

OCD-ARTESIA

Form 3160-3  
(April 2004)FORM APPROVED  
OMB No. 1004-0137  
Expires March 31, 2007UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

## 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>SHL NM-94842, BHL NM-111530         |
| 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                                                                                                                                                                              |                                                                            | 7 If Unit or CA Agreement, Name and No<br>Pending         |
| 3a Address<br>600 N. Marienfeld St., Ste. 600; Midland, TX 79701                                                                                                                                                                  |                                                                            | 8 Lease Name and Well No<br>Gadwall 18 Federal Com No. 2  |
| 3b Phone No (include area code)<br>432-571-7800                                                                                                                                                                                   |                                                                            | 9. API Well No<br>30-015- 39141                           |
| 4. Location of Well (Report location clearly and in accordance with any State requirements. *)<br>At Surface 150 FNL & 2310 FWL At BHL 330 FSL & 2200 FWL<br>At proposed prod Zone 225 FNL & 2308 FWL Horizontal Bone Spring Test |                                                                            | 10. Field and Pool, or Exploratory<br>Bone Spring Wildcat |
| 14. Distance in miles and direction from nearest town or post office*                                                                                                                                                             |                                                                            | 11 Sec , T R. M. or Blk and Survey or Area<br>18-25S-27E  |
| 15 Distance from proposed* location to nearest property or lease line, ft (Also to nearest drng. unit line if any) 150                                                                                                            | 16 No of acres in lease<br>NM-94842 159.02 acres<br>NM-111530 478.86 acres | 12. County or Parish<br>Eddy                              |
| 17. Spacing Unit dedicated to this well<br>E2W2 160 acres                                                                                                                                                                         | 13 State<br>NM                                                             |                                                           |
| 18 Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. N/A                                                                                                                     | 19 Proposed Depth<br>Pilot Hole 8250<br>✓ MD 12458, TVD 7750               | 20 BLM/BIA Bond No. on File<br>NM-2575                    |
| 21. Elevations (Show whether DF, KDB, RT, GL, etc )<br>3195' GR ✓                                                                                                                                                                 | 22. Approximate date work will start*<br>01.15.11                          | 23 Estimated duration<br>20-25 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><i>Zeno Farris</i>                 | Name (Printed/Typed)<br>Zeno Farris             | Date<br>11.09.10    |
| Title<br>Manager Operations Administration         |                                                 |                     |
| Approved By (Signature)<br><i>/s/ Don Peterson</i> | Name (Printed/Typed)<br><i>/s/ Don Peterson</i> | Date<br>JUN 02 2011 |
| Title<br>FOR 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

APPROVAL FOR TWO YEARS

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)

Carlsbad Controlled Water Basin

SEE ATTACHED FOR  
CONDITIONS OF APPROVALApproval Subject to General Requirements  
& Special Stipulations Attached

Application to Drill  
**Gadwall 18 Federal Com No. 2**  
Cimarex Energy Co. of Colorado  
Unit C, Section 18  
T25S-R27E, Eddy 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 150 FNL & 2310 FWL  
BHL 330 FSL & 2200 FWL

2. Elevation above sea level: 3195' 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 12458, TVD 7750

6. Estimated tops of geological markers:

|                       |       |                       |       |
|-----------------------|-------|-----------------------|-------|
| Top Salt              | 1179' | Bone Spring "C" Shale | 5914' |
| Base Salt             | 1730' | 1st Bone Spring Ss    | 6390' |
| Delaware              | 1918' | 2nd Bone Spring Ss    | 6937' |
| Cherry Canyon         | 2926' | 2nd BS Ss Lower       | 7683' |
| Brushy Canyon         | 3955' | 3rd Bone Spr Carb "C" | 7856' |
| Bone Spring           | 5428' | 3rd Bone Spr Carb "B" | 8040' |
| Bone Spring "A" Shale | 5580' |                       |       |

7. Possible mineral bearing formations:

Bone Spring Oil

8. Proposed drilling Plan

Drill 8¾" hole through the curve to lateral TD (12458' MD, 7750' TVD). Run cemented 5½" production casing from 0-12458.'

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**9. Mud Circulating System:**

| Depth  |    |        | Mud Wt    | Visc  | Fluid Loss | Type Mud     |
|--------|----|--------|-----------|-------|------------|--------------|
| 0'     | to | 215'   | 8.4 - 8.6 | 30-32 | NC         | FW spud mud. |
| 215'   | to | 3225'  | 9.9 - 10  | 28-29 | NC         | Brine        |
| 3,225' | to | 12458' | 8.6 - 9.2 | 28-30 | NC         | Cut brine.   |

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.

**10. Casing Program:**

|              | Hole Size | Depth |           | Casing OD |      | Weight | Collar | Grade |
|--------------|-----------|-------|-----------|-----------|------|--------|--------|-------|
| Surface      | 17½"      | 0'    | to 215'   | New       | 13½" | 48#    | STC    | H-40  |
| Intermediate | 12¼"      | 0'    | to 3225'  | New       | 9½"  | 36#    | LTC    | J-55  |
| Production   | 8¾"       | 0'    | to 12458' | New       | 5½"  | 17#    | LTC    | P-110 |

