

12-905

OCD Hobbs  
HOBBS OCDForm 3160-3  
(April 2004)

SEP 21 2012

FORM APPROVED  
OMB No. 1004-0137  
Expires March 31, 2007UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

RECEIVED

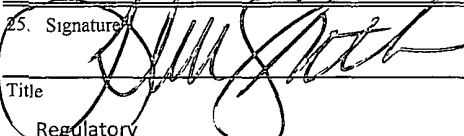
## APPLICATION FOR PERMIT TO DRILL OR REENTER

|                                                                                                                                                                                                                        |  |                                                                        |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------|--|
| 1a. Type of Work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER                                                                                                                           |  | 5. Lease Serial No.<br>NMNM127894                                      |  |
| 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. (215099)                                                                                                                                                                     |  | 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. (39456)<br>Diamondtail 23 Federal No.       |  |
| 3b. Phone No. (include area code)<br>432-571-7800                                                                                                                                                                      |  | 9. API Well No.<br>30-025-40782                                        |  |
| 4. Location of Well (Report location clearly and in accordance with any State requirements. *)<br>At Surface 330 FNL & 750 FEL<br>At proposed prod. Zone 330 FSL & 990 FEL Horizontal Bone Spring test                 |  | 10. Field and Pool, or Exploratory<br>Diamondtail; Bone Spring (17644) |  |
| 14. Distance in miles and direction from nearest town or post office*                                                                                                                                                  |  | 11. Sec., T. R. M. or Blk. and Survey Area<br>23-23S-32E               |  |
| 15. Distance from proposed* location to nearest property or lease line, ft (Also to nearest drng. unit line if any) 330'                                                                                               |  | 12. County or Parish<br>Lea                                            |  |
| 16. No of acres in lease 640                                                                                                                                                                                           |  | 13. State<br>NM                                                        |  |
| 17. Spacing Unit dedicated to this well<br>E2E2 160 acres                                                                                                                                                              |  |                                                                        |  |
| 18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft 150' from #8                                                                                                 |  | 20. BLM/BIA Bond No. on File<br>NMB 000835<br>NM-2575                  |  |
| 19. Proposed Depth<br>MD 15426' TVD 10920'                                                                                                                                                                             |  |                                                                        |  |
| 21. Elevations (Show whether DF, KDB, RT, GL, etc.)<br>3720' GR                                                                                                                                                        |  | 22. Approximate date work will start*<br>12.01.12                      |  |
|                                                                                                                                                                                                                        |  | 23. Estimated duration<br>30-35 days                                   |  |

## 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> | Name (Printed/Typed)<br>Terri Stathem    | Date<br>6.28.12     |
| Title<br>Regulatory                                                                                  |                                          |                     |
| Approved By (Signature)<br>Is/ Don Peterson                                                          | Name (Printed/Typed)<br>Is/ Don Peterson | Date<br>SEP 18 2012 |
| 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)

WITNESS SURFACE CASING

SEE ATTACHED FOR  
CONDITIONS OF APPROVAL

CARLSBAD CONTROLLED WATER BASIN

APPROVAL FOR TWO YEARS  
APPROVAL SUBJECT TO  
GENERAL REQUIREMENTS AND  
SPECIAL STIPULATIONS  
ATTACHED  
SEP 26 2012

**Drilling Plan**  
**Diamondtail 23 Federal 7**  
 Cimarex Energy Co.  
 Unit A, Section 23  
 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 & 750 FEL  
 BHL 330 FSL & 990 FEL
  
- 2 **Elevation above sea level:** 3720' 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 15426' TVD 10920'
  
- 6 **Estimated tops of geological markers:**

|                     |       |
|---------------------|-------|
| Rustler             | 1200  |
| T. Salt             | 1520  |
| Castille            | 3590  |
| B. Salt             | 4680  |
| Delaware            | 4980  |
| Basal Brushy Canyon | 8470  |
| Bone Spring         | 8750  |
| Avalon Shale        | 9430  |
| 1st Bone Spring     | 9930  |
| 2nd Bone Spring     | 10625 |
| 3rd Bone Spring     | 11100 |
  
- 7 **Possible mineral bearing formations:**

|              |     |
|--------------|-----|
| Bone Spring  | Oil |
| Avalon Shale | Oil |

8 **Proposed Mud Circulating System:**

| Depth                          | Mud Wt    | Visc  | Fluid Loss | Type Mud    |
|--------------------------------|-----------|-------|------------|-------------|
| 0' to 1225'<br><del>1340</del> | 8.4 - 8.6 | 28    | NC         | FW          |
| 1225' to 4900'                 | 10.0      | 30-32 | NC         | Brine water |
| 4900' to 15426'                | 8.4       | 30-32 | NC         | 2% KCL      |

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 10634'. Drill 8¾" lateral through the curve to TD @ 15426' MD, 10920' TVD. Run 5½" 17# P-110 LTC from 0-15426' and cement.

**Drilling Plan**  
**Diamondtail 23 Federal 7**  
 Cimarex Energy Co.  
 Unit A, Section 23  
 T23S-R32E; Lea County, NM

**9 Casing & Cementing Program:**

*see COA 1340*

| String       | Hole Size | Depth |           | Casing OD |         | Weight | Collar | Grade |
|--------------|-----------|-------|-----------|-----------|---------|--------|--------|-------|
| Surface      | 17 1/2"   | 0'    | to 1225'  | New       | 13 3/8" | 48#    | STC    | H-40  |
| Intermediate | 12 1/4"   | 0'    | to 4900'  | New       | 9 5/8"  | 40#    | LTC    | J-55  |
| Production   | 7 7/8"    | 0'    | to 15426' | New       | 5 1/2"  | 17#    | LTC    | P-110 |

**10 Cementing:**

**Surface**

Lead: 810SKS Premium Plus + 2% CaCl 4% gel 13.5ppg 1.75 yield 115% Excess  
 Tail: 200SKS Premium Plus + 2% CaCl 14.8ppg 1.34 yield 10% Excess  
**TOC Surface Centralizers per Onshorder 2.III.B.1.f**

**Intermediate**

Lead: 1555SKS HLPP + 5% Salt + 5# Gilsonite 12.9ppg 1.92 yield 120% Excess  
 Tail: 235SKS Premium Plus + 1% CaCl 14.8ppg 1.34 yield 0% Excess  
**TOC Surface**

**Production**

Lead: 835SKS Econocem H + 0.5/10% HR-601 0.5/10% Halad-322 11.9ppg 2.48 yield 53% Excess  
 Tail: 1385SKS Versacem H + 0.5% Halad(R)-344 + 0.4% CFR-3 + 1# Salt + 0.2% HR-601 14.5ppg 1.22 yield 25% Excess  
**TOC 3600' 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 475' according to the State Engineer. Fresh water zones will be protected by setting 13 3/8" casing at 1225' and cementing to surface and 9 5/8" casing at 4900' and cementing to surface. Hydrocarbon zones will be protected by setting 5 1/2" casing at 15426' and cementing to 3600'.

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

**11 Pressure control Equipment:**

Exhibit "E". A 13 3/8" 5000 PSI working pressure B.O.P. 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 below 6000'. 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 will be available if 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 surface pipe through the running of production casing, the well will be equipped with a 5000 psi BOP system.

Before drilling out of the surface pipe BOP's will be tested to 250 psi low and 3000 psi high by an independent service company. Hydril will be tested to 250 psi low and 1500 psi high. Before drilling out of the intermediate pipe BOP's will be tested by an independent service company to 250 psi low and 5000 psi high. Hydril will be tested to 250 psi low and 2500 psi high.

Cimarex Energy Co. of Colorado (operator) requests a variance if Cactus 115 (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

**Drilling Plan**  
**Diamondtail 23 Federal 7**  
Cimarex Energy Co.  
Unit A, Section 23  
T23S-R32E; Lea County, NM

**12 Testing, Logging and Coring Program:** *See COA*

- A. Mud logging program: 2 man unit from 4900 to TD
- B. Electric logging program: CNL / LDT / CAL / GR, DLL / CAL / GR Surface to TD
- 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      **4900 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.

