

**RECEIVED** New Mexico Oil Conservation Division, District I  
1625 N. French Drive  
Hobbs, NM 88240

MAY 25 2010

**HOBBSOCD**

Form 3160-3  
(April 2004)

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

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

|                                                                                                                                                                                                                                       |  |                                                                                    |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|------------------------------------------------------------------------------------|--|
| 1a. Type of Work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER                                                                                                                                          |  | 5. Lease Serial No<br>NM-0153471                                                   |  |
| 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. <b>&lt;38526&gt;</b><br>Franklin 18 Federal Com No. 2 H |  |
| 3b. Phone No (include area code)<br>432-571-7800                                                                                                                                                                                      |  | 9. API Well No.<br>30-005- <b>29138</b>                                            |  |
| 4. Location of Well (Report location clearly and in accordance with any State requirements. *)<br>At Surface 430 FNL & 2200 FWL <b>Unit C</b><br>At proposed prod. Zone 330 FSL & 1980 FWL <b>Unit N</b> Horizontal Abo/Wolfcamp test |  | 10. Field and Pool, or Exploratory<br>Abo/Wolfcamp Wildcat <b>&lt;97722&gt;</b>    |  |
| 14. Distance in miles and direction from nearest town or post office*                                                                                                                                                                 |  | 11. Sec., T. R. M. or Blk. and Survey or Area<br>18-15S-31E                        |  |
| 15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig unit line if any) 430                                                                                                               |  | 12. County or Parish<br>Chaves                                                     |  |
| 16. No of acres in lease 753.62                                                                                                                                                                                                       |  | 13. State<br>NM                                                                    |  |
| 17. Spacing Unit dedicated to this well<br>E2W2 160 acres                                                                                                                                                                             |  | 18. BLM/BIA Bond No. on File<br>NM-2575                                            |  |
| 19. Proposed Depth<br>Pilot Hole 9400'<br>MD 13146' TVD 8720'                                                                                                                                                                         |  | 20. Estimated duration<br>25-30 days                                               |  |
| 21. Elevations (Show whether DF, KDB, RT, GL, etc )<br>4455' GR                                                                                                                                                                       |  | 22. Approximate date work will start*<br>03.15.10                                  |  |
| 23. 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>Natalie Krueger</i> | Name (Printed/Typed)<br>Natalie Krueger | Date<br>02.05.10 |
|-----------------------------------------|-----------------------------------------|------------------|

|                                                                 |  |                                            |  |                     |
|-----------------------------------------------------------------|--|--------------------------------------------|--|---------------------|
| Regulatory<br>Approved By (Signature)<br><i>/s/ Angel Mayes</i> |  | Name (Printed/Typed)<br><i>Angel Mayes</i> |  | Date<br>MAY 19 2010 |
| Title<br>Assistant Field Manager,<br>Lands And Minerals         |  | Office<br>ROSWELL 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)

DECLARED WATER BASIN

CEMENT BEHIND THE **13 1/2"**

CASING MUST BE **CIRCULATED**

WITNESS

**APPROVAL SUBJECT TO  
GENERAL REQUIREMENTS AND  
SPECIAL STIPULATIONS ATTACHED**

DISTRICT I  
1625 N. French Dr., Hobbs, NM 88240

DISTRICT II  
1301 W. Grand Avenue, Artesia, NM 88210

DISTRICT III  
1000 Rio Bravos Rd., Aztec, NM 87410

DISTRICT IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505

RECEIVED

MAY 25 2010  
HOBBS

State of New Mexico  
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION  
1220 South St. Francis Dr.  
Santa Fe, New Mexico 87505

Form C-102  
Revised October 12, 2005

Submit to Appropriate District Office  
State Lease - 4 Copies  
Fee Lease - 3 Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

|                                   |                                                 |                                   |
|-----------------------------------|-------------------------------------------------|-----------------------------------|
| API Number<br><b>30-005-29138</b> | Pool Code<br><b>97722</b>                       | Pool Name<br>Abo/Wolfcamp Wildcat |
| Property Code<br><b>37526</b>     | Property Name<br>FRANKLIN "18" FEDERAL COM      | Well Number<br>2                  |
| OGRD No.<br>162683                | Operator Name<br>CIMAREX ENERGY CO. OF COLORADO | Elevation<br>4455'                |

