000              | 179.707        | 600.00      | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |          |
| 700.00†    | 0.000              | 179.707        | 700.00      | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |          |
| 800.00†    | 0.000              | 179.707        | 800.00      | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |          |
| 900.00†    | 0.000              | 179.707        | 900.00      | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |          |
| 1000.00†   | 0.000              | 179.707        | 1000.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |          |
| 1100.00†   | 0.000              | 179.707        | 1100.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |          |
| 1200.00†   | 0.000              | 179.707        | 1200.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |          |
| 1215.00†   | 0.000              | 179.707        | 1215.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             | Rustler  |
| 1300.00†   | 0.000              | 179.707        | 1300.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |          |
| 1338.00†   | 0.000              | 179.707        | 1338.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             | Top Salt |
| 1400.00†   | 0.000              | 179.707        | 1400.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |          |
| 1500.00†   | 0.000              | 179.707        | 1500.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |          |
| 1600.00†   | 0.000              | 179.707        | 1600.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |          |
| 1700.00†   | 0.000              | 179.707        | 1700.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |          |
| 1800.00†   | 0.000              | 179.707        | 1800.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |          |
| 1900.00†   | 0.000              | 179.707        | 1900.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |          |
| 2000.00†   | 0.000              | 179.707        | 2000.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |          |
| 2100.00†   | 0.000              | 179.707        | 2100.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |          |
| 2200.00†   | 0.000              | 179.707        | 2200.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |          |
| 2300.00†   | 0.000              | 179.707        | 2300.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |          |
| 2400.00†   | 0.000              | 179.707        | 2400.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |          |
| 2500.00†   | 0.000              | 179.707        | 2500.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |          |
| 2600.00†   | 0.000              | 179.707        | 2600.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |          |
| 2700.00†   | 0.000              | 179.707        | 2700.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |          |
| 2800.00†   | 0.000              | 179.707        | 2800.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |          |
| 2900.00†   | 0.000              | 179.707        | 2900.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |          |
| 3000.00†   | 0.000              | 179.707        | 3000.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |          |
| 3100.00†   | 0.000              | 179.707        | 3100.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |          |
| 3200.00†   | 0.000              | 179.707        | 3200.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |          |
| 3300.00†   | 0.000              | 179.707        | 3300.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |          |
| 3400.00†   | 0.000              | 179.707        | 3400.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |          |
| 3500.00†   | 0.000              | 179.707        | 3500.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |          |
| 3600.00†   | 0.000              | 179.707        | 3600.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |          |
| 3700.00†   | 0.000              | 179.707        | 3700.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |          |
| 3800.00†   | 0.000              | 179.707        | 3800.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |          |
| 3900.00†   | 0.000              | 179.707        | 3900.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |          |
| 4000.00†   | 0.000              | 179.707        | 4000.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |          |
| 4100.00†   | 0.000              | 179.707        | 4100.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |          |
| 4200.00†   | 0.000              | 179.707        | 4200.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |          |



# Planned Wellpath Report

Prelim\_1

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## REFERENCE WELLPATH IDENTIFICATION

|          |                               |          |           |
|----------|-------------------------------|----------|-----------|
| Operator | Cimarex Energy Co.            | Slot     | No.7H SHL |
| Area     | Lea County, NM                | Well     | No.7H     |
| Field    | (Hallertau) Sec 4, T26S, R32E | Wellbore | No.7H PWB |
| Facility | Hallertau 4 Fed No.7H         |          |           |