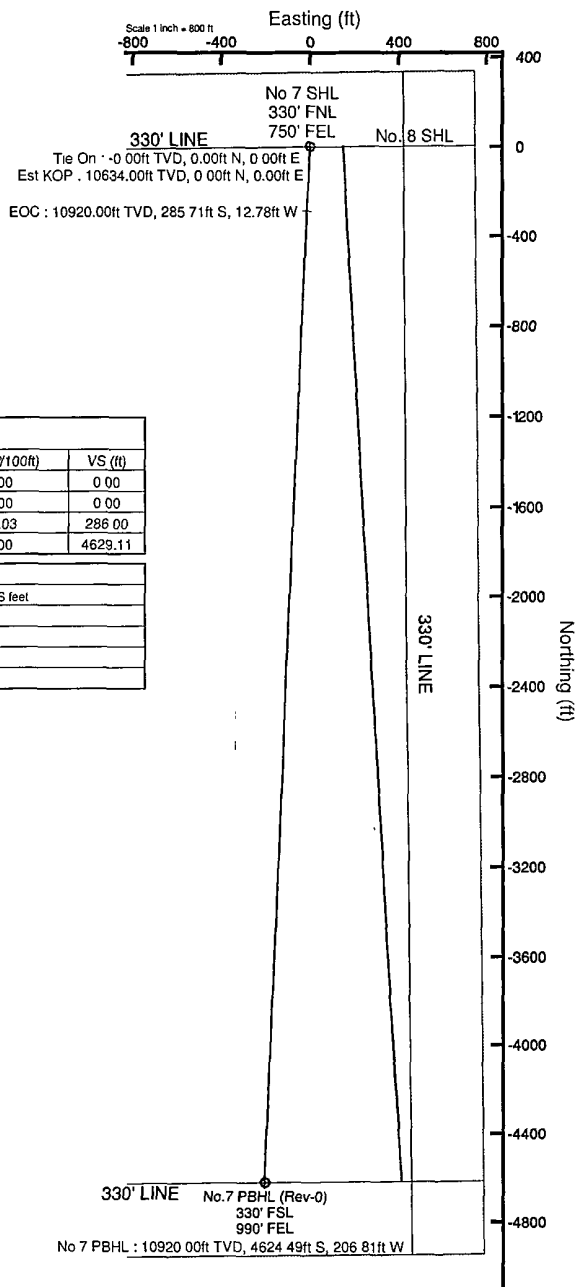
The proposed well will be tested and potentialized as      **an oil well.**



# Cimarex Energy Co.

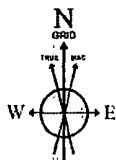
Location: Lea County, NM  
Field: (Diamondtail) Sec 23, T23S, R32E  
Facility: Diamondtail 23 Federal No.7

Slot: No.7 SHL  
Well: No.7  
Wellbore: No.7 PWB

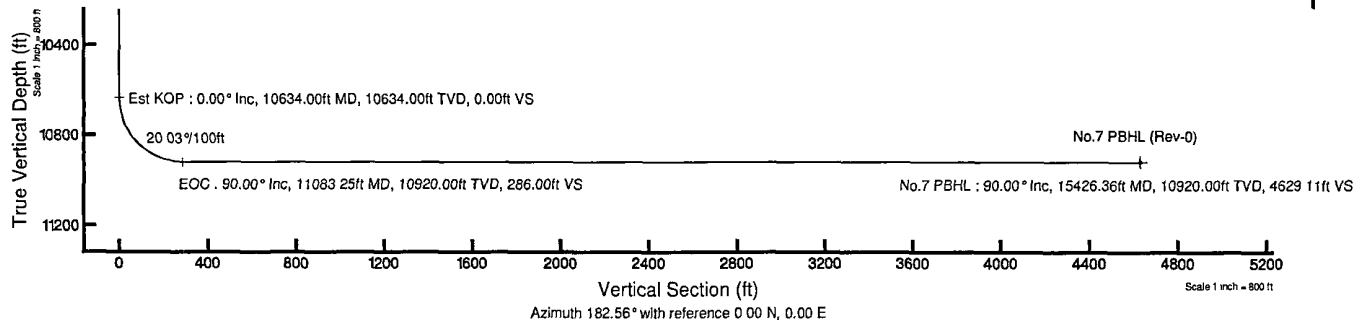


| Well Profile Data |          |         |         |          |              |              |               |         |
|-------------------|----------|---------|---------|----------|--------------|--------------|---------------|---------|
| Design Comment    | MD (ft)  | Inc (°) | Az (°)  | TVD (ft) | Local N (ft) | Local E (ft) | DLS (°/100ft) | VS (ft) |
| Tie On            | 0.00     | 0.000   | 182.561 | 0.00     | 0.00         | 0.00         | 0.00          | 0.00    |
| Est KOP           | 10634.00 | 0.000   | 182.561 | 10634.00 | 0.00         | 0.00         | 0.00          | 0.00    |
| EOC               | 11083.25 | 90.000  | 182.561 | 10920.00 | -285.71      | -12.78       | 20.03         | 286.00  |
| No.7 PBHL         | 15426.36 | 90.000  | 182.561 | 10920.00 | -4624.49     | -206.81      | 0.00          | 4629.11 |

|                                                             |                                                                     |
|-------------------------------------------------------------|---------------------------------------------------------------------|
| Plot reference wellpath is Rev-A.0                          |                                                                     |
| True vertical depths are referenced to Rig on No.7 SHL (RT) | Grid System: NAD83 / TM New Mexico SP, Eastern Zone (3001), US feet |
| Measured depths are referenced to Rig on No.7 SHL (RT)      | North Reference: Grid north                                         |
| Rig on No.7 SHL (RT) to Mean Sea Level: 3720 feet           | Scale: True distance                                                |
| Mean Sea Level to Mud line (At Slot No.7 SHL): -3720 feet   | Depths are in feet                                                  |
| Coordinates are in feet referenced to Slot                  | Created by: gentbry on 4/11/2012                                    |



BGGM (1945.0 to 2013.0) Dip: 60.19° Field: 48572.4 nT  
Magnetic North is 7.60 degrees East of True North (at 4/11/2012)  
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 degrees, then the Grid North Azimuth = 90 + 7.23 = 97.23





# Planned Wellpath Report

Rev-A.0  
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## REFERENCE WELLPATH IDENTIFICATION

|          |                                  |          |          |
|----------|----------------------------------|----------|----------|
| Operator | Cimarex Energy Co.               | Slot     | No.7 SHL |
| Area     | Lea County, NM                   | Well     | No.7     |
| Field    | (Diamondtail) Sec 23, T23S, R32E | Wellbore | No.7 PWB |
| Facility | Diamondtail 23 Federal No.7      |          |          |

## 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               | 0.999962                                               | Report Generated     | 4/11/2012 at 11:52:54 AM |
| Convergence at slot | 0.37° East                                             | Database/Source file | WA Midland/No.7_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     | 755785.90        | 472327.40       | 32°17'47.738"N         | 103°38'21.486"W |
| Facility Reference Pt |                   |          | 755785.90        | 472327.40       | 32°17'47.738"N         | 103°38'21.486"W |
| Field Reference Pt    |                   |          | 753067.10        | 472297.00       | 32°17'47.610"N         | 103°38'53.162"W |

## WELLPATH DATUM

|                          |                      |                                                     |                   |
|--------------------------|----------------------|-----------------------------------------------------|-------------------|
| Calculation method       | Minimum curvature    | Rig on No.7 SHL (RT) to Facility Vertical Datum     | 0.00ft            |
| Horizontal Reference Pt  | Slot                 | Rig on No.7 SHL (RT) to Mean Sea Level              | 3720.00ft         |
| Vertical Reference Pt    | Rig on No.7 SHL (RT) | Rig on No.7 SHL (RT) to Mud Line at Slot (No.7 SHL) | 0.00ft            |
| MD Reference Pt          | Rig on No.7 SHL (RT) | Section Origin                                      | N 0.00, E 0.00 ft |
| Field Vertical Reference | Mean Sea Level       | Section Azimuth                                     | 182.56°           |