**11. Cementing Program:**

|                |                                                                                                                                                                                                                                                                                |
|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Surface Casing | Lead: 200 sx (Class C) + 4% D20 + 0.2% D46 + 2% S1, 12.9 ppg, 1.97 cuft/sx, 10.87 gps.<br>Tail: 150 sx (Class C) + 2% S1, 14.80 ppg, 1.34 cuft/sx, 6.29 gps.<br><b>TOC Surface</b>                                                                                             |
| Intermediate   | Lead: 2000 sx Econocem + 3% Salt + 2% CaCl <sub>2</sub> + 3# Gilsomite (wt 11.7, yld 2.06)<br>Tail: 610 sx Premium Plus + 1% CaCl <sub>2</sub> (wt 14.8, yld 1.34)<br><b>TOC Surface</b>                                                                                       |
| Production     | Lead: 720 sx Interfill H + 0.3% HR-601 + 5# Gilsomite + 0.125# Poly-e-flake (wt 11.9, yld 2.47)<br>Tail: 500 sx Super H + 0.5% Halad-344 + 0.25% D-AIR 3000 + 0.4% CFR-3 + 1# Salt + 5# Gilsomite + 0.125# Poly-e-flake + 0.35% HR-7 (wt 13.2, yld 1.61)<br><b>TOC Surface</b> |

See  
COR

Fresh water zones will be protected by setting 13½" casing at 215' and cementing to surface. Hydrocarbon zones will be protected by setting 9½" casing at 3225' and 5½" casing at 12458' and cementing to surface.

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

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12. Pressure control Equipment:

Exhibit "E". A 13½" 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 450.' A kelly cock will be installed and maintained in operable condition and a drill string safety valve in the open position will be available on the rig floor.

BOP unit will be hydraulically operated. BOP will be 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.

BOPS will be tested by an independent service company to 250 psi low and 3500 psi high.

13. Testing, Logging and Coring Program:

\* See COA

- A. Mud logging program: No mud logging program.
- B. Electric logging program: CNL / LDT / CAL / GR, DLL / CAL / GR
- C. No DSTs or cores are planned at this time.

14. Potential Hazards: \* See COA

No abnormal pressures or temperatures are expected. In accordance with Onshore Order 6, Cimarex has encountered H<sub>2</sub>S in a one-time encounter in an Intra-salt Pocket and while drilling and completing wells in the Delaware Mountain Group. In this regard, attached is an H<sub>2</sub>S Drilling Operations Plan. The ROEs encountered do not meet the BLM's minimum requirements for the submission of a "Public Protection Plan" for the drilling and completion of this well. 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                      3000 psi                      Estimated BHT                      115°

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

Drilling expected to take                      25-35 days

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

16. 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 potential as                      an oil well.



Project Eddy County (NM83E)  
Site Sec 18 - T2S5 - R27E  
Well Gadwall 18 Fed Com #2  
Wellbore Wellbore #1  
Design Plan #1

# WELL DETAILS: Gadwall 18 Fed Com #2

| N/-S                      | +E/-W | Northing  | Easting   | Latitude        | Longitude         |
|---------------------------|-------|-----------|-----------|-----------------|-------------------|
| 0.0                       | 0.0   | 413530.80 | 573169.00 | 32° 8' 12.599 N | 104° 13' 49.779 W |
| SHL: 150' FNL / 2310' FWL |       |           |           |                 |                   |
| BHL: 330' FSL / 2200' FWL |       |           |           |                 |                   |



Azimuths to Grid North  
Total Correction: 7.89°  
Magnetic Field  
Strength 48609.95nT  
Dip Angle 60.03°  
Date: 11/08/2010  
Model: IGRF200510

## WELLBORE TARGET DETAILS

| Name       | TVD    | +N/-S   | +E/-W  | Northing  | Easting   |
|------------|--------|---------|--------|-----------|-----------|
| Gadwall #2 | 7748.0 | -4821.9 | -112.2 | 408708.91 | 573056.84 |