## WELLPATH DATA (156 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      |
|------------|--------------------|----------------|-------------|-------------------|---------------|--------------|----------------------|-----------------------|----------------|-----------------|------------------|---------------|
| 4300.00†   | 0.000              | 179.707        | 4300.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |               |
| 4325.00†   | 0.000              | 179.707        | 4325.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             | Base Salt     |
| 4400.00†   | 0.000              | 179.707        | 4400.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |               |
| 4500.00†   | 0.000              | 179.707        | 4500.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |               |
| 4554.00†   | 0.000              | 179.707        | 4554.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             | Delaware      |
| 4600.00†   | 0.000              | 179.707        | 4600.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |               |
| 4700.00†   | 0.000              | 179.707        | 4700.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |               |
| 4800.00†   | 0.000              | 179.707        | 4800.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |               |
| 4900.00†   | 0.000              | 179.707        | 4900.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |               |
| 5000.00†   | 0.000              | 179.707        | 5000.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |               |
| 5100.00†   | 0.000              | 179.707        | 5100.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |               |
| 5200.00†   | 0.000              | 179.707        | 5200.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |               |
| 5300.00†   | 0.000              | 179.707        | 5300.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |               |
| 5400.00†   | 0.000              | 179.707        | 5400.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |               |
| 5500.00†   | 0.000              | 179.707        | 5500.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |               |
| 5568.00†   | 0.000              | 179.707        | 5568.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             | Cherry Canyon |
| 5600.00†   | 0.000              | 179.707        | 5600.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |               |
| 5700.00†   | 0.000              | 179.707        | 5700.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |               |
| 5800.00†   | 0.000              | 179.707        | 5800.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |               |
| 5900.00†   | 0.000              | 179.707        | 5900.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |               |
| 6000.00†   | 0.000              | 179.707        | 6000.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |               |
| 6100.00†   | 0.000              | 179.707        | 6100.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |               |
| 6200.00†   | 0.000              | 179.707        | 6200.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |               |
| 6300.00†   | 0.000              | 179.707        | 6300.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |               |
| 6400.00†   | 0.000              | 179.707        | 6400.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |               |
| 6500.00†   | 0.000              | 179.707        | 6500.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |               |
| 6600.00†   | 0.000              | 179.707        | 6600.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |               |
| 6700.00†   | 0.000              | 179.707        | 6700.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |               |
| 6800.00†   | 0.000              | 179.707        | 6800.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |               |
| 6900.00†   | 0.000              | 179.707        | 6900.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |               |
| 7000.00†   | 0.000              | 179.707        | 7000.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |               |
| 7100.00†   | 0.000              | 179.707        | 7100.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |               |
| 7200.00†   | 0.000              | 179.707        | 7200.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |               |
| 7202.00†   | 0.000              | 179.707        | 7202.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             | Brushy Canyon |
| 7300.00†   | 0.000              | 179.707        | 7300.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |               |
| 7400.00†   | 0.000              | 179.707        | 7400.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |               |
| 7500.00†   | 0.000              | 179.707        | 7500.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |               |
| 7600.00†   | 0.000              | 179.707        | 7600.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |               |
| 7700.00†   | 0.000              | 179.707        | 7700.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |               |
| 7800.00†   | 0.000              | 179.707        | 7800.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |               |
| 7900.00†   | 0.000              | 179.707        | 7900.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |               |
| 8000.00†   | 0.000              | 179.707        | 8000.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |               |
| 8100.00†   | 0.000              | 179.707        | 8100.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |               |
| 8200.00†   | 0.000              | 179.707        | 8200.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |               |
| 8300.00†   | 0.000              | 179.707        | 8300.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |               |



# Planned Wellpath Report

Prelim\_1  
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## REFERENCE WELLPATH IDENTIFICATION

|          |                               |          |           |
|----------|-------------------------------|----------|-----------|
| Operator | Cimarex Energy Co.            | Slot     | No.7H SHL |
| Area     | Lea County, NM                | Well     | No.7H     |
| Field    | (Hallertau) Sec 4, T26S, R32E | Wellbore | No.7H PWB |
| Facility | Hallertau 4 Fed No.7H         |          |           |