# Planned Wellpath Report

Rev-A.0  
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| REFERENCE WELLPATH IDENTIFICATION |                                  |          |          |
|-----------------------------------|----------------------------------|----------|----------|
| Operator                          | Cimarex Energy Co.               | Slot     | No.7 SHL |
| Area                              | Lea County, NM                   | Well     | No.7     |
| Field                             | (Diamondtail) Sec 23, T23S, R32E | Wellbore | No.7 PWB |
| Facility                          | Diamondtail 23 Federal No.7      |          |          |

| WELLPATH DATA (167 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              | 182.561        | 0.00        | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             | Tie On   |
| 100.00†                                                            | 0.000              | 182.561        | 100.00      | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |          |
| 200.00†                                                            | 0.000              | 182.561        | 200.00      | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |          |
| 300.00†                                                            | 0.000              | 182.561        | 300.00      | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |          |
| 400.00†                                                            | 0.000              | 182.561        | 400.00      | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |          |
| 500.00†                                                            | 0.000              | 182.561        | 500.00      | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |          |
| 600.00†                                                            | 0.000              | 182.561        | 600.00      | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |          |
| 700.00†                                                            | 0.000              | 182.561        | 700.00      | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |          |
| 800.00†                                                            | 0.000              | 182.561        | 800.00      | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |          |
| 900.00†                                                            | 0.000              | 182.561        | 900.00      | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |          |
| 1000.00†                                                           | 0.000              | 182.561        | 1000.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |          |
| 1100.00†                                                           | 0.000              | 182.561        | 1100.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |          |
| 1200.00†                                                           | 0.000              | 182.561        | 1200.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             | Rustler  |
| 1300.00†                                                           | 0.000              | 182.561        | 1300.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |          |
| 1400.00†                                                           | 0.000              | 182.561        | 1400.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |          |
| 1500.00†                                                           | 0.000              | 182.561        | 1500.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |          |
| 1520.00†                                                           | 0.000              | 182.561        | 1520.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             | Salt     |
| 1600.00†                                                           | 0.000              | 182.561        | 1600.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |          |
| 1700.00†                                                           | 0.000              | 182.561        | 1700.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |          |
| 1800.00†                                                           | 0.000              | 182.561        | 1800.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |          |
| 1900.00†                                                           | 0.000              | 182.561        | 1900.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |          |
| 2000.00†                                                           | 0.000              | 182.561        | 2000.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |          |
| 2100.00†                                                           | 0.000              | 182.561        | 2100.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |          |
| 2200.00†                                                           | 0.000              | 182.561        | 2200.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |          |
| 2300.00†                                                           | 0.000              | 182.561        | 2300.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |          |
| 2400.00†                                                           | 0.000              | 182.561        | 2400.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |          |
| 2500.00†                                                           | 0.000              | 182.561        | 2500.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |          |
| 2600.00†                                                           | 0.000              | 182.561        | 2600.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |          |
| 2700.00†                                                           | 0.000              | 182.561        | 2700.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |          |
| 2800.00†                                                           | 0.000              | 182.561        | 2800.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |          |
| 2900.00†                                                           | 0.000              | 182.561        | 2900.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |          |
| 3000.00†                                                           | 0.000              | 182.561        | 3000.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |          |
| 3100.00†                                                           | 0.000              | 182.561        | 3100.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |          |
| 3200.00†                                                           | 0.000              | 182.561        | 3200.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |          |
| 3300.00†                                                           | 0.000              | 182.561        | 3300.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |          |
| 3400.00†                                                           | 0.000              | 182.561        | 3400.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |          |
| 3500.00†                                                           | 0.000              | 182.561        | 3500.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |          |
| 3590.00†                                                           | 0.000              | 182.561        | 3590.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             | Castille |
| 3600.00†                                                           | 0.000              | 182.561        | 3600.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |          |
| 3700.00†                                                           | 0.000              | 182.561        | 3700.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |          |
| 3800.00†                                                           | 0.000              | 182.561        | 3800.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |          |
| 3900.00†                                                           | 0.000              | 182.561        | 3900.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |          |
| 4000.00†                                                           | 0.000              | 182.561        | 4000.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |          |
| 4100.00†                                                           | 0.000              | 182.561        | 4100.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |          |
| 4200.00†                                                           | 0.000              | 182.561        | 4200.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |          |



# Planned Wellpath Report

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## REFERENCE WELLPATH IDENTIFICATION

|          |                                  |          |          |
|----------|----------------------------------|----------|----------|
| Operator | Cimarex Energy Co.               | Slot     | No.7 SHL |
| Area     | Lea County, NM                   | Well     | No.7     |
| Field    | (Diamondtail) Sec 23, T23S, R32E | Wellbore | No.7 PWB |
| Facility | Diamondtail 23 Federal No.7      |          |          |

## WELLPATH DATA (167 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              | 182.561        | 4300.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |                     |
| 4400.00†   | 0.000              | 182.561        | 4400.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |                     |
| 4500.00†   | 0.000              | 182.561        | 4500.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |                     |
| 4600.00†   | 0.000              | 182.561        | 4600.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |                     |
| 4680.00†   | 0.000              | 182.561        | 4680.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             | Base last salt      |
| 4700.00†   | 0.000              | 182.561        | 4700.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |                     |
| 4800.00†   | 0.000              | 182.561        | 4800.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |                     |
| 4900.00†   | 0.000              | 182.561        | 4900.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |                     |
| 4980.00†   | 0.000              | 182.561        | 4980.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             | Delaware Sands      |
| 5000.00†   | 0.000              | 182.561        | 5000.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |                     |
| 5100.00†   | 0.000              | 182.561        | 5100.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |                     |
| 5200.00†   | 0.000              | 182.561        | 5200.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |                     |
| 5300.00†   | 0.000              | 182.561        | 5300.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |                     |
| 5400.00†   | 0.000              | 182.561        | 5400.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |                     |
| 5500.00†   | 0.000              | 182.561        | 5500.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |                     |
| 5600.00†   | 0.000              | 182.561        | 5600.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |                     |
| 5700.00†   | 0.000              | 182.561        | 5700.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |                     |
| 5800.00†   | 0.000              | 182.561        | 5800.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |                     |
| 5900.00†   | 0.000              | 182.561        | 5900.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |                     |
| 6000.00†   | 0.000              | 182.561        | 6000.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |                     |
| 6100.00†   | 0.000              | 182.561        | 6100.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |                     |
| 6200.00†   | 0.000              | 182.561        | 6200.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |                     |
| 6300.00†   | 0.000              | 182.561        | 6300.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |                     |
| 6400.00†   | 0.000              | 182.561        | 6400.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |                     |
| 6500.00†   | 0.000              | 182.561        | 6500.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |                     |
| 6600.00†   | 0.000              | 182.561        | 6600.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |                     |
| 6700.00†   | 0.000              | 182.561        | 6700.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |                     |
| 6800.00†   | 0.000              | 182.561        | 6800.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |                     |
| 6900.00†   | 0.000              | 182.561        | 6900.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |                     |
| 7000.00†   | 0.000              | 182.561        | 7000.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |                     |
| 7100.00†   | 0.000              | 182.561        | 7100.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |                     |
| 7200.00†   | 0.000              | 182.561        | 7200.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |                     |
| 7300.00†   | 0.000              | 182.561        | 7300.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |                     |
| 7400.00†   | 0.000              | 182.561        | 7400.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |                     |
| 7500.00†   | 0.000              | 182.561        | 7500.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |                     |
| 7600.00†   | 0.000              | 182.561        | 7600.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |                     |
| 7700.00†   | 0.000              | 182.561        | 7700.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |                     |
| 7800.00†   | 0.000              | 182.561        | 7800.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |                     |
| 7900.00†   | 0.000              | 182.561        | 7900.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |                     |
| 8000.00†   | 0.000              | 182.561        | 8000.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |                     |
| 8100.00†   | 0.000              | 182.561        | 8100.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |                     |
| 8200.00†   | 0.000              | 182.561        | 8200.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |                     |
| 8300.00†   | 0.000              | 182.561        | 8300.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |                     |
| 8400.00†   | 0.000              | 182.561        | 8400.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             |                     |
| 8470.00†   | 0.000              | 182.561        | 8470.00     | 0.00              | 0.00          | 0.00         | 755785.90            | 472327.40             | 32°17'47.738"N | 103°38'21.486"W | 0.00             | Basal Brushy Canyon |