Surface Location

| UL or lot No. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|---------------|---------|----------|-------|---------|---------------|------------------|---------------|----------------|--------|
| C             | 18      | 15 S     | 31 E  |         | 430           | NORTH            | 2200          | WEST           | CHAVES |

Bottom Hole Location If Different From Surface

| UL or lot No. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|---------------|---------|----------|-------|---------|---------------|------------------|---------------|----------------|--------|
| N             | 18      | 15 S     | 31 E  |         | 330           | SOUTH            | 1980          | WEST           | CHAVES |

| Dedicated Acres | Joint or Infill | Consolidation Code | Order No. |
|-----------------|-----------------|--------------------|-----------|
| 160             |                 | P                  |           |

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED  
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>The diagram shows a rectangular area representing the well location and acreage dedication plat. It includes a grid with sections 18 and 15 S, ranges 31 E and 32 E, and townships 15 S and 16 S. The surface location is marked with a dot and labeled 'S.L.' with coordinates: Lat - N 33°01'19.08", Long - W 103°51'45.47", NMSPC - E 685608.8 (NAD-83). The bottom hole location is marked with a dot and labeled 'B.H.' with coordinates: Lat - N 33°00'34.35", Long - W 103°51'48.10", NMSPC - E 685405.8 (NAD-83). The proposed producing interval is shown as a shaded area. The fee surface &amp; minerals are also indicated. The diagram includes various measurements and labels for the well location and acreage dedication plat.</p> | <p><b>OPERATOR CERTIFICATION</b></p> <p>I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.</p> <p><i>Natalie Krueger</i> 2/5/2010<br/>Signature Date</p> <p>Natalie Krueger<br/>Printed Name</p> <p><b>SURVEYOR CERTIFICATION</b></p> <p>I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.</p> <p>NOVEMBER 16, 2009<br/>Date Surveyed<br/>Signature &amp; Seal of Professional Surveyor<br/>W.S. JONES<br/>Certificate No. Gary L. Jones 7977<br/>BASIN SURVEYS</p> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Application to Drill  
**Franklin 18 Federal Com No. 2**  
Cimarex Energy Co. of Colorado  
Unit C, Section 18  
T15S-R31E, Chaves 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 430 FNL & 2200 FWL  
BHL 330 FSL & 1980 FWL
- 2 Elevation above sea level: 4455' 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: Pilot Hole 9400' MD 13146' TVD 8720'
- 6 Estimated tops of geological markers:

|           |       |                    |       |
|-----------|-------|--------------------|-------|
| Yates     | 2475' | Abo Shale          | 7500' |
| Queen     | 3050' | Lower Abo Dolomite | 8700' |
| SanAndres | 3750' | Wolfcamp LS        | 8790' |
- 7 Possible mineral bearing formation:  
Abo/Wolfcamp Oil

8 Proposed Mud Circulating System:

| Depth           | Mud Wt    | Visc  | Fluid Loss    | Type Mud  |
|-----------------|-----------|-------|---------------|-----------|
| 0' to 340'      | 8.4 - 8.6 | 28    | NC            | FW        |
| 340' to 9400'   | 8.4-9.5   | 30-32 | NC            | FW, Brine |
| 8350' to 13146' | 9.0       | 28-32 | May lose circ | 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.

Proposed drilling Plan

Drill 8¾" hole to 9400' (pilot hole) and set 7" and 2⅝" fiberglass and cement as shown on page 2. Kick off 6⅝" lateral @ 8510.' Drill 6⅝" hole to MD 13146' and TVD 8720.' Install 4½" Peak Completion Liner.