## WELLPATH DATA (156 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                       |
|------------|--------------------|----------------|-------------|-------------------|---------------|--------------|----------------------|-----------------------|----------------|-----------------|------------------|--------------------------------|
| 8400.00†   | 0.000              | 179.707        | 8400.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |                                |
| 8445.00†   | 0.000              | 179.707        | 8445.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             | Brushy Canyon Lower            |
| 8500.00†   | 0.000              | 179.707        | 8500.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |                                |
| 8600.00†   | 0.000              | 179.707        | 8600.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |                                |
| 8639.00†   | 0.000              | 179.707        | 8639.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             | Bone Spring                    |
| 8700.00†   | 0.000              | 179.707        | 8700.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |                                |
| 8750.00†   | 0.000              | 179.707        | 8750.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             | Bone Spring "A" Shale          |
| 8800.00†   | 0.000              | 179.707        | 8800.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |                                |
| 8900.00†   | 0.000              | 179.707        | 8900.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |                                |
| 9000.00†   | 0.000              | 179.707        | 9000.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |                                |
| 9100.00†   | 0.000              | 179.707        | 9100.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             |                                |
| 9166.00    | 0.000              | 179.707        | 9166.00     | 0.00              | 0.00          | 0.00         | 744679.43            | 393003.67             | 32°04'43.485"N | 103°40'36.519"W | 0.00             | Est KOP                        |
| 9200.00†   | 6.811              | 179.707        | 9199.92     | 2.02              | -2.02         | 0.01         | 744679.44            | 393001.65             | 32°04'43.465"N | 103°40'36.519"W | 20.03            |                                |
| 9230.55†   | 12.931             | 179.707        | 9230.00     | 7.25              | -7.25         | 0.04         | 744679.47            | 392996.42             | 32°04'43.413"N | 103°40'36.520"W | 20.03            | Bone Spring "B" Carb           |
| 9300.00†   | 26.845             | 179.707        | 9295.15     | 30.82             | -30.82        | 0.16         | 744679.59            | 392972.85             | 32°04'43.180"N | 103°40'36.520"W | 20.03            |                                |
| 9368.50†   | 40.567             | 179.707        | 9352.00     | 68.74             | -68.74        | 0.35         | 744679.78            | 392934.93             | 32°04'42.805"N | 103°40'36.520"W | 20.03            | Bone Spring "C" Shale          |
| 9400.00†   | 46.878             | 179.707        | 9374.75     | 90.50             | -90.50        | 0.46         | 744679.89            | 392913.17             | 32°04'42.590"N | 103°40'36.520"W | 20.03            |                                |
| 9500.00†   | 66.911             | 179.707        | 9429.09     | 173.84            | -173.84       | 0.89         | 744680.32            | 392829.84             | 32°04'41.765"N | 103°40'36.521"W | 20.03            |                                |
| 9600.00†   | 86.944             | 179.707        | 9451.60     | 270.76            | -270.75       | 1.38         | 744680.82            | 392732.93             | 32°04'40.806"N | 103°40'36.522"W | 20.03            |                                |
| 9613.95    | 89.740             | 179.707        | 9452.00     | 284.71            | -284.70       | 1.46         | 744680.89            | 392718.98             | 32°04'40.668"N | 103°40'36.523"W | 20.03            | EOC;<br>"C" Chale Horz. Target |
| 9613.99    | 89.740             | 179.707        | 9452.00     | 284.74            | -284.73       | 1.46         | 744680.89            | 392718.95             | 32°04'40.668"N | 103°40'36.523"W | 2.00             | Target Line                    |
| 9700.00†   | 89.740             | 179.707        | 9452.39     | 370.75            | -370.74       | 1.90         | 744681.33            | 392632.94             | 32°04'39.816"N | 103°40'36.524"W | 0.00             |                                |
| 9800.00†   | 89.740             | 179.707        | 9452.85     | 470.75            | -470.74       | 2.41         | 744681.84            | 392532.95             | 32°04'38.827"N | 103°40'36.525"W | 0.00             |                                |
| 9900.00†   | 89.740             | 179.707        | 9453.30     | 570.75            | -570.74       | 2.92         | 744682.35            | 392432.96             | 32°04'37.837"N | 103°40'36.526"W | 0.00             |                                |