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| REFERENCE WELLPATH IDENTIFICATION |                                  |          |          |
|-----------------------------------|----------------------------------|----------|----------|
| Operator                          | Cimarex Energy Co.               | Slot     | No.7 SHL |
| Area                              | Lea County, NM                   | Well     | No.7     |
| Field                             | (Diamondtail) Sec 23, T23S, R32E | Wellbore | No.7 PWB |
| Facility                          | Diamondtail 23 Federal No.7      |          |          |

| WELLPATH DATA (167 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     |
| 8500.00†                                                           | 0.000           | 182.561     | 8500.00  | 0.00           | 0.00       | 0.00      | 755785.90         | 472327.40          | 32°17'47.738"N | 103°38'21.486"W | 0.00          |              |
| 8600.00†                                                           | 0.000           | 182.561     | 8600.00  | 0.00           | 0.00       | 0.00      | 755785.90         | 472327.40          | 32°17'47.738"N | 103°38'21.486"W | 0.00          |              |
| 8700.00†                                                           | 0.000           | 182.561     | 8700.00  | 0.00           | 0.00       | 0.00      | 755785.90         | 472327.40          | 32°17'47.738"N | 103°38'21.486"W | 0.00          |              |
| 8750.00†                                                           | 0.000           | 182.561     | 8750.00  | 0.00           | 0.00       | 0.00      | 755785.90         | 472327.40          | 32°17'47.738"N | 103°38'21.486"W | 0.00          | Bone Spring  |
| 8800.00†                                                           | 0.000           | 182.561     | 8800.00  | 0.00           | 0.00       | 0.00      | 755785.90         | 472327.40          | 32°17'47.738"N | 103°38'21.486"W | 0.00          |              |
| 8900.00†                                                           | 0.000           | 182.561     | 8900.00  | 0.00           | 0.00       | 0.00      | 755785.90         | 472327.40          | 32°17'47.738"N | 103°38'21.486"W | 0.00          |              |
| 9000.00†                                                           | 0.000           | 182.561     | 9000.00  | 0.00           | 0.00       | 0.00      | 755785.90         | 472327.40          | 32°17'47.738"N | 103°38'21.486"W | 0.00          |              |
| 9100.00†                                                           | 0.000           | 182.561     | 9100.00  | 0.00           | 0.00       | 0.00      | 755785.90         | 472327.40          | 32°17'47.738"N | 103°38'21.486"W | 0.00          |              |
| 9200.00†                                                           | 0.000           | 182.561     | 9200.00  | 0.00           | 0.00       | 0.00      | 755785.90         | 472327.40          | 32°17'47.738"N | 103°38'21.486"W | 0.00          |              |
| 9300.00†                                                           | 0.000           | 182.561     | 9300.00  | 0.00           | 0.00       | 0.00      | 755785.90         | 472327.40          | 32°17'47.738"N | 103°38'21.486"W | 0.00          |              |
| 9400.00†                                                           | 0.000           | 182.561     | 9400.00  | 0.00           | 0.00       | 0.00      | 755785.90         | 472327.40          | 32°17'47.738"N | 103°38'21.486"W | 0.00          |              |
| 9430.00†                                                           | 0.000           | 182.561     | 9430.00  | 0.00           | 0.00       | 0.00      | 755785.90         | 472327.40          | 32°17'47.738"N | 103°38'21.486"W | 0.00          | Avalon Shale |
| 9500.00†                                                           | 0.000           | 182.561     | 9500.00  | 0.00           | 0.00       | 0.00      | 755785.90         | 472327.40          | 32°17'47.738"N | 103°38'21.486"W | 0.00          |              |
| 9600.00†                                                           | 0.000           | 182.561     | 9600.00  | 0.00           | 0.00       | 0.00      | 755785.90         | 472327.40          | 32°17'47.738"N | 103°38'21.486"W | 0.00          |              |
| 9700.00†                                                           | 0.000           | 182.561     | 9700.00  | 0.00           | 0.00       | 0.00      | 755785.90         | 472327.40          | 32°17'47.738"N | 103°38'21.486"W | 0.00          |              |
| 9800.00†                                                           | 0.000           | 182.561     | 9800.00  | 0.00           | 0.00       | 0.00      | 755785.90         | 472327.40          | 32°17'47.738"N | 103°38'21.486"W | 0.00          |              |
| 9900.00†                                                           | 0.000           | 182.561     | 9900.00  | 0.00           | 0.00       | 0.00      | 755785.90         | 472327.40          | 32°17'47.738"N | 103°38'21.486"W | 0.00          |              |
| 9930.00†                                                           | 0.000           | 182.561     | 9930.00  | 0.00           | 0.00       | 0.00      | 755785.90         | 472327.40          | 32°17'47.738"N | 103°38'21.486"W | 0.00          | 1st BSS      |
| 10000.00†                                                          | 0.000           | 182.561     | 10000.00 | 0.00           | 0.00       | 0.00      | 755785.90         | 472327.40          | 32°17'47.738"N | 103°38'21.486"W | 0.00          |              |
| 10100.00†                                                          | 0.000           | 182.561     | 10100.00 | 0.00           | 0.00       | 0.00      | 755785.90         | 472327.40          | 32°17'47.738"N | 103°38'21.486"W | 0.00          |              |
| 10200.00†                                                          | 0.000           | 182.561     | 10200.00 | 0.00           | 0.00       | 0.00      | 755785.90         | 472327.40          | 32°17'47.738"N | 103°38'21.486"W | 0.00          |              |
| 10300.00†                                                          | 0.000           | 182.561     | 10300.00 | 0.00           | 0.00       | 0.00      | 755785.90         | 472327.40          | 32°17'47.738"N | 103°38'21.486"W | 0.00          |              |
| 10400.00†                                                          | 0.000           | 182.561     | 10400.00 | 0.00           | 0.00       | 0.00      | 755785.90         | 472327.40          | 32°17'47.738"N | 103°38'21.486"W | 0.00          |              |
| 10500.00†                                                          | 0.000           | 182.561     | 10500.00 | 0.00           | 0.00       | 0.00      | 755785.90         | 472327.40          | 32°17'47.738"N | 103°38'21.486"W | 0.00          |              |
| 10600.00†                                                          | 0.000           | 182.561     | 10600.00 | 0.00           | 0.00       | 0.00      | 755785.90         | 472327.40          | 32°17'47.738"N | 103°38'21.486"W | 0.00          |              |
| 10625.00†                                                          | 0.000           | 182.561     | 10625.00 | 0.00           | 0.00       | 0.00      | 755785.90         | 472327.40          | 32°17'47.738"N | 103°38'21.486"W | 0.00          | 2nd BSS      |
| 10634.00                                                           | 0.000           | 182.561     | 10634.00 | 0.00           | 0.00       | 0.00      | 755785.90         | 472327.40          | 32°17'47.738"N | 103°38'21.486"W | 0.00          | Est KOP      |
| 10700.00†                                                          | 13.222          | 182.561     | 10699.42 | 7.58           | -7.57      | -0.34     | 755785.56         | 472319.83          | 32°17'47.663"N | 103°38'21.490"W | 20.03         |              |
| 10800.00†                                                          | 33.256          | 182.561     | 10790.84 | 46.84          | -46.79     | -2.09     | 755783.81         | 472280.61          | 32°17'47.275"N | 103°38'21.514"W | 20.03         |              |
| 10900.00†                                                          | 53.289          | 182.561     | 10863.28 | 115.04         | -114.92    | -5.14     | 755780.76         | 472212.48          | 32°17'46.601"N | 103°38'21.554"W | 20.03         |              |
| 11000.00†                                                          | 73.323          | 182.561     | 10907.97 | 203.92         | -203.72    | -9.11     | 755776.79         | 472123.69          | 32°17'45.723"N | 103°38'21.607"W | 20.03         |              |
| 11083.25                                                           | 90.000          | 182.561     | 10920.00 | 286.00         | -285.71    | -12.78    | 755773.12         | 472041.70          | 32°17'44.911"N | 103°38'21.656"W | 20.03         | EOC          |
| 11100.00†                                                          | 90.000          | 182.561     | 10920.00 | 302.75         | -302.45    | -13.53    | 755772.37         | 472024.96          | 32°17'44.746"N | 103°38'21.666"W | 0.00          |              |
| 11200.00†                                                          | 90.000          | 182.561     | 10920.00 | 402.75         | -402.35    | -17.99    | 755767.91         | 471925.07          | 32°17'43.758"N | 103°38'21.726"W | 0.00          |              |
| 11300.00†                                                          | 90.000          | 182.561     | 10920.00 | 502.75         | -502.25    | -22.46    | 755763.44         | 471825.17          | 32°17'42.769"N | 103°38'21.785"W | 0.00          |              |
| 11400.00†                                                          | 90.000          | 182.561     | 10920.00 | 602.75         | -602.15    | -26.93    | 755758.97         | 471725.27          | 32°17'41.781"N | 103°38'21.845"W | 0.00          |              |
| 11500.00†                                                          | 90.000          | 182.561     | 10920.00 | 702.75         | -702.05    | -31.40    | 755754.51         | 471625.38          | 32°17'40.793"N | 103°38'21.904"W | 0.00          |              |
| 11600.00†                                                          | 90.000          | 182.561     | 10920.00 | 802.75         | -801.95    | -35.86    | 755750.04         | 471525.48          | 32°17'39.805"N | 103°38'21.964"W | 0.00          |              |
| 11700.00†                                                          | 90.000          | 182.561     | 10920.00 | 902.75         | -901.85    | -40.33    | 755745.57         | 471425.59          | 32°17'38.817"N | 103°38'22.023"W | 0.00          |              |
| 11800.00†                                                          | 90.000          | 182.561     | 10920.00 | 1002.75        | -1001.75   | -44.80    | 755741.10         | 471325.69          | 32°17'37.828"N | 103°38'22.083"W | 0.00          |              |
| 11900.00†                                                          | 90.000          | 182.561     | 10920.00 | 1102.75        | -1101.65   | -49.27    | 755736.64         | 471225.79          | 32°17'36.840"N | 103°38'22.143"W | 0.00          |              |
| 12000.00†                                                          | 90.000          | 182.561     | 10920.00 | 1202.75        | -1201.55   | -53.73    | 755732.17         | 471125.90          | 32°17'35.852"N | 103°38'22.202"W | 0.00          |              |
| 12100.00†                                                          | 90.000          | 182.561     | 10920.00 | 1302.75        | -1301.45   | -58.20    | 755727.70         | 471026.00          | 32°17'34.864"N | 103°38'22.262"W | 0.00          |              |
| 12200.00†                                                          | 90.000          | 182.561     | 10920.00 | 1402.75        | -1401.35   | -62.67    | 755723.23         | 470926.10          | 32°17'33.876"N | 103°38'22.321"W | 0.00          |              |
| 12300.00†                                                          | 90.000          | 182.561     | 10920.00 | 1502.75        | -1501.25   | -67.14    | 755718.77         | 470826.21          | 32°17'32.887"N | 103°38'22.381"W | 0.00          |              |