## PLAN DETAILS

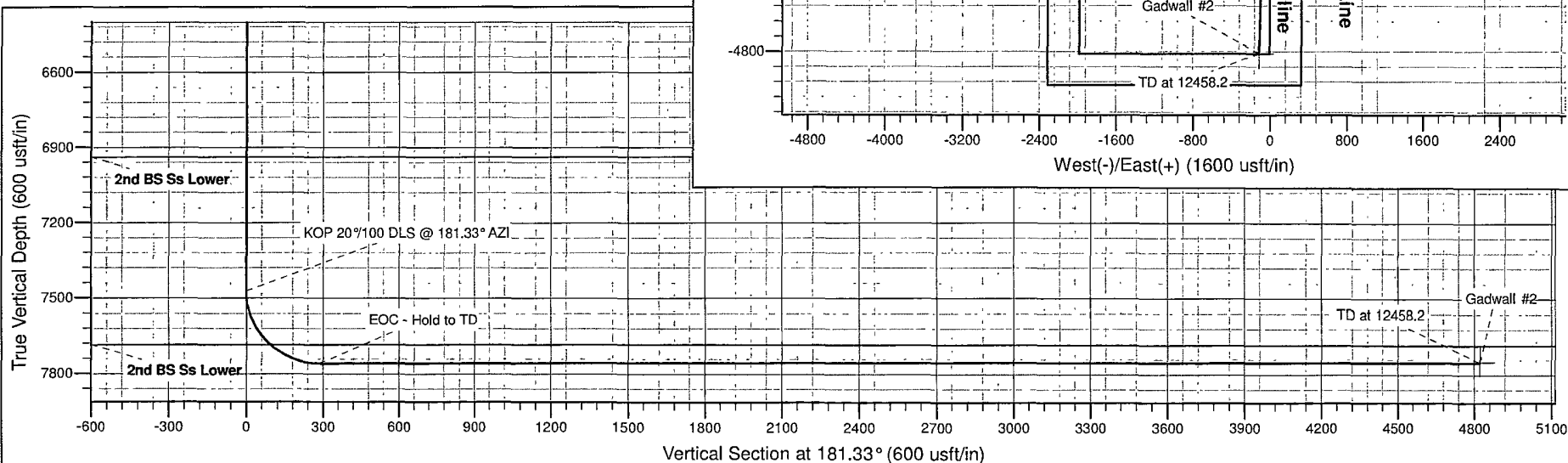
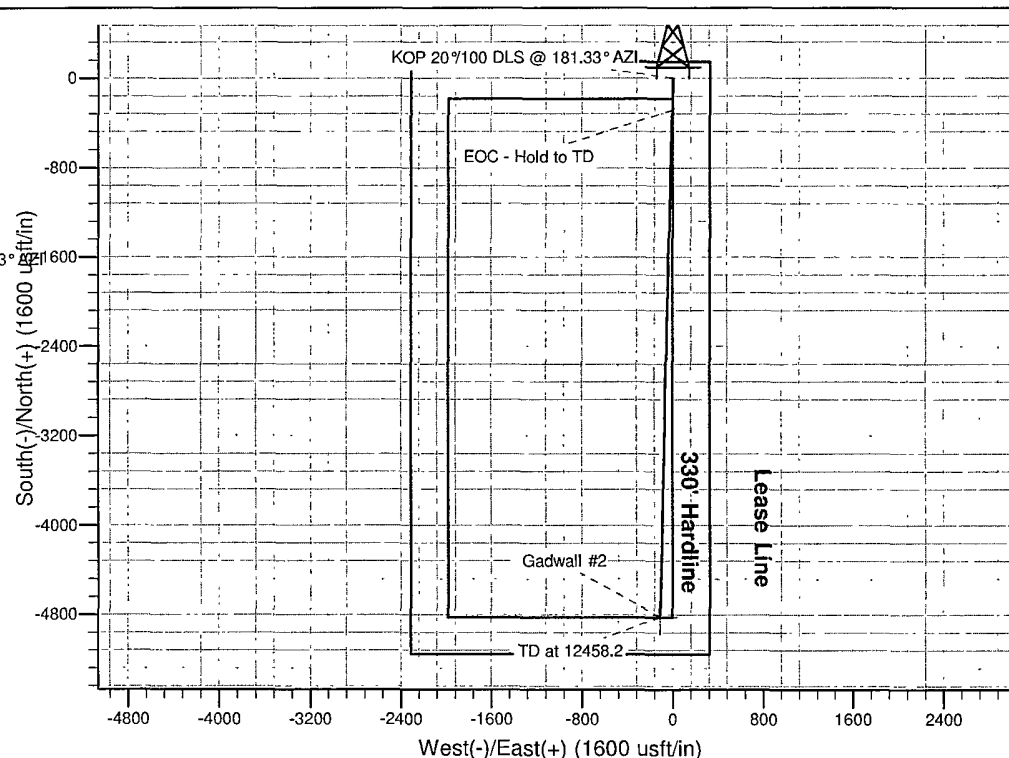
| MD        | Inc   | Azi    | TVD    | +N/-S   | +E/-W  | Dleg  | TFace  | VSect  | Target     |
|-----------|-------|--------|--------|---------|--------|-------|--------|--------|------------|
| 0.0       | 0.00  | 0.00   | 0.0    | 0.0     | 0.0    | 0.00  | 0.00   | 0.0    |            |
| 7471.5    | 0.00  | 0.00   | 7471.5 | 0.0     | 0.0    | 0.00  | 0.00   | 0.0    |            |
| 7922.0    | 90.10 | 181.33 | 7758.0 | -286.9  | -6.7   | 20.00 | 181.33 | 287.0  |            |
| 4 12458.2 | 90.10 | 181.33 | 7750.1 | -4821.9 | -112.0 | 0.00  | 0.00   | 4823.2 | Gadwall #2 |

## ANNOTATIONS

| TVD    | MD      | Inc   | Azi    | +N/-S   | +E/-W  | VSect  | Departure | Annotation                    |
|--------|---------|-------|--------|---------|--------|--------|-----------|-------------------------------|
| 7471.5 | 7471.5  | 0.00  | 0.00   | 0.0     | 0.0    | 0.0    | 0.0       | KOP 20°/100 DLS @ 181.33° AZI |
| 758.0  | 7922.0  | 90.10 | 181.33 | -286.9  | -6.7   | 287.0  | 287.0     | EOC - Hold to TD              |
| 750.1  | 12457.9 | 90.10 | 181.33 | -4821.6 | -111.9 | 4822.9 | 4822.9    | TD at 12458.2                 |

## FORMATION TOP DETAILS

| TVDPath | MDPath | Formation       | DipAngle |
|---------|--------|-----------------|----------|
| 6937.0  | 6937.0 | 2nd BS Ss Lower | 0.00     |
| 7683.0  | 7709.4 | 2nd BS Ss Lower | 0.00     |





## **Cimarex Energy Co.**

**Eddy County (NM83E)  
Sec 18 - T25S - R27E  
Gadwall 18 Fed Com #2**

**Wellbore #1**

**Plan: Plan #1**

## **Standard Planning Report**

**08 November, 2010**





Great White Directional Services  
Planning Report



|           |                           |                              |                                     |
|-----------|---------------------------|------------------------------|-------------------------------------|
| Database: | EDM 5000.1 Single User Db | Local Co-ordinate Reference: | Well Gadwall 18 Fed Com #2          |
| Company:  | Cimarex Energy Co.        | TVD Reference:               | WELL @ 0.0usft (Original Well Elev) |
| Project:  | Eddy County (NM83E)       | MD Reference:                | WELL @ 0.0usft (Original Well Elev) |
| Site:     | Sec 18 - T25S - R27E      | North Reference:             | Grid                                |
| Well:     | Gadwall 18 Fed Com #2     | Survey Calculation Method:   | Minimum Curvature                   |
| Wellbore: | Wellbore #1               |                              |                                     |
| Design:   | Plan #1                   |                              |                                     |

|             |                           |               |                |
|-------------|---------------------------|---------------|----------------|
| Project:    | Eddy County (NM83E)       |               |                |
| Map System: | US State Plane 1983       | System Datum: | Mean Sea Level |
| Geo Datum:  | North American Datum 1983 |               |                |
| Map Zone:   | New Mexico Eastern Zone   |               |                |