| 10000.00†  | 89.740             | 179.707        | 9453.76     | 670.75            | -670.74       | 3.43         | 744682.86            | 392332.96             | 32°04'36.848"N | 103°40'36.527"W | 0.00             |                                |
| 10100.00†  | 89.740             | 179.707        | 9454.21     | 770.75            | -770.74       | 3.94         | 744683.37            | 392232.97             | 32°04'35.858"N | 103°40'36.528"W | 0.00             |                                |
| 10200.00†  | 89.740             | 179.707        | 9454.66     | 870.74            | -870.73       | 4.45         | 744683.88            | 392132.98             | 32°04'34.869"N | 103°40'36.529"W | 0.00             |                                |
| 10300.00†  | 89.740             | 179.707        | 9455.12     | 970.74            | -970.73       | 4.96         | 744684.39            | 392032.98             | 32°04'33.879"N | 103°40'36.530"W | 0.00             |                                |
| 10400.00†  | 89.740             | 179.707        | 9455.57     | 1070.74           | -1070.73      | 5.47         | 744684.90            | 391932.99             | 32°04'32.890"N | 103°40'36.532"W | 0.00             |                                |
| 10500.00†  | 89.740             | 179.707        | 9456.03     | 1170.74           | -1170.73      | 5.98         | 744685.41            | 391833.00             | 32°04'31.900"N | 103°40'36.533"W | 0.00             |                                |
| 10600.00†  | 89.740             | 179.707        | 9456.48     | 1270.74           | -1270.72      | 6.49         | 744685.92            | 391733.00             | 32°04'30.911"N | 103°40'36.534"W | 0.00             |                                |
| 10700.00†  | 89.740             | 179.707        | 9456.94     | 1370.74           | -1370.72      | 7.00         | 744686.43            | 391633.01             | 32°04'29.921"N | 103°40'36.535"W | 0.00             |                                |
| 10800.00†  | 89.740             | 179.707        | 9457.39     | 1470.74           | -1470.72      | 7.51         | 744686.94            | 391533.02             | 32°04'28.932"N | 103°40'36.536"W | 0.00             |                                |
| 10900.00†  | 89.740             | 179.707        | 9457.85     | 1570.74           | -1570.72      | 8.02         | 744687.45            | 391433.02             | 32°04'27.942"N | 103°40'36.537"W | 0.00             |                                |
| 11000.00†  | 89.740             | 179.707        | 9458.30     | 1670.74           | -1670.71      | 8.53         | 744687.96            | 391333.03             | 32°04'26.953"N | 103°40'36.538"W | 0.00             |                                |
| 11100.00†  | 89.740             | 179.707        | 9458.76     | 1770.74           | -1770.71      | 9.04         | 744688.47            | 391233.04             | 32°04'25.963"N | 103°40'36.540"W | 0.00             |                                |
| 11200.00†  | 89.740             | 179.707        | 9459.21     | 1870.73           | -1870.71      | 9.55         | 744688.98            | 391133.05             | 32°04'24.974"N | 103°40'36.541"W | 0.00             |                                |
| 11300.00†  | 89.740             | 179.707        | 9459.67     | 1970.73           | -1970.71      | 10.06        | 744689.50            | 391033.05             | 32°04'23.984"N | 103°40'36.542"W | 0.00             |                                |
| 11400.00†  | 89.740             | 179.707        | 9460.12     | 2070.73           | -2070.71      | 10.58        | 744690.01            | 390933.06             | 32°04'22.994"N | 103°40'36.543"W | 0.00             |                                |
| 11500.00†  | 89.740             | 179.707        | 9460.57     | 2170.73           | -2170.70      | 11.09        | 744690.52            | 390833.07             | 32°04'22.005"N | 103°40'36.544"W | 0.00             |                                |
| 11600.00†  | 89.740             | 179.707        | 9461.03     | 2270.73           | -2270.70      | 11.60        | 744691.03            | 390733.07             | 32°04'21.015"N | 103°40'36.545"W | 0.00             |                                |
| 11700.00†  | 89.740             | 179.707        | 9461.48     | 2370.73           | -2370.70      | 12.11        | 744691.54            | 390633.08             | 32°04'20.026"N | 103°40'36.546"W | 0.00             |                                |
| 11800.00†  | 89.740             | 179.707        | 9461.94     | 2470.73           | -2470.70      | 12.62        | 744692.05            | 390533.09             | 32°04'19.036"N | 103°40'36.548"W | 0.00             |                                |
| 11900.00†  | 89.740             | 179.707        | 9462.39     | 2570.73           | -2570.69      | 13.13        | 744692.56            | 390433.09             | 32°04'18.047"N | 103°40'36.549"W | 0.00             |                                |
| 12000.00†  | 89.740             | 179.707        | 9462.85     | 2670.73           | -2670.69      | 13.64        | 744693.07            | 390333.10             | 32°04'17.057"N | 103°40'36.550"W | 0.00             |                                |