Application to Drill  
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 Unit C, Section 18  
 T15S-R31E, Chaves County, NM

9 Casing & Cementing Program:

| String               | Hole Size | Depth |    |        | Casing OD |      | Weight | Collar     | Grade |
|----------------------|-----------|-------|----|--------|-----------|------|--------|------------|-------|
| <b>Surface</b>       | 17½"      | 0'    | to | 340'   | New       | 13⅝" | 48#    | STC        | H-40  |
| <b>Pilot Hole</b>    | 8¾"       | 0'    | to | 8450'  | New       | 7"   | 26#    | LTC        | P-110 |
| <b>Fiberglass</b>    | 8¾"       | 8450' | to | 9400'  | New       | 2⅝"  | 2.18#  |            | IJ    |
| <b>Lateral Pt. 1</b> | 6⅝"       | 8350' | to | 8809'  | New       | 4½"  | 11.6#  | <b>BTC</b> | P-110 |
| <b>Lateral Pt. 2</b> | 6⅝"       | 8809' | to | 13146' | New       | 4½"  | 11.6#  | <b>LTC</b> | P-110 |

10 Cementing:

**Surface**

Lead: 110 sx Premium Plus + 1% CaCl<sub>2</sub> + 0.125# Poly-e-flake (wt 12.5, yld 1.97)

Tail: 220 sx Premium Plus + 2% CaCl<sub>2</sub> (wt 14.8, yld 1.35)

**TOC Surface**

**Pilot Hole**

Lead: 370 sx Interfill H + 0.1% HR-7 + 0.125# Poly-e-flake (wt 11.9, yld 2.49)

Tail: 270 sx Super H + 0.5% Halad-344 + 0.4% CFR-3 + 1# Salt + 5# Gilsonite + 0.125# Poly-e-flake + 0.35% HR-7 (wt 13.2, yld 1.61)

**TOC Surface**

**Lateral**

No cement needed. Peak completion assembly.

Fresh water zones will be protected by setting 13⅝" casing at 340' and cementing to surface. Hydrocarbon zones will be protected by setting 7" casing at 8450' and fiberglass to 9400' and cementing to surface.

Intermediate Contingency:

If wellbore integrity cannot be maintained while drilling the 8¾" hole, it will be reamed out to 12¼" and new 9⅝" casing contingency string will be run as follows:

| Hole Size | Depth |    |       | Casing OD |     | Weight | Thread | Collar | Grade |
|-----------|-------|----|-------|-----------|-----|--------|--------|--------|-------|
| 12¼"      | 0'    | to | 3950' | New       | 9⅝" | 40#    | 8-R    | LTC    | J-55  |

Contingency Cementing Plan:

Lead: 950 sx Econocem + 3% Salt + 2% CaCl<sub>2</sub> + 3# Gilsonite (wt 11.7, yld 2.06)

Tail: 215 sx Premium Plus + 1% CaCl<sub>2</sub> (wt 14.8, yld 1.34)

**TOC Surface**

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

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Unit C, Section 18  
T15S-R31E, Chaves County, NM

11 Pressure control Equipment:

Exhibit "E". A 13 $\frac{3}{8}$ " 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.

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.

The BOP will be tested to 3000 psi by an independent service company.

12 Testing, Logging and Coring Program:

- A. Mud logging 2 man unit from 3950' to TD
- B. Electric logging program: CNL / LDT / CAL / GR, DLL / CAL / GR
- C. No DSTs or cores are planned at this time.

13 Potential Hazards:

No abnormal pressures or temperatures are expected. In accordance with Onshore Order 6, Cimarex does not anticipate that there will be enough H<sub>2</sub>S from the surface to the Abo 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 **2300 psi** Estimated BHT **110°**

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

Drilling expected to take 10-15 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.

Abo/Wolfcamp pay will be perforated and stimulated.