# Planned Wellpath Report

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## REFERENCE WELLPATH IDENTIFICATION

|          |                                  |          |          |
|----------|----------------------------------|----------|----------|
| Operator | Cimarex Energy Co.               | Slot     | No.7 SHL |
| Area     | Lea County, NM                   | Well     | No.7     |
| Field    | (Diamondtail) Sec 23, T23S, R32E | Wellbore | No.7 PWB |
| Facility | Diamondtail 23 Federal No.7      |          |          |

## WELLPATH DATA (167 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  |
|-----------|-----------------|-------------|----------|----------------|------------|-----------|-------------------|--------------------|----------------|-----------------|---------------|-----------|
| 12400.00† | 90.000          | 182.561     | 10920.00 | 1602.75        | -1601.15   | -71.60    | 755714.30         | 470726.31          | 32°17'31.899"N | 103°38'22.440"W | 0.00          |           |
| 12500.00† | 90.000          | 182.561     | 10920.00 | 1702.75        | -1701.05   | -76.07    | 755709.83         | 470626.42          | 32°17'30.911"N | 103°38'22.500"W | 0.00          |           |
| 12600.00† | 90.000          | 182.561     | 10920.00 | 1802.75        | -1800.95   | -80.54    | 755705.36         | 470526.52          | 32°17'29.923"N | 103°38'22.560"W | 0.00          |           |
| 12700.00† | 90.000          | 182.561     | 10920.00 | 1902.75        | -1900.85   | -85.01    | 755700.90         | 470426.62          | 32°17'28.935"N | 103°38'22.619"W | 0.00          |           |
| 12800.00† | 90.000          | 182.561     | 10920.00 | 2002.75        | -2000.75   | -89.47    | 755696.43         | 470326.73          | 32°17'27.946"N | 103°38'22.679"W | 0.00          |           |
| 12900.00† | 90.000          | 182.561     | 10920.00 | 2102.75        | -2100.65   | -93.94    | 755691.96         | 470226.83          | 32°17'26.958"N | 103°38'22.738"W | 0.00          |           |
| 13000.00† | 90.000          | 182.561     | 10920.00 | 2202.75        | -2200.55   | -98.41    | 755687.49         | 470126.94          | 32°17'25.970"N | 103°38'22.798"W | 0.00          |           |
| 13100.00† | 90.000          | 182.561     | 10920.00 | 2302.75        | -2300.45   | -102.88   | 755683.03         | 470027.04          | 32°17'24.982"N | 103°38'22.857"W | 0.00          |           |
| 13200.00† | 90.000          | 182.561     | 10920.00 | 2402.75        | -2400.35   | -107.34   | 755678.56         | 469927.14          | 32°17'23.993"N | 103°38'22.917"W | 0.00          |           |
| 13300.00† | 90.000          | 182.561     | 10920.00 | 2502.75        | -2500.25   | -111.81   | 755674.09         | 469827.25          | 32°17'23.005"N | 103°38'22.977"W | 0.00          |           |
| 13400.00† | 90.000          | 182.561     | 10920.00 | 2602.75        | -2600.15   | -116.28   | 755669.63         | 469727.35          | 32°17'22.017"N | 103°38'23.036"W | 0.00          |           |
| 13500.00† | 90.000          | 182.561     | 10920.00 | 2702.75        | -2700.05   | -120.75   | 755665.16         | 469627.45          | 32°17'21.029"N | 103°38'23.096"W | 0.00          |           |
| 13600.00† | 90.000          | 182.561     | 10920.00 | 2802.75        | -2799.95   | -125.21   | 755660.69         | 469527.56          | 32°17'20.041"N | 103°38'23.155"W | 0.00          |           |
| 13700.00† | 90.000          | 182.561     | 10920.00 | 2902.75        | -2899.85   | -129.68   | 755656.22         | 469427.66          | 32°17'19.052"N | 103°38'23.215"W | 0.00          |           |
| 13800.00† | 90.000          | 182.561     | 10920.00 | 3002.75        | -2999.75   | -134.15   | 755651.76         | 469327.77          | 32°17'18.064"N | 103°38'23.274"W | 0.00          |           |
| 13900.00† | 90.000          | 182.561     | 10920.00 | 3102.75        | -3099.65   | -138.62   | 755647.29         | 469227.87          | 32°17'17.076"N | 103°38'23.334"W | 0.00          |           |
| 14000.00† | 90.000          | 182.561     | 10920.00 | 3202.75        | -3199.55   | -143.08   | 755642.82         | 469127.97          | 32°17'16.088"N | 103°38'23.394"W | 0.00          |           |
| 14100.00† | 90.000          | 182.561     | 10920.00 | 3302.75        | -3299.45   | -147.55   | 755638.35         | 469028.08          | 32°17'15.100"N | 103°38'23.453"W | 0.00          |           |
| 14200.00† | 90.000          | 182.561     | 10920.00 | 3402.75        | -3399.35   | -152.02   | 755633.89         | 468928.18          | 32°17'14.111"N | 103°38'23.513"W | 0.00          |           |
| 14300.00† | 90.000          | 182.561     | 10920.00 | 3502.75        | -3499.25   | -156.49   | 755629.42         | 468828.29          | 32°17'13.123"N | 103°38'23.572"W | 0.00          |           |
| 14400.00† | 90.000          | 182.561     | 10920.00 | 3602.75        | -3599.16   | -160.96   | 755624.95         | 468728.39          | 32°17'12.135"N | 103°38'23.632"W | 0.00          |           |
| 14500.00† | 90.000          | 182.561     | 10920.00 | 3702.75        | -3699.06   | -165.42   | 755620.48         | 468628.49          | 32°17'11.147"N | 103°38'23.691"W | 0.00          |           |
| 14600.00† | 90.000          | 182.561     | 10920.00 | 3802.75        | -3798.96   | -169.89   | 755616.02         | 468528.60          | 32°17'10.159"N | 103°38'23.751"W | 0.00          |           |
| 14700.00† | 90.000          | 182.561     | 10920.00 | 3902.75        | -3898.86   | -174.36   | 755611.55         | 468428.70          | 32°17'09.170"N | 103°38'23.810"W | 0.00          |           |
| 14800.00† | 90.000          | 182.561     | 10920.00 | 4002.75        | -3998.76   | -178.83   | 755607.08         | 468328.81          | 32°17'08.182"N | 103°38'23.870"W | 0.00          |           |
| 14900.00† | 90.000          | 182.561     | 10920.00 | 4102.75        | -4098.66   | -183.29   | 755602.61         | 468228.91          | 32°17'07.194"N | 103°38'23.930"W | 0.00          |           |
| 15000.00† | 90.000          | 182.561     | 10920.00 | 4202.75        | -4198.56   | -187.76   | 755598.15         | 468129.01          | 32°17'06.206"N | 103°38'23.989"W | 0.00          |           |
| 15100.00† | 90.000          | 182.561     | 10920.00 | 4302.75        | -4298.46   | -192.23   | 755593.68         | 468029.12          | 32°17'05.217"N | 103°38'24.049"W | 0.00          |           |
| 15200.00† | 90.000          | 182.561     | 10920.00 | 4402.75        | -4398.36   | -196.70   | 755589.21         | 467929.22          | 32°17'04.229"N | 103°38'24.108"W | 0.00          |           |
| 15300.00† | 90.000          | 182.561     | 10920.00 | 4502.75        | -4498.26   | -201.16   | 755584.74         | 467829.32          | 32°17'03.241"N | 103°38'24.168"W | 0.00          |           |
| 15400.00† | 90.000          | 182.561     | 10920.00 | 4602.75        | -4598.16   | -205.63   | 755580.28         | 467729.43          | 32°17'02.253"N | 103°38'24.227"W | 0.00          |           |
| 15426.36  | 90.000          | 182.561     | 10920.00 | 4629.11        | -4624.49   | -206.81   | 755579.10         | 467703.10          | 32°17'01.992"N | 103°38'24.243"W | 0.00          | No.7 PBHL |