# Planned Wellpath Report

Prelim\_1

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## REFERENCE WELLPATH IDENTIFICATION

|          |                               |          |           |
|----------|-------------------------------|----------|-----------|
| Operator | Cimarex Energy Co.            | Slot     | No.7H SHL |
| Area     | Lea County, NM                | Well     | No.7H     |
| Field    | (Hallertau) Sec 4, T26S, R32E | Wellbore | No.7H PWB |
| Facility | Hallertau 4 Fed No.7H         |          |           |

## WELLPATH DATA (156 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   |
|-----------|-----------------|-------------|----------|----------------|------------|-----------|-------------------|--------------------|----------------|-----------------|---------------|------------|
| 12100.00† | 89.740          | 179.707     | 9463.30  | 2770.72        | -2770.69   | 14.15     | 744693.58         | 390233.11          | 32°04'16.068"N | 103°40'36.551"W | 0.00          |            |
| 12200.00† | 89.740          | 179.707     | 9463.76  | 2870.72        | -2870.69   | 14.66     | 744694.09         | 390133.11          | 32°04'15.078"N | 103°40'36.552"W | 0.00          |            |
| 12300.00† | 89.740          | 179.707     | 9464.21  | 2970.72        | -2970.68   | 15.17     | 744694.60         | 390033.12          | 32°04'14.089"N | 103°40'36.553"W | 0.00          |            |
| 12400.00† | 89.740          | 179.707     | 9464.67  | 3070.72        | -3070.68   | 15.68     | 744695.11         | 389933.13          | 32°04'13.099"N | 103°40'36.554"W | 0.00          |            |
| 12500.00† | 89.740          | 179.707     | 9465.12  | 3170.72        | -3170.68   | 16.19     | 744695.62         | 389833.13          | 32°04'12.110"N | 103°40'36.555"W | 0.00          |            |
| 12600.00† | 89.740          | 179.707     | 9465.58  | 3270.72        | -3270.68   | 16.70     | 744696.13         | 389733.14          | 32°04'11.120"N | 103°40'36.557"W | 0.00          |            |
| 12700.00† | 89.740          | 179.707     | 9466.03  | 3370.72        | -3370.67   | 17.21     | 744696.64         | 389633.15          | 32°04'10.131"N | 103°40'36.558"W | 0.00          |            |
| 12800.00† | 89.740          | 179.707     | 9466.48  | 3470.72        | -3470.67   | 17.72     | 744697.15         | 389533.16          | 32°04'09.141"N | 103°40'36.559"W | 0.00          |            |
| 12900.00† | 89.740          | 179.707     | 9466.94  | 3570.72        | -3570.67   | 18.23     | 744697.66         | 389433.16          | 32°04'08.152"N | 103°40'36.560"W | 0.00          |            |
| 13000.00† | 89.740          | 179.707     | 9467.39  | 3670.72        | -3670.67   | 18.75     | 744698.18         | 389333.17          | 32°04'07.162"N | 103°40'36.561"W | 0.00          |            |
| 13100.00† | 89.740          | 179.707     | 9467.85  | 3770.71        | -3770.67   | 19.26     | 744698.69         | 389233.18          | 32°04'06.172"N | 103°40'36.562"W | 0.00          |            |
| 13200.00† | 89.740          | 179.707     | 9468.30  | 3870.71        | -3870.66   | 19.77     | 744699.20         | 389133.18          | 32°04'05.183"N | 103°40'36.563"W | 0.00          |            |
| 13300.00† | 89.740          | 179.707     | 9468.76  | 3970.71        | -3970.66   | 20.28     | 744699.71         | 389033.19          | 32°04'04.193"N | 103°40'36.565"W | 0.00          |            |
| 13400.00† | 89.740          | 179.707     | 9469.21  | 4070.71        | -4070.66   | 20.79     | 744700.22         | 388933.20          | 32°04'03.204"N | 103°40'36.566"W | 0.00          |            |
| 13500.00† | 89.740          | 179.707     | 9469.67  | 4170.71        | -4170.66   | 21.30     | 744700.73         | 388833.20          | 32°04'02.214"N | 103°40'36.567"W | 0.00          |            |
| 13600.00† | 89.740          | 179.707     | 9470.12  | 4270.71        | -4270.65   | 21.81     | 744701.24         | 388733.21          | 32°04'01.225"N | 103°40'36.568"W | 0.00          |            |
| 13700.00† | 89.740          | 179.707     | 9470.58  | 4370.71        | -4370.65   | 22.32     | 744701.75         | 388633.22          | 32°04'00.235"N | 103°40'36.569"W | 0.00          |            |
| 13800.00† | 89.740          | 179.707     | 9471.03  | 4470.71        | -4470.65   | 22.83     | 744702.26         | 388533.22          | 32°03'59.246"N | 103°40'36.570"W | 0.00          |            |
| 13900.00† | 89.740          | 179.707     | 9471.49  | 4570.71        | -4570.65   | 23.34     | 744702.77         | 388433.23          | 32°03'58.256"N | 103°40'36.571"W | 0.00          |            |
| 14000.00† | 89.740          | 179.707     | 9471.94  | 4670.71        | -4670.64   | 23.85     | 744703.28         | 388333.24          | 32°03'57.267"N | 103°40'36.573"W | 0.00          |            |
| 14013.14  | 89.740          | 179.707     | 9472.00† | 4683.84        | -4683.78   | 23.92     | 744703.35         | 388320.10          | 32°03'57.137"N | 103°40'36.573"W | 0.00          | No.7H PBHL |