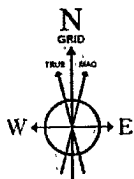
The proposed well will be tested and potentialized as **an oil well.**



# Cimarex Energy Co.

Location: Chaves County, NM  
Field: (Franklin) Sec 18, T15S, R31E  
Facility: Franklin 18 Fed Com No. 2H

Slot: No. 2H SHL  
Well: No. 2H  
Wellbore: No. 2H PWB



BGGM (1945.0 to 2011.0) Dp 60.93° Field 49261.7 nT  
Magnetic North is 8.00 degrees East of True North (at 1/8/2010)  
Grid North is 0.28 degrees East of True North  
To correct azimuth from True to Grid subtract 0.28 degrees  
To correct azimuth from Magnetic to Grid add 7.75 degrees  
For example if the Magnetic North Azimuth = 90 degs, then the Grid North Azimuth = 90 + 7.75 = 97.75

Scale 1 inch = 800 ft  
Easting (ft)  
-1200 -800 -400 0 400 800

No. 2H SHL  
430' FNL  
2200' FWL

KOP : 8510.00ft TVD, 0.00ft N, 0.00ft E

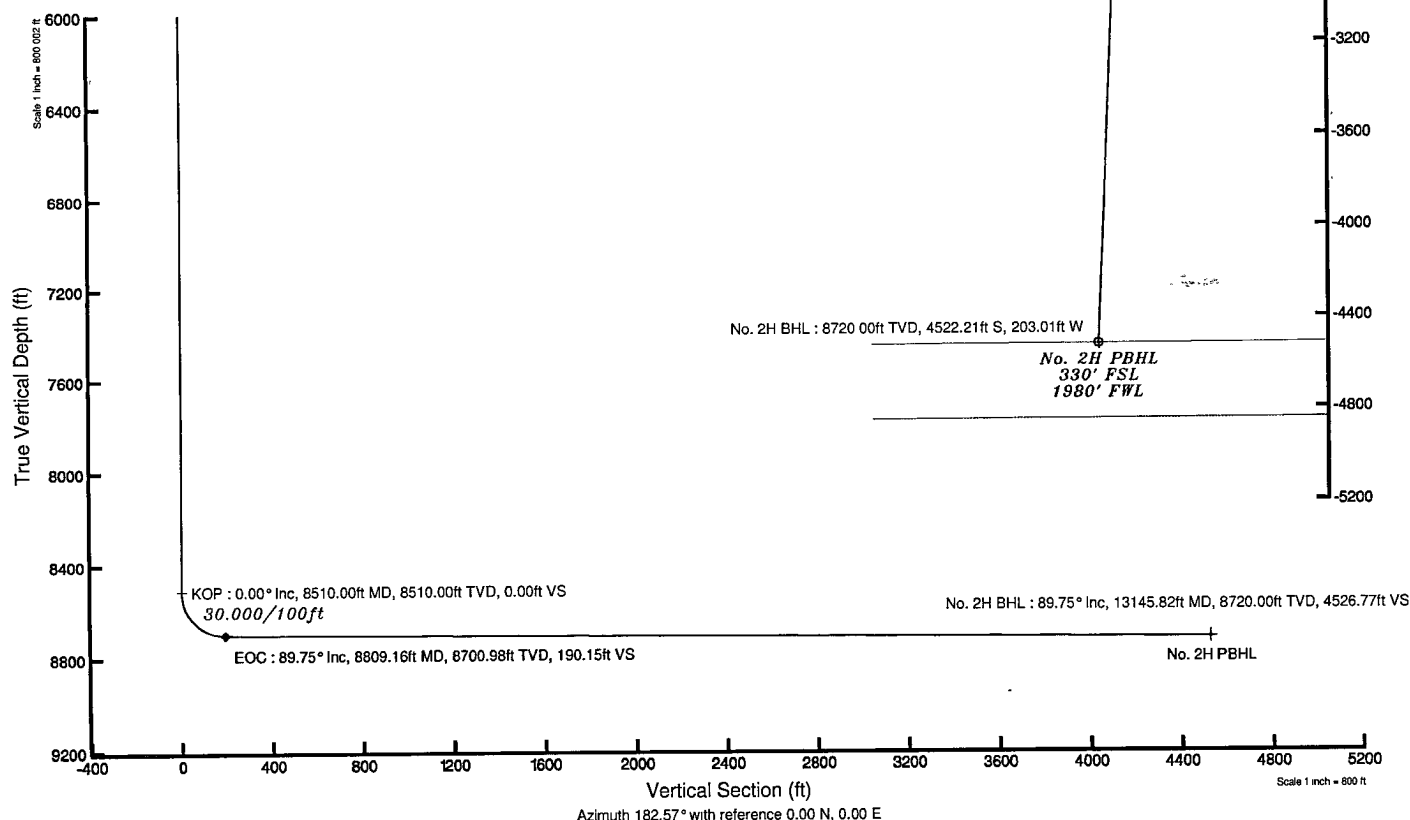
EOC : 8700.98ft TVD, 189.96ft S, 8.53ft W

