

## New Mexico Oil Conservation Division, District I

1625 N. French Drive

Hobbs, NM 88240

RECEIVED

NOV 19 2008

Form 3160-3  
(April 2004)

HOBBBS OIL

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

## APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of Work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. LC-064900	
1b. Type of Well: <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other <input checked="" type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		6. If Indian, Allottee or Tribe Name	
2. Name of Operator Cimarex Energy Co. of Colorado		7. If Unit or CA Agreement, Name and No.	
3a. Address PO Box 140907 Irving, TX 75014		8. Lease Name and Well No. <b>&lt;37088&gt;</b> Midway 17 Federal No. 2	
3b. Phone No. (include area code) 972-401-3111		9. API Well No. 30-005- <b>29063</b>	
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At Surface 375 FSL & 330' EWL E Unit P 375 DECL NATALIE @ Cimarex At proposed prod. Zone 375 FSL & 330' EWL W Unit M Proposed Horizontal Abo Test		10. Field and Pool, or Exploratory Abo; Wildcat	
14. Distance in miles and direction from nearest town or post office*		11. Sec., T. R. M. or Blk. and Survey or Area 17-15S-31E	
15. Distance from proposed* location to nearest property or lease line, ft (Also to nearest drig. unit line if any) 330'		12. County or Parish Chaves	
16. No of acres in lease 760		13. State NM	
17. Spacing Unit dedicated to this well S2S2 160		18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. NA	
19. Proposed Depth Pilot Hole 9075' MD 13358' TVD 8750'		20. BLM/BIA Bond No. on File NM-2575	
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 4,431' GR		22. Approximate date work will start* 9/1/2008	
23. Estimated duration 35-45 days		24. Attachments ROSWELL CONTROLLED WATER BASIN	

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 <b>Zeno Farris</b>	Name (Printed/Typed) Zeno Farris	Date 07.17.08
Title Manager Operations Administration		
Approved By (Signature) <b>/s/ Jerry Dutchover</b>	Name (Printed/Typed) <b>/s/ Jerry Dutchover</b>	Date <b>NOV 14 2008</b>
Title <b>Assistant Field Manager, Lands And Minerals</b>	Office ROSWELL FIELD OFFICE	APPROVED FOR 2 YEARS

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 133"  
CASING MUST BE CIRCULATED

WITNESS

APPROVAL SUBJECT TO  
GENERAL REQUIREMENTS AND  
SPECIAL STIPULATIONS ATTACHED

DISTRICT I  
1626 N. French Dr., Hobbs, NM 88240

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

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

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

State of New Mexico  
Energy, Minerals and Natural Resources Department

Form C-102  
Revised October 12, 2005

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

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

☐ AMENDED REPORT

**WELL LOCATION AND ACREAGE DEDICATION PLAT**

API Number <b>30-005-29063</b>	Pool Code <b>/</b>	Pool Name <b>Abo Wildcat</b>
Property Code <b>37088</b>	Property Name <b>MIDWAY "17" FEDERAL</b>	Well Number <b>2</b>
GRID No. <b>162683</b>	Operator Name <b>CIMAREX ENERGY CO. OF COLORADO</b>	Elevation <b>4431'</b>

**Surface Location**

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
<b>M</b>	<b>17</b>	<b>15 S</b>	<b>31 E</b>		<b>375</b>	<b>SOUTH</b>	<b>330</b>	<b>WEST</b>	<b>CHAVES</b>

**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
<b>P</b>	<b>17</b>	<b>15 S</b>	<b>31 E</b>		<b>375</b>	<b>SOUTH</b>	<b>375</b>	<b>EAST</b>	<b>CHAVES</b>