|                       |                      |                   |                   |
|-----------------------|----------------------|-------------------|-------------------|
| Site:                 | Sec 18 - T25S - R27E |                   |                   |
| Site Position:        |                      | Northing:         | 413,530.80 usft   |
| From:                 | Map                  | Easting:          | 573,169.00 usft   |
| Position Uncertainty: | 0.0 usft             | Slot Radius:      | 13-3/16 "         |
|                       |                      | Latitude:         | 32° 8' 12.599 N   |
|                       |                      | Longitude:        | 104° 13' 49.779 W |
|                       |                      | Grid Convergence: | 0.05 °            |

|                      |                       |                     |           |                 |            |                   |
|----------------------|-----------------------|---------------------|-----------|-----------------|------------|-------------------|
| Well:                | Gadwall 18 Fed Com #2 |                     |           |                 |            |                   |
| Well Position        | +N/-S                 | 0.0 usft            | Northing: | 413,530.80 usft | Latitude:  | 32° 8' 12.599 N   |
|                      | +E/-W                 | 0.0 usft            | Easting:  | 573,169.00 usft | Longitude: | 104° 13' 49.779 W |
| Position Uncertainty | 0.0 usft              | Wellhead Elevation: |           | Ground Level:   | 0.0 usft   |                   |

|           |             |
|-----------|-------------|
| Wellbore: | Wellbore #1 |
|-----------|-------------|

|           |            |             |                    |                  |                        |
|-----------|------------|-------------|--------------------|------------------|------------------------|
| Magnetics | Model Name | Sample Date | Declination<br>(°) | Dip Angle<br>(°) | Field Strength<br>(nT) |
|           | IGRF200510 | 11/08/10    | 7.94               | 60.03            | 48,610                 |

|                   |                            |                 |                 |                  |
|-------------------|----------------------------|-----------------|-----------------|------------------|
| Design:           | Plan #1                    |                 |                 |                  |
| Audit Notes:      |                            |                 |                 |                  |
| Version:          | Phase:                     | PLAN            | Tie On Depth:   | 0.0              |
| Vertical Section: | Depth From (TVD)<br>(usft) | +N/-S<br>(usft) | +E/-W<br>(usft) | Direction<br>(°) |
|                   | 0.0                        | 0.0             | 0.0             | 181.33           |

| Plan Sections               |                    |                |                             |                 |                 |                             |                            |                           |            |            |
|-----------------------------|--------------------|----------------|-----------------------------|-----------------|-----------------|-----------------------------|----------------------------|---------------------------|------------|------------|
| Measured<br>Depth<br>(usft) | Inclination<br>(°) | Azimuth<br>(°) | Vertical<br>Depth<br>(usft) | +N/-S<br>(usft) | +E/-W<br>(usft) | Dogleg<br>Rate<br>(°/100ft) | Build<br>Rate<br>(°/100ft) | Turn<br>Rate<br>(°/100ft) | TFO<br>(°) | Target     |
| 0.0                         | 0.00               | 0.00           | 0.0                         | 0.0             | 0.0             | 0.00                        | 0.00                       | 0.00                      | 0.00       |            |
| 7,471.5                     | 0.00               | 0.00           | 7,471.5                     | 0.0             | 0.0             | 0.00                        | 0.00                       | 0.00                      | 0.00       |            |
| 7,922.0                     | 90.10              | 181.33         | 7,758.0                     | -286.9          | -6.7            | 20.00                       | 20.00                      | 0.00                      | 181.33     |            |
| 12,458.2                    | 90.10              | 181.33         | 7,750.1                     | -4,821.9        | -112.0          | 0.00                        | 0.00                       | 0.00                      | 0.00       | Gadwall #2 |



# Great White Directional Services Planning Report



|           |                           |                              |                                     |
|-----------|---------------------------|------------------------------|-------------------------------------|
| Database: | EDM 5000.1 Single User Db | Local Co-ordinate Reference: | Well-Gadwall 18 Fed Com #2          |
| Company:  | Cimarex Energy Co.        | TVD Reference:               | WELL @ 0.0usft (Original Well Elev) |
| Project:  | Eddy County (NM83E)       | MD Reference:                | WELL @ 0.0usft (Original Well Elev) |
| Site:     | Sec 18 - T25S - R27E      | North Reference:             | Grid                                |
| Well:     | Gadwall 18 Fed Com #2     | Survey Calculation Method:   | Minimum Curvature                   |
| Wellbore: | Wellbore #1               |                              |                                     |
| Design:   | Plan #1                   |                              |                                     |