## 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   | 182.570 | 0.00     | 0.00         | 0.00         | 0.00          | 0.00    |
| KOP            | 8510.00  | 0.000   | 182.570 | 8510.00  | 0.00         | 0.00         | 0.00          | 0.00    |
| EOC            | 8809.16  | 89.749  | 182.570 | 8700.98  | -189.96      | -8.53        | 30.00         | 190.15  |
| No. 2H BHL     | 13145.82 | 89.749  | 182.570 | 8720.00  | -4522.21     | -203.01      | 0.00          | 4526.77 |

Plot reference wellpath is Pretm.2

|                                                                             |                                                                              |
|-----------------------------------------------------------------------------|------------------------------------------------------------------------------|
| True vertical depths are referenced to Rig on No. 2H SHL (RT)               | Grid System NAD83 / TM New Mexico State Planes, Eastern Zone (3001), US feet |
| Measured depths are referenced to Rig on No. 2H SHL (RT)                    | North Reference Grid north                                                   |
| Rig on No. 2H SHL (RT) to Mean Sea Level: 4473 feet                         | Scale True distance                                                          |
| Mean Sea Level to Mud line (Facility Franklin 18 Fed Com No. 2H) -4455 feet | Depths are in feet                                                           |
| Coordinates are in feet referenced to Surface Location                      | Created by: Victor Hernandez on 1/8/2010                                     |





# Planned Wellpath Report

Prelim\_2  
Page 1 of 4



## REFERENCE WELLPATH IDENTIFICATION

|          |                               |          |            |
|----------|-------------------------------|----------|------------|
| Operator | Cimarex Energy Co.            | Slot     | No. 2H SHL |
| Area     | Chaves County, NM             | Well     | No. 2H     |
| Field    | (Franklin) Sec 18, T15S, R31E | Wellbore | No. 2H PWB |
| Facility | Franklin 18 Fed Com No. 2H    |          |            |

## REPORT SETUP INFORMATION

|                     |                                                                  |                      |                           |
|---------------------|------------------------------------------------------------------|----------------------|---------------------------|
| Projection System   | NAD83 / TM New Mexico State Planes, Eastern Zone (3001), US feet | Software System      | WellArchitect® 2.0        |
| North Reference     | Grid                                                             | User                 | Victor Hernandez          |
| Scale               | 0.999933                                                         | Report Generated     | 1/8/2010 at 5:01:52 PM    |
| Convergence at slot | 0.26° East                                                       | Database/Source file | WA_Midland/No. 2H_PWB.xml |

## WELLPATH LOCATION

|                       | Local coordinates |          | Grid coordinates |                | Geographic coordinates |                 |
|-----------------------|-------------------|----------|------------------|----------------|------------------------|-----------------|
|                       | North[ft]         | East[ft] | Easting[USft]    | Northing[USft] | Latitude               | Longitude       |
| Slot Location         | 0.00              | 0.00     | 685608.80        | 735852.00      | 33°01'19.085"N         | 103°51'45.470"W |
| Facility Reference Pt |                   |          | 685608.80        | 735852.00      | 33°01'19.085"N         | 103°51'45.470"W |
| Field Reference Pt    |                   |          | 688326.60        | 735962.00      | 33°01'20.052"N         | 103°51'13.544"W |

## WELLPATH DATUM

|                          |                        |                                          |                   |
|--------------------------|------------------------|------------------------------------------|-------------------|
| Calculation method       | Minimum curvature      | Rig on No. 2H SHL (RT) to GL             | 18.00ft           |
| Horizontal Reference Pt  | Surface Location       | Rig on No. 2H SHL (RT) to Mean Sea Level | 4473.00ft         |
| Vertical Reference Pt    | Rig on No. 2H SHL (RT) | GL to Mud Line (Facility)                | 0.00ft            |
| MD Reference Pt          | Rig on No. 2H SHL (RT) | Section Origin                           | N 0.00, E 0.00 ft |
| Field Vertical Reference | Mean Sea Level         | Section Azimuth                          | 182.57°           |