Dedicated Acres <b>160</b>	Joint or Infill	Consolidation Code	Order No.
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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><b>SURFACE LOCATION</b> Lat - N33°00'34.79" Long - W103°51'05.80" NMSPCE- N 731390.3 E 689006.9 (NAD-83)</p>		<p><b>BOTTOM HOLE LOCATION</b> Lat - N33°00'34.74" Long - W103°50'11.92" NMSPCE- N 731406.950 E 693594.537 (NAD-83)</p>	
<p>LC-064900</p>			
<p>4432.9' 4435.1' 1330' 1375' 4589.0' 375' 375'</p>			
<p><b>OPERATOR CERTIFICATION</b> 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.  <b>Zeno Farris</b> 07-17-08 Signature Date  Zeno Farris Printed Name</p>			
<p><b>SURVEYOR CERTIFICATION</b> 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.  MAY 27 2008 Date Surveyed Signature Professional Surveyor 7977 10516 Certificate No. Gary L. Jones 7977  BASIN SURVEYS</p>			

See Amend Plat

Application to Drill  
**Midway 17 Federal No. 2**  
Cimarex Energy Co. of Colorado  
Unit M, Section 17  
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 375 FSL & 330 FWL  
BHL 375 FSL & 330 FEL *Proposed Horizontal Abo Test*
- 2 Elevation above sea level: 4,431 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 9075' MD 13358' TVD 8750'

- 6 Estimated tops of geological markers:

Yates	2,312'
Queen	3,090'
SanAndres	3,940'
Abo Shale	7,340'
Lower Abo Dolomite	8,585'
Wolfcamp LS	8,675'

- 7 Possible mineral bearing formation:

Abo Oil

- 8 Proposed Mud Circulating System:

Depth			Mud Wt	Visc	Fluid Loss	Type Mud
0	to	340	8.4 - 8.6	30-32	May lose circ	Fresh water spud mud
340	to	3,950	10.0	28-29	May lose circ	Brine Water
3,950	to	9,500	8.6 - 9.5	28-29	NC	Fresh water and brine, use hi-vis sweeps to keep hole clean
8660'	to	13358'	8.4 - 8.9	28	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. Mud system monitoring equipment with derrick floor indicators and visual/audio alarms shall be installed and operative prior to drilling into the Wolfcamp formation. This equipment will remain in use until production casing is run and cemented.

- 8a Drill 7½" pilot hole to 9075' and run and cement 7" casing as shown on next page. Set KO Plug @ 8670.' Mill window from 8655' to 8665' and kick off lateral leg @ 8660.' Drill lateral 6½" hole to 13358' MD & 8750' TVD. Run 4½" 11.6# P-110 BTC (Peak Systems Iso-Pak Liner) from RSB packer @ 8553' to 9053' and LTC from 9053' to TD @ MD 13358' and TVD 8750.' No cement required for Peak Systems Liner. Lateral length 4588' and liner length 4805.'

Application to Drill  
**Midway 17 Federal No. 2**  
Cimarex Energy Co. of Colorado  
Unit M, Section 17  
T15S R31E; Chaves County, NM

9 Casing Program:

Hole Size	Depth			Casing OD		Weight	Thread	Collar	Grade
17½"	0'	to	340	New	13¾"	48#	8-R	STC	H-40
12¼"	0'	to	3950	New	9⅝"	40#	8-R	LTC	J-55
8¾"	0'	to	9500	New	7"	26#	8-R	LTC	P-110
6⅝"	8553'	to	9053'	New	4½"	11.6#	8-R	BTC	P-110
6⅝"	9053'		13358'	New	4½"	11.6#	8-R	LTC	P-110

10 Cementing Program:

Surface     Lead: 110 sx Light Premium Plus + 0.125 lb/sk Poly-E-Flake + 1% CaCl<sub>2</sub> (wt 14.2, yld 1.64)  
Tail: 220 sx Premium Plus + 2% CaCl<sub>2</sub> (wt 14.8, yld 1.35)  
TOC           Surface

Intermediate   Lead: 450 sx Interfill C + 0.125 lb/sk Poly-E-Flake (wt 11.9, yld 2.45)  
Tail: 200 sx Premium Plus + 1% CaCl<sub>2</sub> (wt 14.8, yld 1.33)  
TOC           Surface