## Planned Survey

| Measured Depth (usft)         | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
|-------------------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-----------------------|----------------------|---------------------|
| 7,471.5                       | 0.00            | 0.00        | 7,471.5               | 0.0          | 0.0          | 0.0                     | 0.00                  | 0.00                 | 0.00                |
| KOP-20°/100 DLS @ 181.33° AZI |                 |             |                       |              |              |                         |                       |                      |                     |
| 7,475.0                       | 0.70            | 181.33      | 7,475.0               | 0.0          | 0.0          | 0.0                     | 20.00                 | 20.00                | 0.00                |
| 7,500.0                       | 5.70            | 181.33      | 7,500.0               | -1.4         | 0.0          | 1.4                     | 20.00                 | 20.00                | 0.00                |
| 7,525.0                       | 10.70           | 181.33      | 7,524.7               | -5.0         | -0.1         | 5.0                     | 20.00                 | 20.00                | 0.00                |
| 7,550.0                       | 15.70           | 181.33      | 7,549.0               | -10.7        | -0.2         | 10.7                    | 20.00                 | 20.00                | 0.00                |
| 7,575.0                       | 20.70           | 181.33      | 7,572.8               | -18.5        | -0.4         | 18.5                    | 20.00                 | 20.00                | 0.00                |
| 7,600.0                       | 25.70           | 181.33      | 7,595.7               | -28.3        | -0.7         | 28.3                    | 20.00                 | 20.00                | 0.00                |
| 7,625.0                       | 30.70           | 181.33      | 7,617.8               | -40.1        | -0.9         | 40.1                    | 20.00                 | 20.00                | 0.00                |
| 7,650.0                       | 35.70           | 181.33      | 7,638.7               | -53.8        | -1.2         | 53.8                    | 20.00                 | 20.00                | 0.00                |
| 7,675.0                       | 40.70           | 181.33      | 7,658.3               | -69.3        | -1.6         | 69.3                    | 20.00                 | 20.00                | 0.00                |
| 7,700.0                       | 45.70           | 181.33      | 7,676.5               | -86.4        | -2.0         | 86.4                    | 20.00                 | 20.00                | 0.00                |
| 7,709.4                       | 47.58           | 181.33      | 7,683.0               | -93.2        | -2.2         | 93.2                    | 20.00                 | 20.00                | 0.00                |
| 2nd BS Ss Lower               |                 |             |                       |              |              |                         |                       |                      |                     |
| 7,725.0                       | 50.70           | 181.33      | 7,693.2               | -105.0       | -2.4         | 105.0                   | 20.00                 | 20.00                | 0.00                |
| 7,750.0                       | 55.70           | 181.33      | 7,708.2               | -125.0       | -2.9         | 125.0                   | 20.00                 | 20.00                | 0.00                |
| 7,775.0                       | 60.70           | 181.33      | 7,721.3               | -146.2       | -3.4         | 146.3                   | 20.00                 | 20.00                | 0.00                |
| 7,800.0                       | 65.70           | 181.33      | 7,732.6               | -168.5       | -3.9         | 168.6                   | 20.00                 | 20.00                | 0.00                |
| 7,825.0                       | 70.69           | 181.33      | 7,741.9               | -191.7       | -4.5         | 191.8                   | 20.00                 | 20.00                | 0.00                |
| 7,850.0                       | 75.69           | 181.33      | 7,749.1               | -215.6       | -5.0         | 215.7                   | 20.00                 | 20.00                | 0.00                |
| 7,875.0                       | 80.69           | 181.33      | 7,754.2               | -240.1       | -5.6         | 240.2                   | 20.00                 | 20.00                | 0.00                |
| 7,900.0                       | 85.69           | 181.33      | 7,757.2               | -264.9       | -6.2         | 265.0                   | 20.00                 | 20.00                | 0.00                |
| 7,922.0                       | 90.10           | 181.33      | 7,758.0               | -286.9       | -6.7         | 287.0                   | 20.00                 | 20.00                | 0.00                |
| EOC - Hold to TD              |                 |             |                       |              |              |                         |                       |                      |                     |
| 8,000.0                       | 90.10           | 181.33      | 7,757.9               | -364.9       | -8.5         | 365.0                   | 0.00                  | 0.00                 | 0.00                |
| 8,100.0                       | 90.10           | 181.33      | 7,757.7               | -464.8       | -10.8        | 465.0                   | 0.00                  | 0.00                 | 0.00                |
| 8,200.0                       | 90.10           | 181.33      | 7,757.5               | -564.8       | -13.1        | 565.0                   | 0.00                  | 0.00                 | 0.00                |
| 8,300.0                       | 90.10           | 181.33      | 7,757.3               | -664.8       | -15.4        | 665.0                   | 0.00                  | 0.00                 | 0.00                |
| 8,400.0                       | 90.10           | 181.33      | 7,757.2               | -764.8       | -17.8        | 765.0                   | 0.00                  | 0.00                 | 0.00                |
| 8,500.0                       | 90.10           | 181.33      | 7,757.0               | -864.7       | -20.1        | 865.0                   | 0.00                  | 0.00                 | 0.00                |
| 8,600.0                       | 90.10           | 181.33      | 7,756.8               | -964.7       | -22.4        | 965.0                   | 0.00                  | 0.00                 | 0.00                |
| 8,700.0                       | 90.10           | 181.33      | 7,756.6               | -1,064.7     | -24.7        | 1,065.0                 | 0.00                  | 0.00                 | 0.00                |
| 8,800.0                       | 90.10           | 181.33      | 7,756.5               | -1,164.7     | -27.0        | 1,165.0                 | 0.00                  | 0.00                 | 0.00                |
| 8,900.0                       | 90.10           | 181.33      | 7,756.3               | -1,264.6     | -29.4        | 1,265.0                 | 0.00                  | 0.00                 | 0.00                |
| 9,000.0                       | 90.10           | 181.33      | 7,756.1               | -1,364.6     | -31.7        | 1,365.0                 | 0.00                  | 0.00                 | 0.00                |
| 9,100.0                       | 90.10           | 181.33      | 7,755.9               | -1,464.6     | -34.0        | 1,465.0                 | 0.00                  | 0.00                 | 0.00                |
| 9,200.0                       | 90.10           | 181.33      | 7,755.8               | -1,564.5     | -36.3        | 1,565.0                 | 0.00                  | 0.00                 | 0.00                |
| 9,300.0                       | 90.10           | 181.33      | 7,755.6               | -1,664.5     | -38.6        | 1,665.0                 | 0.00                  | 0.00                 | 0.00                |
| 9,400.0                       | 90.10           | 181.33      | 7,755.4               | -1,764.5     | -41.0        | 1,765.0                 | 0.00                  | 0.00                 | 0.00                |
| 9,500.0                       | 90.10           | 181.33      | 7,755.2               | -1,864.5     | -43.3        | 1,865.0                 | 0.00                  | 0.00                 | 0.00                |
| 9,600.0                       | 90.10           | 181.33      | 7,755.1               | -1,964.4     | -45.6        | 1,965.0                 | 0.00                  | 0.00                 | 0.00                |
| 9,700.0                       | 90.10           | 181.33      | 7,754.9               | -2,064.4     | -47.9        | 2,065.0                 | 0.00                  | 0.00                 | 0.00                |
| 9,800.0                       | 90.10           | 181.33      | 7,754.7               | -2,164.4     | -50.3        | 2,165.0                 | 0.00                  | 0.00                 | 0.00                |
| 9,900.0                       | 90.10           | 181.33      | 7,754.5               | -2,264.4     | -52.6        | 2,265.0                 | 0.00                  | 0.00                 | 0.00                |
| 10,000.0                      | 90.10           | 181.33      | 7,754.4               | -2,364.3     | -54.9        | 2,365.0                 | 0.00                  | 0.00                 | 0.00                |
| 10,100.0                      | 90.10           | 181.33      | 7,754.2               | -2,464.3     | -57.2        | 2,465.0                 | 0.00                  | 0.00                 | 0.00                |
| 10,200.0                      | 90.10           | 181.33      | 7,754.0               | -2,564.3     | -59.5        | 2,565.0                 | 0.00                  | 0.00                 | 0.00                |
| 10,300.0                      | 90.10           | 181.33      | 7,753.8               | -2,664.2     | -61.9        | 2,665.0                 | 0.00                  | 0.00                 | 0.00                |
| 10,400.0                      | 90.10           | 181.33      | 7,753.7               | -2,764.2     | -64.2        | 2,765.0                 | 0.00                  | 0.00                 | 0.00                |
| 10,500.0                      | 90.10           | 181.33      | 7,753.5               | -2,864.2     | -66.5        | 2,865.0                 | 0.00                  | 0.00                 | 0.00                |
| 10,600.0                      | 90.10           | 181.33      | 7,753.3               | -2,964.2     | -68.8        | 2,965.0                 | 0.00                  | 0.00                 | 0.00                |
| 10,700.0                      | 90.10           | 181.33      | 7,753.2               | -3,064.1     | -71.1        | 3,065.0                 | 0.00                  | 0.00                 | 0.00                |
| 10,800.0                      | 90.10           | 181.33      | 7,753.0               | -3,164.1     | -73.5        | 3,165.0                 | 0.00                  | 0.00                 | 0.00                |