# Planned Wellpath Report

Prelim\_2

Page 2 of 4



## REFERENCE WELLPATH IDENTIFICATION

|          |                               |          |            |
|----------|-------------------------------|----------|------------|
| Operator | Cimarex Energy Co.            | Slot     | No. 2H SHL |
| Area     | Chaves County, NM             | Well     | No. 2H     |
| Field    | (Franklin) Sec 18, T15S, R31E | Wellbore | No. 2H PWB |
| Facility | Franklin 18 Fed Com No. 2H    |          |            |

## WELLPATH DATA (50 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>[srv ft] | Grid North<br>[srv ft] | DLS<br>[°/100ft] | Comments |
|------------|--------------------|----------------|-------------|-------------------|---------------|--------------|-----------------------|------------------------|------------------|----------|
| 0.00       | 0.000              | 182.570        | 0.00        | 0.00              | 0.00          | 0.00         | 685608.80             | 735852.00              | 0.00             | Tie On   |
| 8510.00    | 0.000              | 182.570        | 8510.00     | 0.00              | 0.00          | 0.00         | 685608.80             | 735852.00              | 0.00             | KOP      |
| 8610.00†   | 30.000             | 182.570        | 8605.49     | 25.59             | -25.56        | -1.15        | 685607.65             | 735826.44              | 30.00            |          |
| 8710.00†   | 60.000             | 182.570        | 8675.40     | 95.49             | -95.40        | -4.28        | 685604.52             | 735756.61              | 30.00            |          |
| 8809.16†   | 89.749             | 182.570        | 8700.98     | 190.15            | -189.96       | -8.53        | 685600.27             | 735662.06              | 30.00            | EOC      |
| 8810.00†   | 89.749             | 182.570        | 8700.99     | 190.99            | -190.79       | -8.57        | 685600.24             | 735661.22              | 0.00             |          |
| 8910.00†   | 89.749             | 182.570        | 8701.43     | 290.98            | -290.69       | -13.05       | 685595.75             | 735561.33              | 0.00             |          |
| 9010.00†   | 89.749             | 182.570        | 8701.86     | 390.98            | -390.59       | -17.53       | 685591.27             | 735461.44              | 0.00             |          |
| 9110.00†   | 89.749             | 182.570        | 8702.30     | 490.98            | -490.49       | -22.02       | 685586.78             | 735361.54              | 0.00             |          |
| 9210.00†   | 89.749             | 182.570        | 8702.74     | 590.98            | -590.39       | -26.50       | 685582.30             | 735261.65              | 0.00             |          |
| 9310.00†   | 89.749             | 182.570        | 8703.18     | 690.98            | -690.29       | -30.99       | 685577.81             | 735161.76              | 0.00             |          |
| 9410.00†   | 89.749             | 182.570        | 8703.62     | 790.98            | -790.18       | -35.47       | 685573.33             | 735061.87              | 0.00             |          |
| 9510.00†   | 89.749             | 182.570        | 8704.06     | 890.98            | -890.08       | -39.96       | 685568.84             | 734961.98              | 0.00             |          |