## TARGETS

| Name           | MD [ft]  | TVD [ft] | North [ft] | East [ft] | Grid East [US ft] | Grid North [US ft] | Latitude       | Longitude       | Shape |
|----------------|----------|----------|------------|-----------|-------------------|--------------------|----------------|-----------------|-------|
| 1) No. 7H PBHL | 14013.14 | 9472.00  | -4683.78   | 23.92     | 744703.35         | 388320.10          | 32°03'57.137"N | 103°40'36.573"W | point |

## SURVEY PROGRAM - Ref Wellbore: No.7H PWB Ref Wellpath: Prelim\_1

| Start MD [ft] | End MD [ft] | Positional Uncertainty Model | Log Name/Comment | Wellbore  |
|---------------|-------------|------------------------------|------------------|-----------|
| 0.00          | 14013.14    | NaviTrak (Standard)          |                  | No.7H PWB |

SR & A

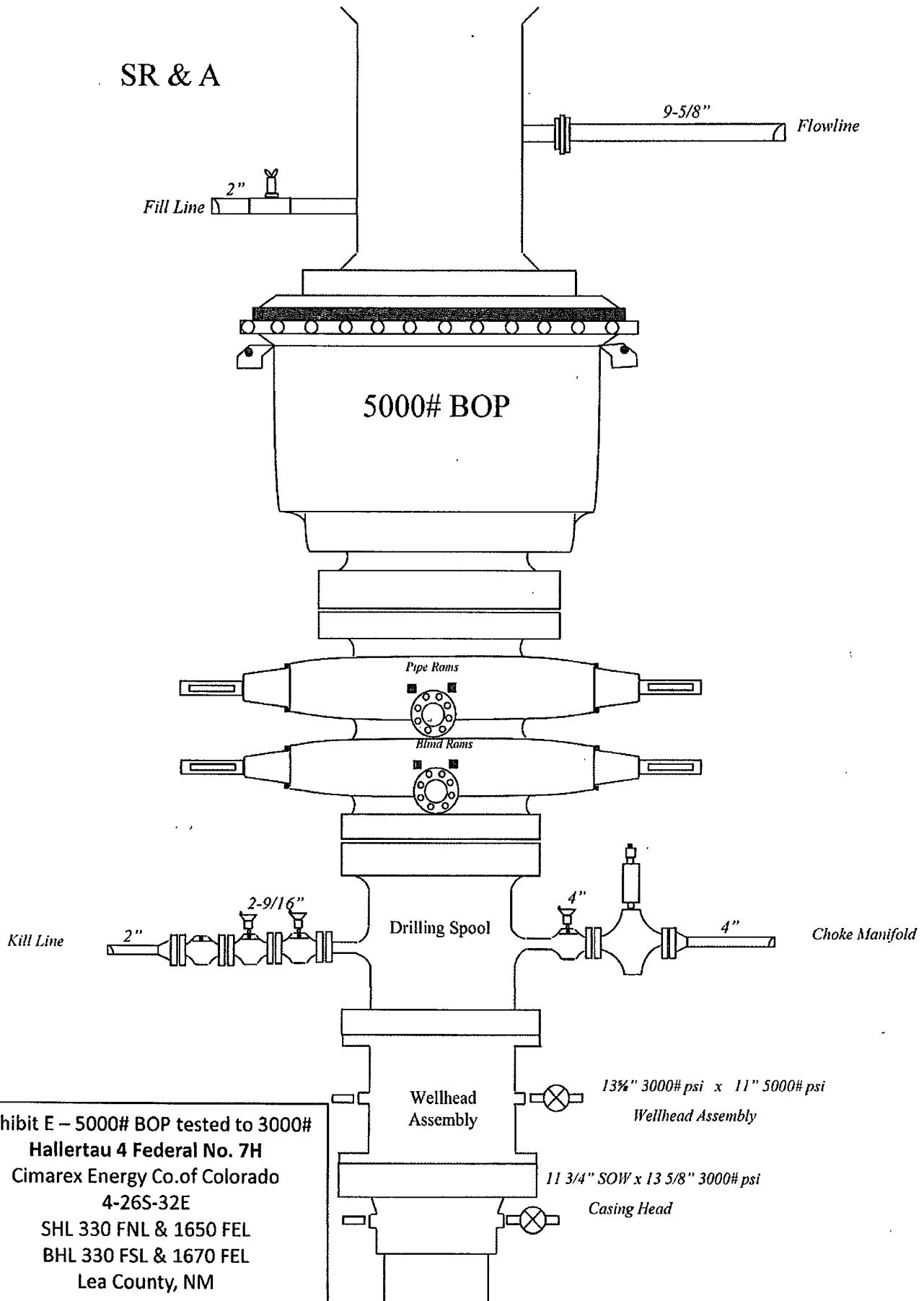


Exhibit E – 5000# BOP tested to 3000#  
Hallertau 4 Federal No. 7H  
Cimarex Energy Co. of Colorado  
4-26S-32E  
SHL 330 FNL & 1650 FEL  
BHL 330 FSL & 1670 FEL  
Lea County, NM