|           |                           |                              |                                     |
|-----------|---------------------------|------------------------------|-------------------------------------|
| Database: | EDM 5000.1 Single User Db | Local Co-ordinate Reference: | Well Gadwall 18 Fed Com #2          |
| Company:  | Cimarex Energy Co.        | TVD Reference:               | WELL @ 0.0usft (Original Well Elev) |
| Project:  | Eddy County (NM83E)       | MD Reference:                | WELL @ 0.0usft (Original Well Elev) |
| Site:     | Sec 18 - T25S - R27E      | North Reference:             | Grid                                |
| Well:     | Gadwall 18 Fed Com #2     | Survey Calculation Method:   | Minimum Curvature                   |
| Wellbore: | Wellbore #1               |                              |                                     |
| Design:   | Plan #1                   |                              |                                     |

#### Planned Survey

| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-----------------------|----------------------|---------------------|
| 10,900.0              | 90.10           | 181.33      | 7,752.8               | -3,264.1     | -75.8        | 3,265.0                 | 0.00                  | 0.00                 | 0.00                |
| 11,000.0              | 90.10           | 181.33      | 7,752.6               | -3,364.1     | -78.1        | 3,365.0                 | 0.00                  | 0.00                 | 0.00                |
| 11,100.0              | 90.10           | 181.33      | 7,752.5               | -3,464.0     | -80.4        | 3,465.0                 | 0.00                  | 0.00                 | 0.00                |
| 11,200.0              | 90.10           | 181.33      | 7,752.3               | -3,564.0     | -82.7        | 3,565.0                 | 0.00                  | 0.00                 | 0.00                |
| 11,300.0              | 90.10           | 181.33      | 7,752.1               | -3,664.0     | -85.1        | 3,665.0                 | 0.00                  | 0.00                 | 0.00                |
| 11,400.0              | 90.10           | 181.33      | 7,751.9               | -3,763.9     | -87.4        | 3,765.0                 | 0.00                  | 0.00                 | 0.00                |
| 11,500.0              | 90.10           | 181.33      | 7,751.8               | -3,863.9     | -89.7        | 3,865.0                 | 0.00                  | 0.00                 | 0.00                |
| 11,600.0              | 90.10           | 181.33      | 7,751.6               | -3,963.9     | -92.0        | 3,965.0                 | 0.00                  | 0.00                 | 0.00                |
| 11,700.0              | 90.10           | 181.33      | 7,751.4               | -4,063.9     | -94.4        | 4,065.0                 | 0.00                  | 0.00                 | 0.00                |
| 11,800.0              | 90.10           | 181.33      | 7,751.2               | -4,163.8     | -96.7        | 4,165.0                 | 0.00                  | 0.00                 | 0.00                |
| 11,900.0              | 90.10           | 181.33      | 7,751.1               | -4,263.8     | -99.0        | 4,265.0                 | 0.00                  | 0.00                 | 0.00                |
| 12,000.0              | 90.10           | 181.33      | 7,750.9               | -4,363.8     | -101.3       | 4,365.0                 | 0.00                  | 0.00                 | 0.00                |
| 12,100.0              | 90.10           | 181.33      | 7,750.7               | -4,463.8     | -103.6       | 4,465.0                 | 0.00                  | 0.00                 | 0.00                |
| 12,200.0              | 90.10           | 181.33      | 7,750.5               | -4,563.7     | -106.0       | 4,565.0                 | 0.00                  | 0.00                 | 0.00                |
| 12,300.0              | 90.10           | 181.33      | 7,750.4               | -4,663.7     | -108.3       | 4,665.0                 | 0.00                  | 0.00                 | 0.00                |
| 12,400.0              | 90.10           | 181.33      | 7,750.2               | -4,763.7     | -110.6       | 4,765.0                 | 0.00                  | 0.00                 | 0.00                |
| 12,458.2              | 90.10           | 181.33      | 7,750.1               | -4,821.9     | -112.0       | 4,823.2                 | 0.00                  | 0.00                 | 0.00                |