| 9610.00†   | 89.749             | 182.570        | 8704.50     | 990.98            | -989.98       | -44.44       | 685564.36             | 734862.09              | 0.00             |          |
| 9710.00†   | 89.749             | 182.570        | 8704.93     | 1090.98           | -1089.88      | -48.93       | 685559.88             | 734762.20              | 0.00             |          |
| 9810.00†   | 89.749             | 182.570        | 8705.37     | 1190.98           | -1189.78      | -53.41       | 685555.39             | 734662.30              | 0.00             |          |
| 9910.00†   | 89.749             | 182.570        | 8705.81     | 1290.98           | -1289.68      | -57.90       | 685550.91             | 734562.41              | 0.00             |          |
| 10010.00†  | 89.749             | 182.570        | 8706.25     | 1390.97           | -1389.57      | -62.38       | 685546.42             | 734462.52              | 0.00             |          |
| 10110.00†  | 89.749             | 182.570        | 8706.69     | 1490.97           | -1489.47      | -66.87       | 685541.94             | 734362.63              | 0.00             |          |
| 10210.00†  | 89.749             | 182.570        | 8707.13     | 1590.97           | -1589.37      | -71.35       | 685537.45             | 734262.74              | 0.00             |          |
| 10310.00†  | 89.749             | 182.570        | 8707.57     | 1690.97           | -1689.27      | -75.84       | 685532.97             | 734162.85              | 0.00             |          |
| 10410.00†  | 89.749             | 182.570        | 8708.00     | 1790.97           | -1789.17      | -80.32       | 685528.49             | 734062.96              | 0.00             |          |
| 10510.00†  | 89.749             | 182.570        | 8708.44     | 1890.97           | -1889.07      | -84.81       | 685524.00             | 733963.06              | 0.00             |          |
| 10610.00†  | 89.749             | 182.570        | 8708.88     | 1990.97           | -1988.97      | -89.29       | 685519.52             | 733863.17              | 0.00             |          |
| 10710.00†  | 89.749             | 182.570        | 8709.32     | 2090.97           | -2088.86      | -93.77       | 685515.03             | 733763.28              | 0.00             |          |
| 10810.00†  | 89.749             | 182.570        | 8709.76     | 2190.97           | -2188.76      | -98.26       | 685510.55             | 733663.39              | 0.00             |          |
| 10910.00†  | 89.749             | 182.570        | 8710.20     | 2290.97           | -2288.66      | -102.74      | 685506.06             | 733563.50              | 0.00             |          |
| 11010.00†  | 89.749             | 182.570        | 8710.63     | 2390.96           | -2388.56      | -107.23      | 685501.58             | 733463.61              | 0.00             |          |
| 11110.00†  | 89.749             | 182.570        | 8711.07     | 2490.96           | -2488.46      | -111.71      | 685497.09             | 733363.71              | 0.00             |          |
| 11210.00†  | 89.749             | 182.570        | 8711.51     | 2590.96           | -2588.36      | -116.20      | 685492.61             | 733263.82              | 0.00             |          |