# Drilling Operations

## Choke Manifold

### 5M Service tested to 3M

Exhibit E-1 – Choke Manifold Diagram

**Hallertau 4 Federal No. 7H**

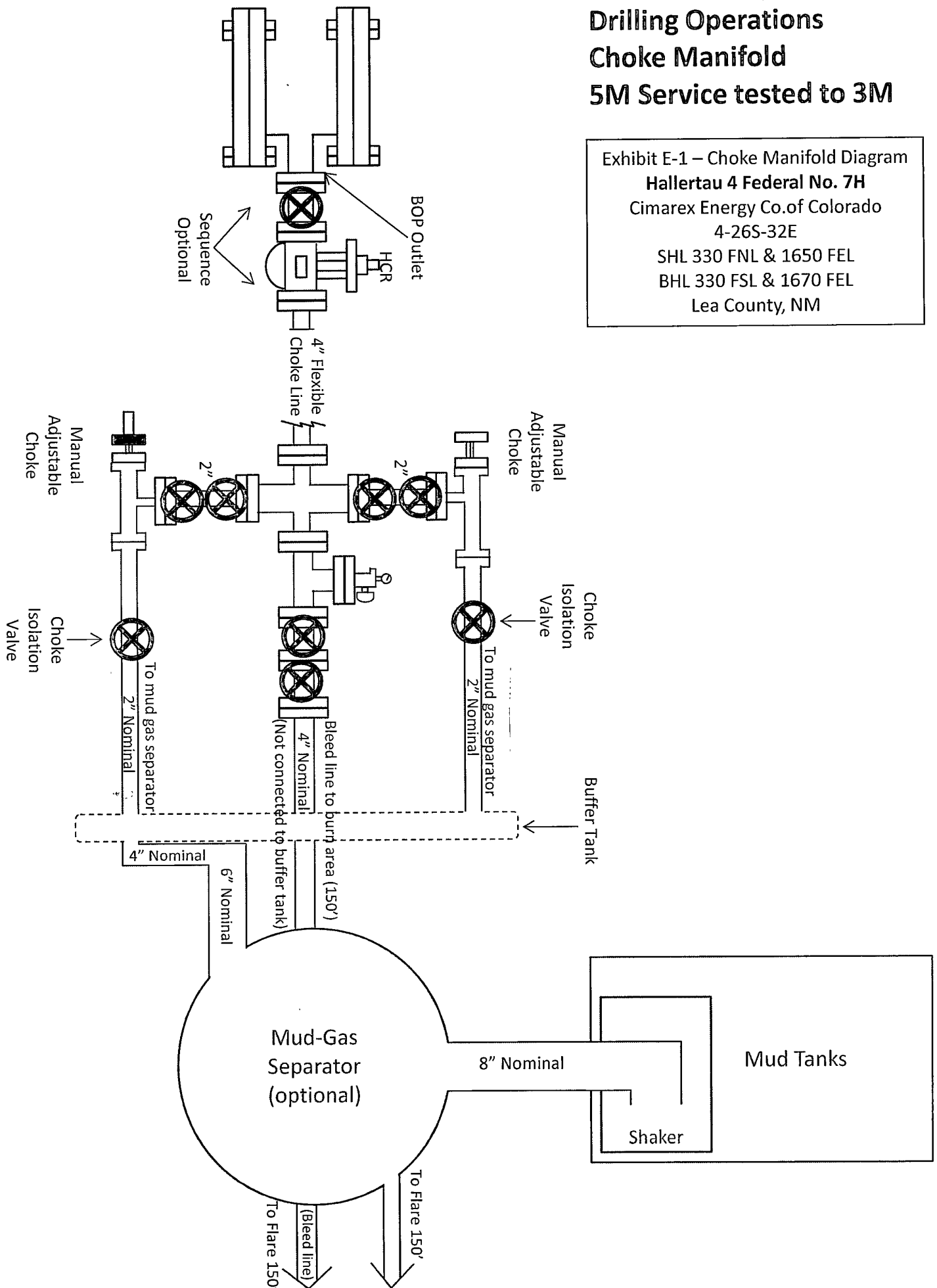
Cimarex Energy Co.of Colorado

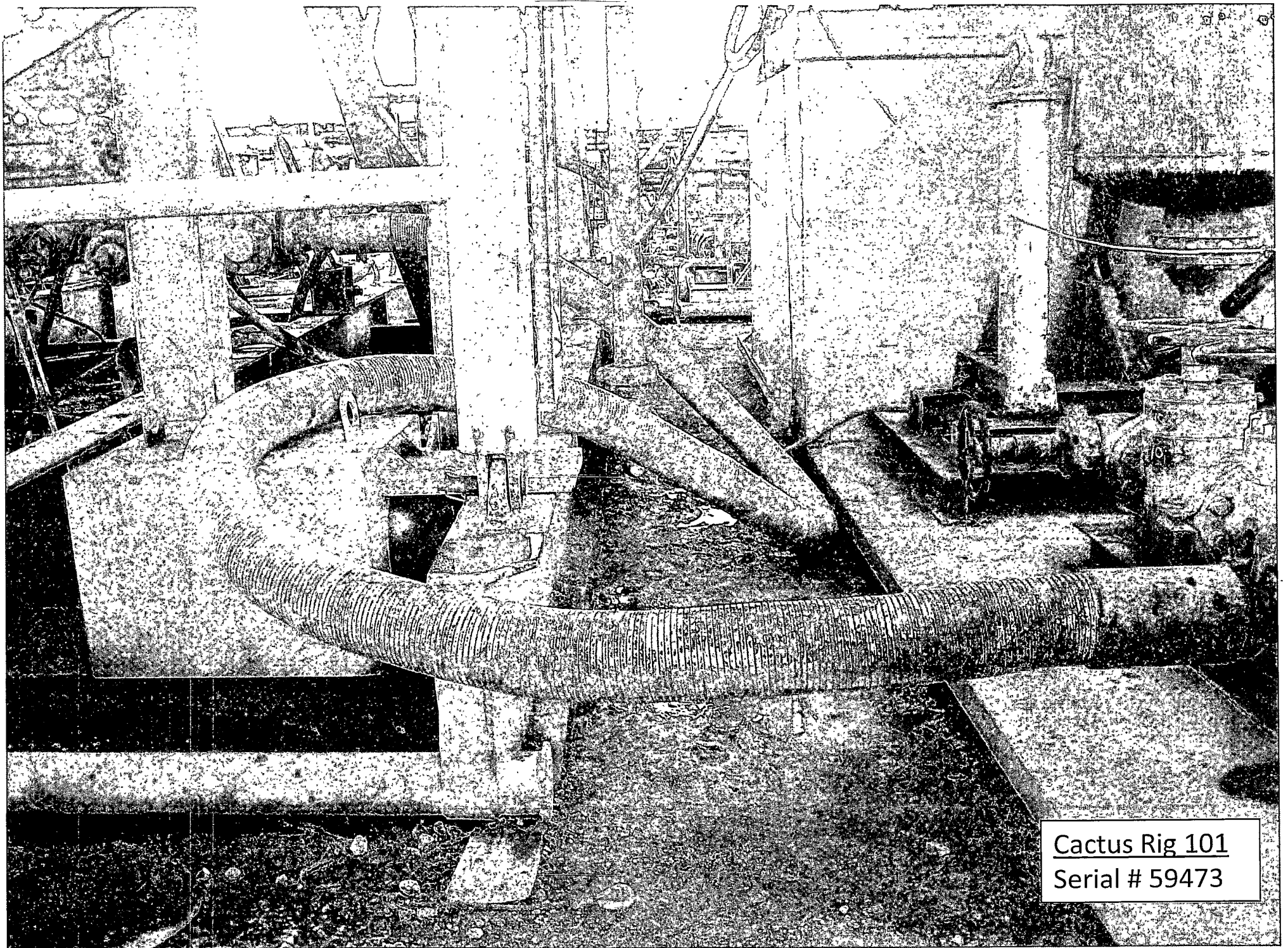
4-26S-32E

SHL 330 FNL & 1650 FEL

BHL 330 FSL & 1670 FEL

Lea County, NM





Cactus Rig 101  
Serial # 59473

**M I D W E S T**  
**HOSE AND SPECIALTY INC.**

| <b>INTERNAL HYDROSTATIC TEST REPORT</b>                                                                                                                                                                                   |                                        |                                                    |                                   |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------|----------------------------------------------------|-----------------------------------|
| <b>Customer:</b><br>CACTUS                                                                                                                                                                                                |                                        | <b>P.O. Number:</b><br>Rig#101<br>Asset#M5358      |                                   |
| <b>HOSE SPECIFICATIONS</b>                                                                                                                                                                                                |                                        |                                                    |                                   |
| <b>Type:</b> CHOKER LINE                                                                                                                                                                                                  |                                        | <b>Length:</b> 35'                                 |                                   |
| <b>I.D.</b> 4" INCHES                                                                                                                                                                                                     |                                        | <b>O.D.</b> 8" INCHES                              |                                   |
| <b>WORKING PRESSURE</b><br><br>10,000 PSI                                                                                                                                                                                 | <b>TEST PRESSURE</b><br><br>15,000 PSI |                                                    | <b>BURST PRESSURE</b><br><br>PSI  |
| <b>COUPLINGS</b>                                                                                                                                                                                                          |                                        |                                                    |                                   |
| <b>Type of End Fitting</b><br>4 1/16 10K FLANGE                                                                                                                                                                           |                                        |                                                    |                                   |
| <b>Type of Coupling:</b><br>SWEDGED                                                                                                                                                                                       |                                        | <b>MANUFACTURED BY</b><br>MIDWEST HOSE & SPECIALTY |                                   |