TD at 12458.2 - Gadwall #2

#### Design Targets

| Target Name                                                                                | Dip Angle (°) | Dip Dir (°) | TVD (usft) | +N/-S (usft) | +E/-W (usft) | Northing (usft) | Easting (usft) | Latitude        | Longitude         |
|--------------------------------------------------------------------------------------------|---------------|-------------|------------|--------------|--------------|-----------------|----------------|-----------------|-------------------|
| - hit/miss target                                                                          |               |             |            |              |              |                 |                |                 |                   |
| - Shape                                                                                    |               |             |            |              |              |                 |                |                 |                   |
| Gadwall #2                                                                                 | 0.00          | 0.00        | 7,748.0    | -4,821.9     | -112.2       | 408,708.91      | 573,056.84     | 32° 7' 24.882 N | 104° 13' 51.137 W |
| - plan misses target center by 2.1usft at 12458.2usft MD (7750.1 TVD, -4821.9 N, -112.0 E) |               |             |            |              |              |                 |                |                 |                   |
| - Point                                                                                    |               |             |            |              |              |                 |                |                 |                   |

#### Formations

| Measured Depth (usft) | Vertical Depth (usft) | Name            | Lithology | Dip (°) | Dip Direction (°) |
|-----------------------|-----------------------|-----------------|-----------|---------|-------------------|
| 6,937.0               | 6,937.0               | 2nd BS Ss Lower |           | 0.00    |                   |
| 7,709.4               | 7,683.0               | 2nd BS Ss Lower |           | 0.00    |                   |

#### Plan Annotations

| Measured<br>Depth<br>(usft) | Vertical<br>Depth<br>(usft) | Local Coordinates |                 | Comment                       |
|-----------------------------|-----------------------------|-------------------|-----------------|-------------------------------|
|                             |                             | +N/-S<br>(usft)   | +E/-W<br>(usft) |                               |
| 7,471.5                     | 7,471.5                     | 0.0               | 0.0             | KOP 20°/100 DLS @ 181.33° AZI |
| 7,922.0                     | 7,758.0                     | -286.9            | -6.7            | EOC - Hold to TD              |
| 12,458.2                    | 7,750.1                     | -4,821.9          | -112.0          | TD at 12458.2                 |