# Planned Wellpath Report

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## REFERENCE WELLPATH IDENTIFICATION

|          |                               |          |            |
|----------|-------------------------------|----------|------------|
| Operator | Cimarex Energy Co.            | Slot     | No. 2H SHL |
| Area     | Chaves County, NM             | Well     | No. 2H     |
| Field    | (Franklin) Sec 18, T15S, R31E | Wellbore | No. 2H PWB |
| Facility | Franklin 18 Fed Com No. 2H    |          |            |

## WELLPATH DATA (50 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>[srv ft] | Grid North<br>[srv ft] | DLS<br>[°/100ft] | Comments   |
|------------|--------------------|----------------|----------------------|-------------------|---------------|--------------|-----------------------|------------------------|------------------|------------|
| 11310.00†  | 89.749             | 182.570        | 8711.95              | 2690.96           | -2688.25      | -120.68      | 685488.13             | 733163.93              | 0.00             |            |
| 11410.00†  | 89.749             | 182.570        | 8712.39              | 2790.96           | -2788.15      | -125.17      | 685483.64             | 733064.04              | 0.00             |            |
| 11510.00†  | 89.749             | 182.570        | 8712.83              | 2890.96           | -2888.05      | -129.65      | 685479.16             | 732964.15              | 0.00             |            |
| 11610.00†  | 89.749             | 182.570        | 8713.27              | 2990.96           | -2987.95      | -134.14      | 685474.67             | 732864.26              | 0.00             |            |
| 11710.00†  | 89.749             | 182.570        | 8713.70              | 3090.96           | -3087.85      | -138.62      | 685470.19             | 732764.37              | 0.00             |            |
| 11810.00†  | 89.749             | 182.570        | 8714.14              | 3190.96           | -3187.75      | -143.11      | 685465.70             | 732664.47              | 0.00             |            |
| 11910.00†  | 89.749             | 182.570        | 8714.58              | 3290.96           | -3287.64      | -147.59      | 685461.22             | 732564.58              | 0.00             |            |
| 12010.00†  | 89.749             | 182.570        | 8715.02              | 3390.96           | -3387.54      | -152.08      | 685456.73             | 732464.69              | 0.00             |            |
| 12110.00†  | 89.749             | 182.570        | 8715.46              | 3490.95           | -3487.44      | -156.56      | 685452.25             | 732364.80              | 0.00             |            |
| 12210.00†  | 89.749             | 182.570        | 8715.90              | 3590.95           | -3587.34      | -161.05      | 685447.77             | 732264.91              | 0.00             |            |
| 12310.00†  | 89.749             | 182.570        | 8716.33              | 3690.95           | -3687.24      | -165.53      | 685443.28             | 732165.02              | 0.00             |            |
| 12410.00†  | 89.749             | 182.570        | 8716.77              | 3790.95           | -3787.14      | -170.01      | 685438.80             | 732065.12              | 0.00             |            |
| 12510.00†  | 89.749             | 182.570        | 8717.21              | 3890.95           | -3887.04      | -174.50      | 685434.31             | 731965.23              | 0.00             |            |
| 12610.00†  | 89.749             | 182.570        | 8717.65              | 3990.95           | -3986.93      | -178.98      | 685429.83             | 731865.34              | 0.00             |            |
| 12710.00†  | 89.749             | 182.570        | 8718.09              | 4090.95           | -4086.83      | -183.47      | 685425.34             | 731765.45              | 0.00             |            |
| 12810.00†  | 89.749             | 182.570        | 8718.53              | 4190.95           | -4186.73      | -187.95      | 685420.86             | 731665.56              | 0.00             |            |
| 12910.00†  | 89.749             | 182.570        | 8718.97              | 4290.95           | -4286.63      | -192.44      | 685416.38             | 731565.67              | 0.00             |            |
| 13010.00†  | 89.749             | 182.570        | 8719.40              | 4390.95           | -4386.53      | -196.92      | 685411.89             | 731465.78              | 0.00             |            |
| 13110.00†  | 89.749             | 182.570        | 8719.84              | 4490.94           | -4486.43      | -201.41      | 685407.41             | 731365.88              | 0.00             |            |
| 13145.82   | 89.749             | 182.570        | 8720.00 <sup>1</sup> | 4526.77           | -4522.21      | -203.01      | 685405.80             | 731330.10              | 0.00             | No. 2H BHL |



# Planned Wellpath Report

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INTEQ

## REFERENCE WELLPATH IDENTIFICATION

|          |                               |          |            |
|----------|-------------------------------|----------|------------|
| Operator | Cimarex Energy Co.            | Slot     | No. 2H SHL |
| Area     | Chaves County, NM             | Well     | No. 2H     |
| Field    | (Franklin) Sec 18, T15S, R31E | Wellbore | No. 2H PWB |
| Facility | Franklin 18 Fed Com No. 2H    |          |            |

## TARGETS

| Name           | MD<br>[ft] | TVD<br>[ft] | North<br>[ft] | East<br>[ft] | Grid East<br>[srv ft] | Grid North<br>[srv ft] | Latitude       | Longitude       | Shape |
|----------------|------------|-------------|---------------|--------------|-----------------------|------------------------|----------------|-----------------|-------|
| 1) No. 2H PBHL | 13145.82   | 8720.00     | -4522.21      | -203.01      | 685405.80             | 731330.10              | 33°00'34.352"N | 103°51'48.092"W | point |

## SURVEY PROGRAM Ref Wellbore: No. 2H PWB Ref Wellpath: Prelim\_2

| Start MD<br>[ft] | End MD<br>[ft] | Positional Uncertainty Model | Log Name/Comment | Wellbore   |
|------------------|----------------|------------------------------|------------------|------------|
| 18.00            | 13145.82       | NaviTrak (Standard)          |                  | No. 2H PWB |