Production     615 sx Super H + 0.5% Halad-344 + 0.4% CFR-3 + 1lbm/sk Salt + 5 lb/sk Gilsonite + 0.125 lb/sk Poly-E-Flake + 0.35% HR-7  
(wt 13.0, yld 1.67)  
**TOC           3,750'**

Liner           *Peak Systems Iso-Pack Liner will not require cementing.*

Fresh water will be protected by setting	13¾"	casing at	340'	and cementing to	Surface
Hydrocarbon zones will be protected by setting	9⅝"	casing at	3,950'	and cementing to	Surface
and by setting	7"	casing at	9,500'	and cementing to	3750'

Cimarex uses the following minimum safety factors:

<b>Burst</b>	<b>Collapse</b>	<b>Tension</b>
1.125	1.125	1.80

Application to Drill  
**Midway 17 Federal No. 2**  
Cimarex Energy Co. of Colorado  
Unit M, Section 17  
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.

We are requesting a variance for testing the 13 $\frac{3}{8}$ " surface casing from Onshore Order No. 2, which states that all casing strings below the conductor shall be pressure tested to 0.22 psi per foot or 1500 psi, whichever is greater, but not to exceed 70% of the manufacturer's stated maximum internal yield. We are requesting to test the 13 $\frac{3}{8}$ " casing to 1000 psi using rig pumps. The BOP will be tested to 5000 PSI by an independent service company.

12 Testing, Logging and Coring Program:

- A. Mud logging program: 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. The area has a potential H2S hazard. An H2S drilling plan is attached. 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        **4000 psi**                      Estimated BHT                **175**

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

Drilling expected to take                      35-45 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.

Also pay will be perforated and stimulated.

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

Hydrogen Sulfide Drilling Operations Plan  
**Midway 17 Federal No. 2**  
Cimarex Energy Co. of Colorado  
Unit M, Section 17  
T15S R31E; Chaves County, NM

- 1 All Company and Contract personnel admitted on location must be trained by a qualified H<sub>2</sub>S safety instructor to the following:
  - A. Characteristics of H<sub>2</sub>S
  - B. Physical effects and hazards
  - C. Proper use of safety equipment and life support systems.
  - D. Principle and operation of H<sub>2</sub>S detectors, warning system and briefing areas.
  - E. Evacuation procedure, routes and first aid.
  - F. Proper use of 30 minute pressure demand air pack.
- 2 H<sub>2</sub>S Detection and Alarm Systems:
  - A. H<sub>2</sub>S detectors and audio alarm system to be located at bell nipple, end of flow line (mud pit) and on derrick floor or doghouse.
- 3 Windsock and/or wind streamers:
  - A. Windsock at mudpit area should be high enough to be visible.
  - B. Windsock at briefing area should be high enough to be visible.
- 4 Condition Flags and Signs:
  - A. Warning sign on access road to location.
  - B. Flags to be displayed on sign at entrance to location. Green flag indicates normal safe condition. Yellow flag indicates potential pressure and danger. Red flag indicates danger (H<sub>2</sub>S present in dangerous concentration). Only emergency personnel admitted to location.
- 5 Well control equipment:
  - A. See exhibit "E"
- 6 Communication:
  - A. While working under masks chalkboards will be used for communication.
  - B. Hand signals will be used where chalk board is inappropriate.
  - C. Two way radio will be used to communicate off location in case of emergency help is required. In most cases cellular telephones will be available at most drilling foreman's trailer or living quarters.
- 7 Drillstem Testing:

No DSTs or cores are planned at this time.
- 8 Drilling contractor supervisor will be required to be familiar with the effects H<sub>2</sub>S has on tubular goods and other mechanical equipment.
- 9 If H<sub>2</sub>S is encountered, mud system will be altered if necessary to maintain control of formation. A mud gas separator will be brought into service along with H<sub>2</sub>S scavengers if necessary.