SR & A

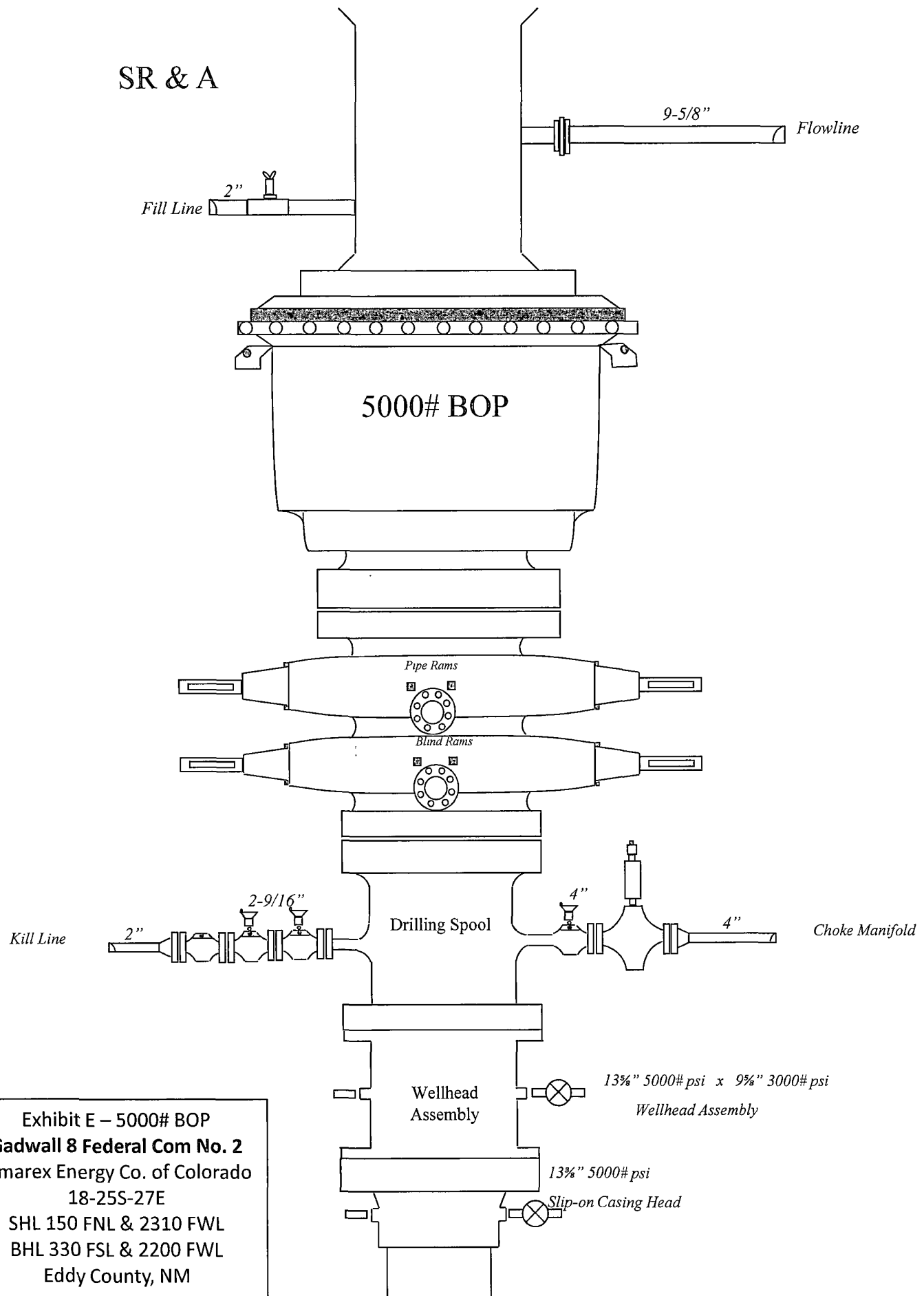
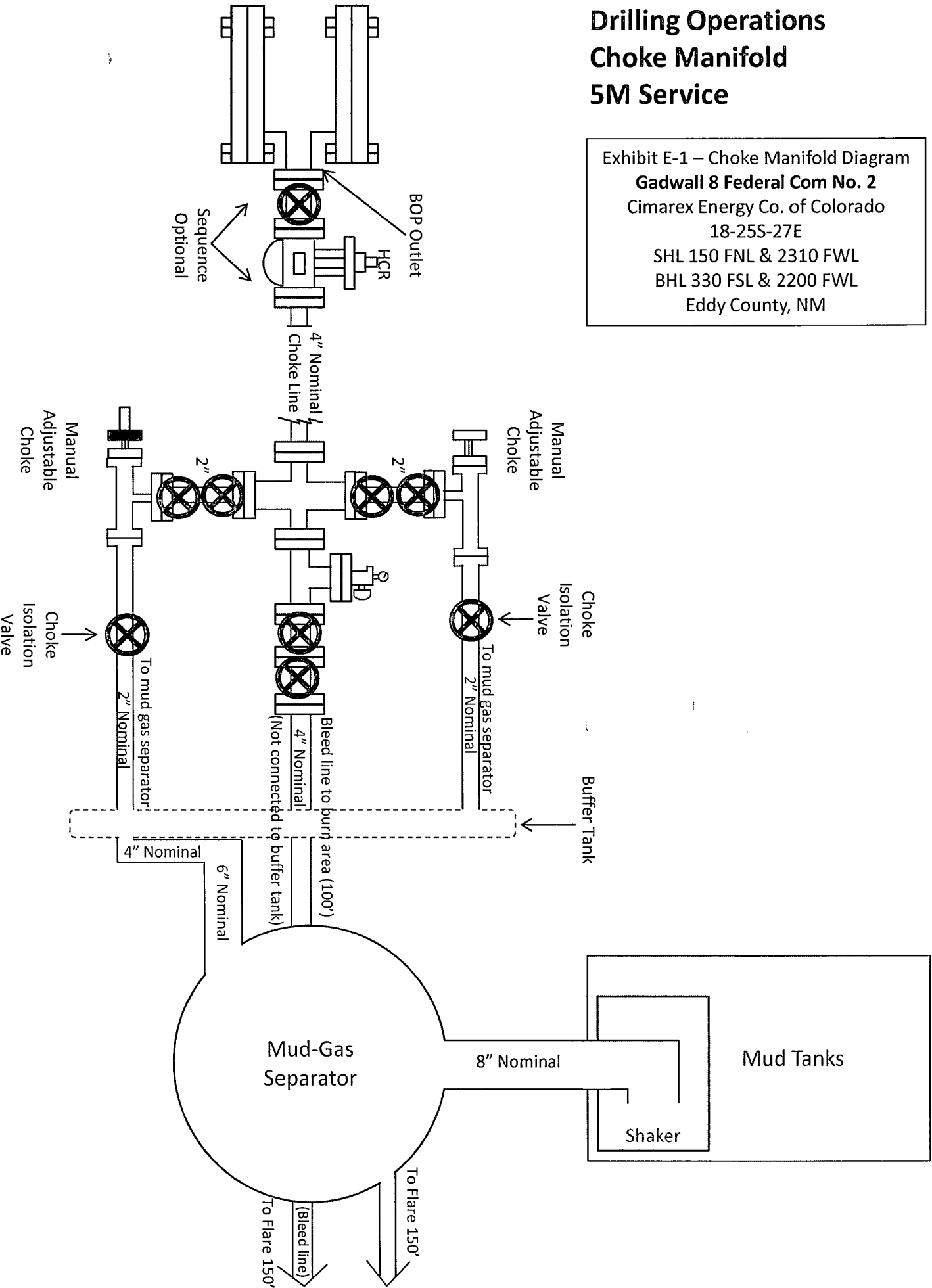


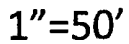
Exhibit E – 5000# BOP  
Gadwall 8 Federal Com No. 2  
Cimarex Energy Co. of Colorado  
18-25S-27E  
SHL 150 FNL & 2310 FWL  
BHL 330 FSL & 2200 FWL  
Eddy County, NM

Drilling Operations  
Choke Manifold  
5M Service

Exhibit E-1 – Choke Manifold Diagram  
Gadwall 8 Federal Com No. 2  
Cimarex Energy Co. of Colorado  
18-25S-27E  
SHL 150 FNL & 2310 FWL  
BHL 330 FSL & 2200 FWL  
Eddy County, NM



Access Road



V-door: Northwest  
See COAs

**Exhibit D – Rig Diagram**  
**Gadwall 8 Federal Com No. 2**  
**Cimarex Energy Co. of Colorado**  
**18-25S-27E**  
**SHL 150 FNL & 2310 FWL**  
**BHL 330 FSL & 2200 FWL**  
**Eddy County, NM**