# Planned Wellpath Report

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## REFERENCE WELLPATH IDENTIFICATION

|          |                                  |          |          |
|----------|----------------------------------|----------|----------|
| Operator | Cimarex Energy Co.               | Slot     | No.7 SHL |
| Area     | Lea County, NM                   | Well     | No.7     |
| Field    | (Diamondtail) Sec 23, T23S, R32E | Wellbore | No.7 PWB |
| Facility | Diamondtail 23 Federal No.7      |          |          |

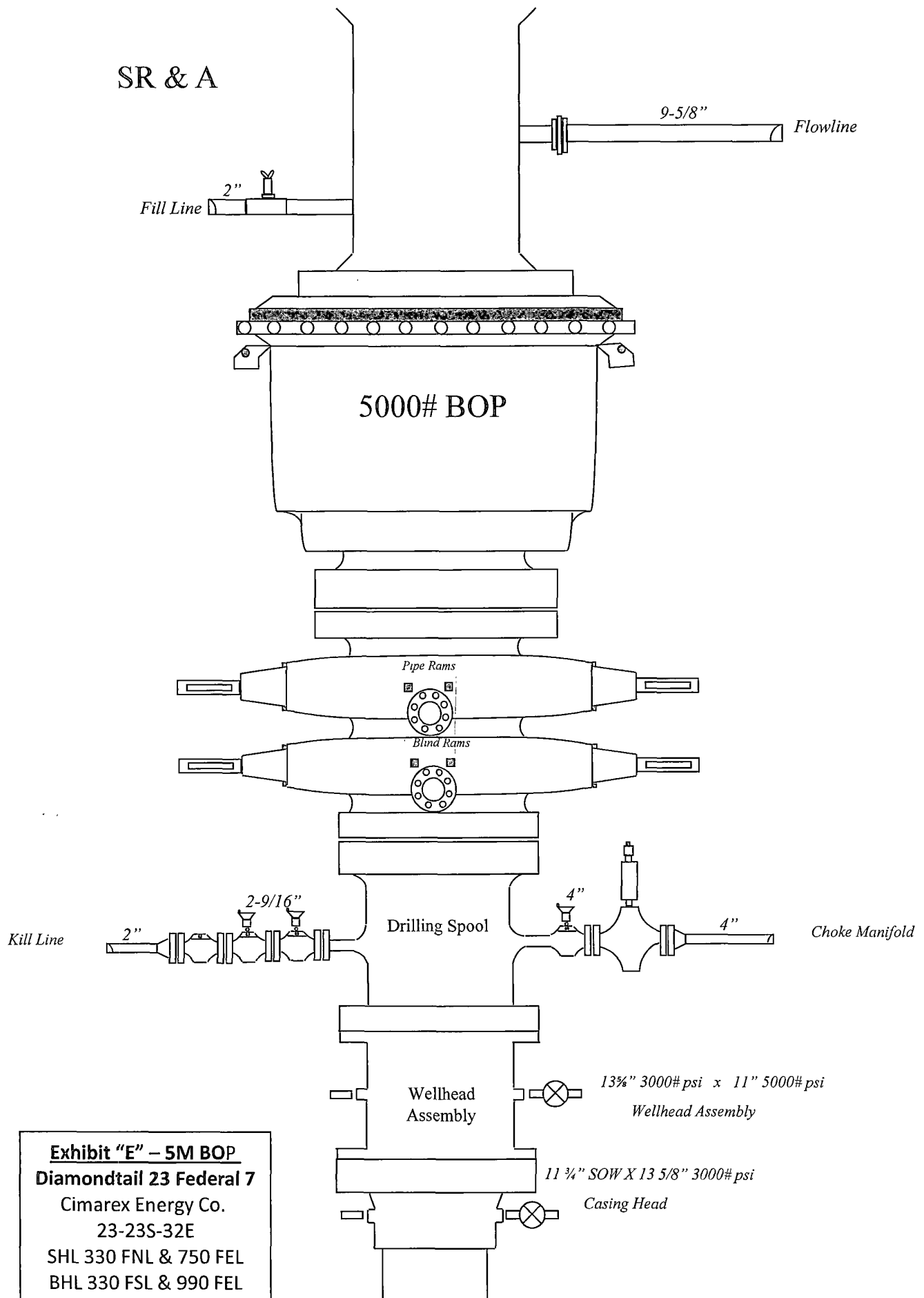
## TARGETS

| Name                 | MD<br>[ft] | TVD<br>[ft] | North<br>[ft] | East<br>[ft] | Grid East<br>[US ft] | Grid North<br>[US ft] | Latitude       | Longitude       | Shape |
|----------------------|------------|-------------|---------------|--------------|----------------------|-----------------------|----------------|-----------------|-------|
| 1) No.7 PBHL (Rev-0) | 15426.36   | 10920.00    | -4624.49      | -206.81      | 755579.10            | 467703.10             | 32°17'01.992"N | 103°38'24.243"W | point |

## SURVEY PROGRAM - Ref Wellbore: No.7 PWB Ref Wellpath: Rev-A.0

| Start MD<br>[ft] | End MD<br>[ft] | Positional Uncertainty Model | Log Name/Comment | Wellbore |
|------------------|----------------|------------------------------|------------------|----------|
| 0.00             | 15426.36       | NaviTrak (Standard)          |                  | No.7 PWB |