| <b>PROCEDURE</b>                                                                                                                                                                                                          |                                        |                                                    |                                   |
| <i>Hose assembly pressure tested with water at ambient temperature.</i>                                                                                                                                                   |                                        |                                                    |                                   |
| <b>TIME HELD AT TEST PRESSURE</b><br><br>15 MIN.                                                                                                                                                                          |                                        | <b>ACTUAL BURST PRESSURE:</b><br><br>0 PSI         |                                   |
| <b>COMMENTS:</b><br>s/n#59473 Asset#M5358<br>Hose is covered with stainless steel armour cover and wrapped with fire resistant vermiculite coated fiberglass insulation rated for 1500 degrees complete with lifting eyes |                                        |                                                    |                                   |
| <b>Date:</b><br>5/19/2010                                                                                                                                                                                                 | <b>Tested By:</b><br>BOBBY FINK        |                                                    | <b>Approved:</b><br>MENDI JACKSON |



Midwest Hose  
& Specialty, Inc.

## Specification Sheet Choke & Kill Hose

The Midwest Hose & Specialty Choke & Kill hose is manufactured with only premium components. The reinforcement cables, inner liner and cover are made of the highest quality material to handle the tough drilling applications of today's industry. The end connections are available with API flanges, API male threads, hubs, hammer unions or other special fittings upon request. Hose assembly is manufactured to API 7K. This assembly is wrapped with fire resistant vermiculite coated fiberglass insulation, rated at 2000 degrees with stainless steel armor cover.

|                               |                                                                                                          |
|-------------------------------|----------------------------------------------------------------------------------------------------------|
| <b>Working Pressure:</b>      | 5,000 or 10,000 psi working pressure                                                                     |
| <b>Test Pressure:</b>         | 10,000 or 15,000 psi test pressure                                                                       |
| <b>Reinforcement:</b>         | Multiple steel cables                                                                                    |
| <b>Cover:</b>                 | Stainless Steel Armor                                                                                    |
| <b>Inner Tube:</b>            | Petroleum resistant, Abrasion resistant                                                                  |
| <b>End Fitting:</b>           | API flanges, API male threads, threaded or butt weld hammer unions, unbolt and other special connections |
| <b>Maximum Length:</b>        | 110 Feet                                                                                                 |
| <b>ID:</b>                    | 2-1/2", 3", 3-1/2", 4"                                                                                   |
| <b>Operating Temperature:</b> | -22 deg F to +180 deg F (-30 deg C to +82 deg C)                                                         |