SR & A

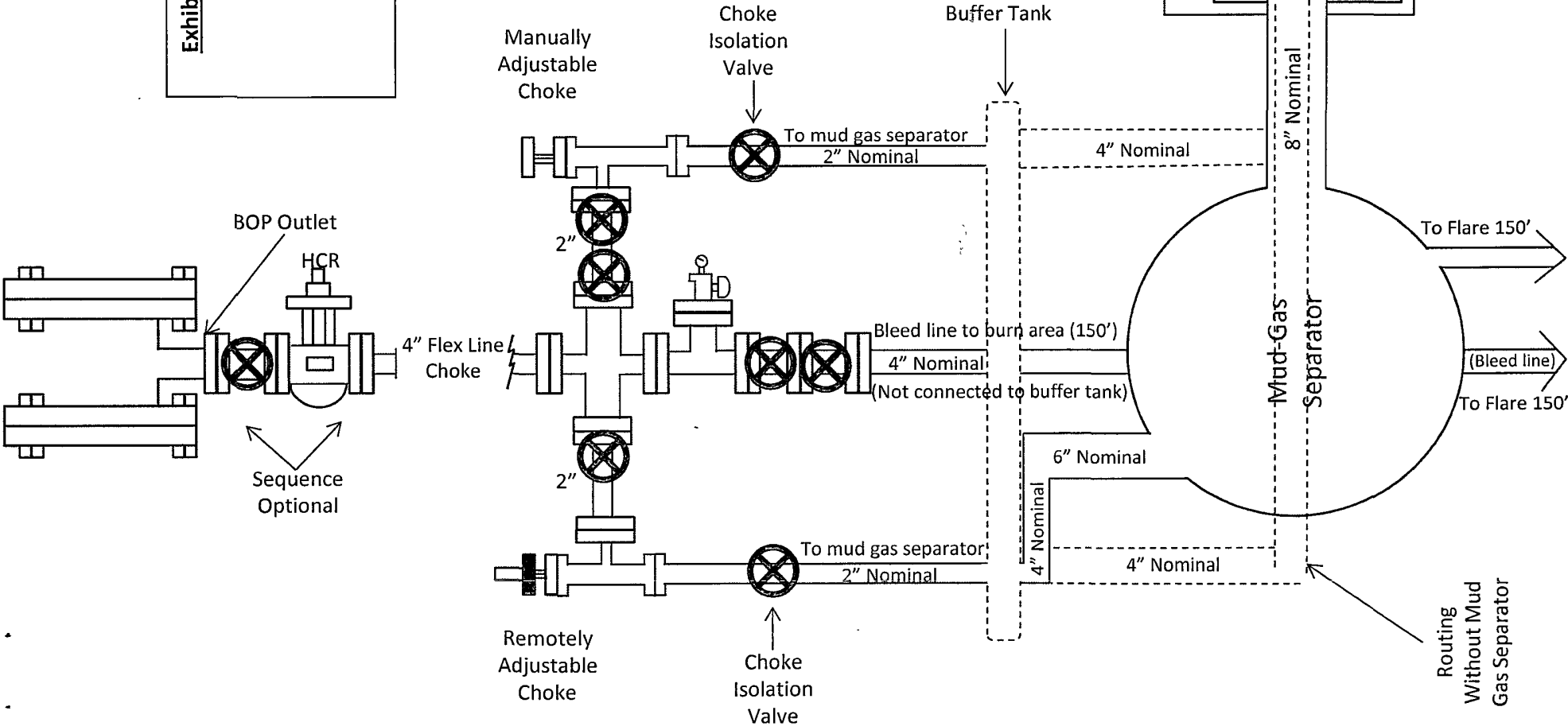


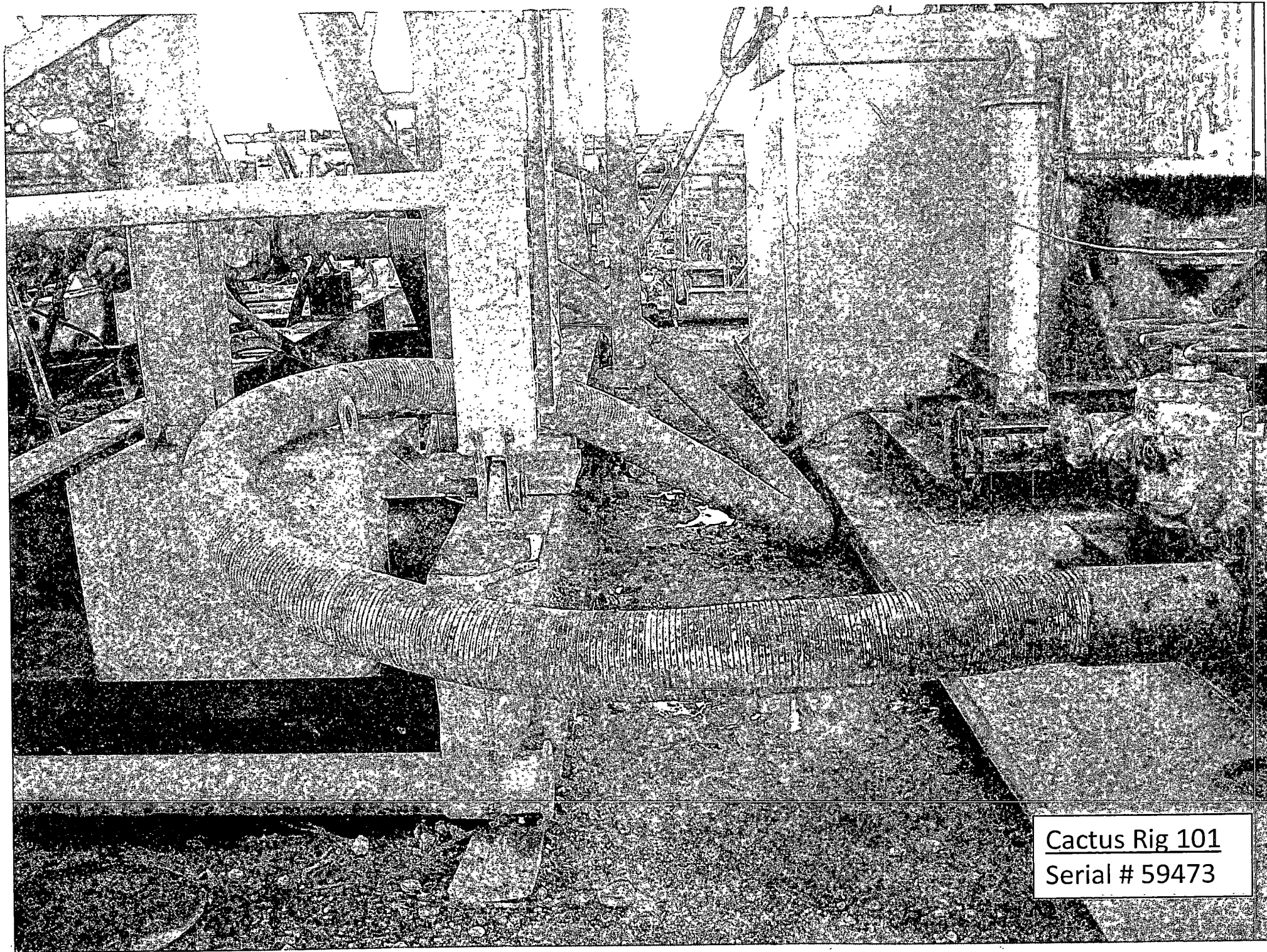
**Exhibit "E" – 5M BOP**  
**Diamondtail 23 Federal 7**  
 Cimarex Energy Co.  
 23-23S-32E  
 SHL 330 FNL & 750 FEL  
 BHL 330 FSL & 990 FEL  
 Lea County, NM

# Drilling Operations Choke Manifold 5M Service

Exhibit "E-1" – Choke Manifold Diagram

Diamondtail 23 Federal 7  
Cimarex Energy Co.  
23-23S-32E  
SHL 330 FNL & 750 FEL  
BHL 330 FSL & 990 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)                                                         |

# **Cimarex Energy Co. of Colorado – Closed-Loop System Design Plan**

## **Equipment List**

- Primary Shakers
- Mud Cleaner – hydro-cyclones
- 1 or 2 Centrifuges (depending on well depth)
- De-watering system with pH adjustment, coagulant mixing and dosing, and polymer mixing and dosing (may not be necessary for shallower wells)
- Drying Augur
- Sump Drying Augur
- Sump
- Cuttings Boxes
- Reserve Fluids Tank Farm
- Wire Mesh Trash Enclosure (spent motor oils kept in separate containers and later sent to approved landfill)

## **Operation and Maintenance**

The Cimarex Zero Discharge system is designed to maintain drill solids at or below 5%. The equipment is arranged to progressively remove solids from the largest to the smallest size. Drilling fluids can thus be reused and savings is realized on mud and disposal costs. Dewatering may be required with the centrifuges to insure removal of ultra fine solids.

The drilling location is constructed to allow storm water to flow to a central sump normally the cellar. This ensures no contamination leaves the drilling pad in the event of a spill. Storm water is reused in the mud system or stored in a reserve fluid tank farm until it can be reused. All lubricants, oils, or chemicals are removed immediately from the ground to prevent the contamination of storm water. An oil trap is normally installed on the sump if an oil spill occurs during a storm.

A tank farm is utilized to store drilling fluids including fresh water and brine fluids. The tank farm is constructed on a 20 ml plastic lined, bermed pad to prevent the contamination of the drilling site during a spill. Fluids from other sites may be stored in these tanks for processing by the solids control equipment and reused in the mud system. At the end of the well the fluids are transported from the tank farm to an adjoining well or to the next well for the rig.

These closed loop operations can be monitored by our service technicians. Daily logs are maintained to ensure optimal equipment operation and maintenance. Screen and chemical use is logged to maintain inventory control. Fluid properties are monitored and recorded and drilling mud volumes are accounted for in the mud storage farm. This data is kept for end of well review to insure performance goals are met. Lessons learned are logged and used to help with continuous improvement.

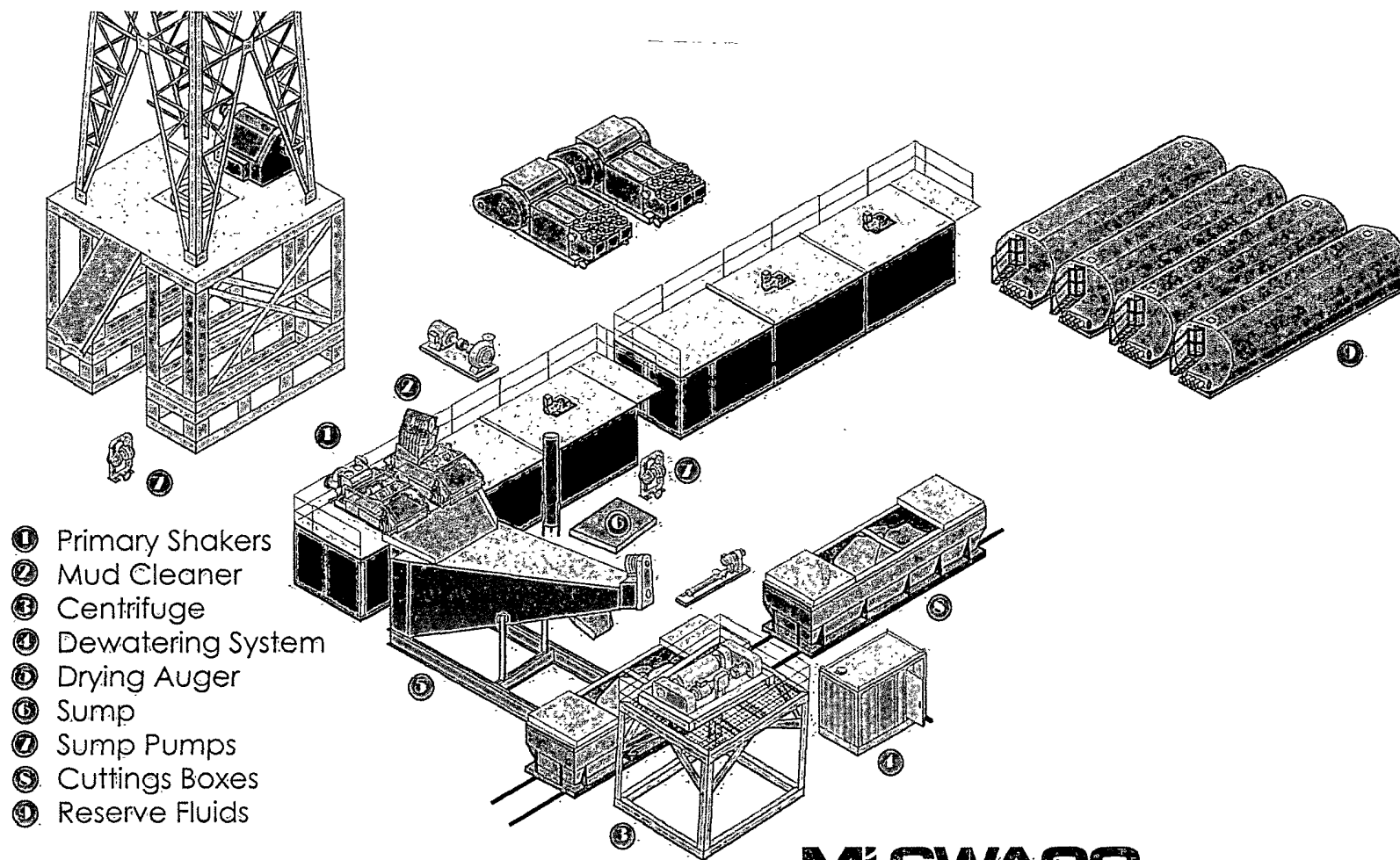
Spill prevention is accomplished by maintaining pump packing, hoses, and pipe fittings to insure no leaks are occurring. During an upset condition the source of the spill is isolated and repaired as soon as it is discovered. Free liquid is removed by a diaphragm pump and returned to the mud system. Loose topsoil may be used to stabilize the spill and the contaminated soil is excavated and placed in the cuttings boxes. After the well is finished and the rig has moved, the entire location is scrapped and tested for all regulated toxic materials. If found they are removed and disposed of per regulatory requirements.

## **Closure Plan**

During drilling operations, all liquids, drilling fluids, and cuttings will be hauled off via CRI (Controlled Recovery Incorporated, Permit R-9166).

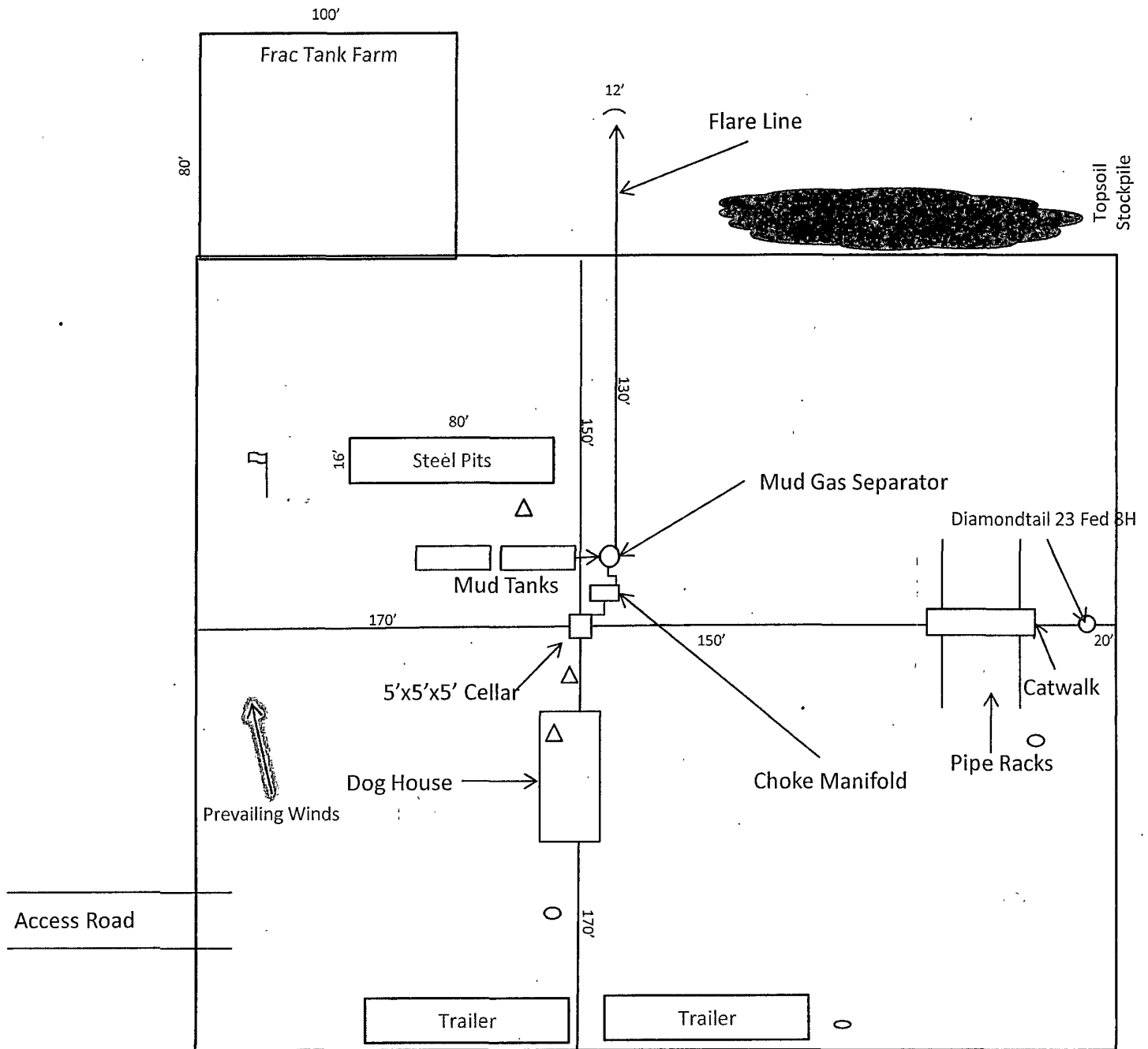


## Closed Loop with Drying Auger and Dewatering System



**Mi SWACO**

# Cactus 101



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

N



**Exhibit "D" – Rig Diagram**  
**Diamondtail 23 Federal 7**  
 Cimarex Energy Co.  
 23-23S-32E  
 SHL 330 FNL & 750 FEL  
 BHL 330 FSL & 990 FEL  
 Lea County, NM