H<sub>2</sub>S Contingency Plan  
**Midway 17 Federal No. 2**  
Cimarex Energy Co. of Colorado  
Unit M, Section 17  
T15S R31E; Chaves County, NM

**Emergency Procedures**

In the event of a release of gas containing H<sub>2</sub>S, the first responder(s) must:

- ★ Isolate the area and prevent entry by other persons into the 100 ppm ROE.
- ★ Evacuate any public places encompassed by the 100 ppm ROE.
- ★ Be equipped with H<sub>2</sub>S monitors and air packs in order to control the release.
- ★ Use the "buddy system" to ensure no injuries occur during the response.
- ★ Take precautions to avoid personal injury during this operation.
- ★ Contact operator and/or local officials to aid in operation. See list of phone numbers attached.
- ★ Have received training in the:
  - ◆ Detection of H<sub>2</sub>S, and
  - ◆ Measures for protection against the gas,
  - ◆ Equipment used for protection and emergency response.

**Ignition of Gas Source**

Should control of the well be considered lost and ignition considered, take care to protect against exposure to Sulfur Dioxide (SO<sub>2</sub>). Intentional ignition must be coordinated with the NMOCD and local officials. Additionally, the NM State Police may become involved. NM State Police shall be the Incident Command on scene of any major release. Take care to protect downwind whenever there is an ignition of the gas.

**Characteristics of H<sub>2</sub>S and SO<sub>2</sub>**

Common Name	Chemical Formula	Specific Gravity	Threshold Limit	Hazardous Limit	Lethal Concentration
Hydrogen Sulfide	H <sub>2</sub> S	1.189 Air=1	10 ppm	100 ppm/hr	600 ppm
Sulfur Dioxide	SO <sub>2</sub>	2.21 Air=1	2 ppm	N/A	1000 ppm

**Contacting Authorities**

Cimarex Energy Co. of Colorado's personnel must liaise with local and state agencies to ensure a proper response to a major release. Additionally, the OCD must be notified of the release as soon as possible but no later than 4 hours. Agencies will ask for information such as type and volume of release, wind direction, location of release, etc. Be prepared with all information available including directions to site. The following call list of essential and potential responders has been prepared for use during a release. Cimarex Energy Co. of Colorado's response must be in coordination with the State of New Mexico's "Hazardous Materials Emergency Response Plan" (HMER).

H<sub>2</sub>S Contingency Plan Emergency Contacts  
**Midway 17 Federal No. 2**  
 Cimarex Energy Co. of Colorado  
 Unit M, Section 17  
 T15S R31E; Chaves County, NM

**Company Office**

Cimarex Energy Co. of Colorado  
 Co. Office and After-Hours Menu

800-969-4789

**Key Personnel**

Name	Title	Office	Mobile
Doug Park	Drilling Manager	972-443-6463	972-333-1407
Dee Smith	Drilling Super	972-443-6491	972-882-1010
Jim Evans	Drilling Super	972-443-6451	972-465-6564
Dorsey Rogers	Field Super		575-200-6105
Roy Shirley	Field Super		432-634-2136

**Artesia**

Ambulance	911
State Police	575-746-2703
City Police	575-746-2703
Sheriff's Office	575-746-9888
<b>Fire Department</b>	<b>575-746-2701</b>
Local Emergency Planning Committee	575-746-2122
New Mexico Oil Conservation Division	575-748-1283

**Carlsbad**

Ambulance	911
State Police	575-885-3137
City Police	575-885-2111
Sheriff's Office	575-887-7551
<b>Fire Department</b>	<b>575-887-3798</b>
Local Emergency Planning Committee	575-887-6544
US Bureau of Land Management	575-887-6544

**Santa Fe**

New Mexico Emergency Response Commission (Santa Fe)	505-476-9600
New Mexico Emergency Response Commission (Santa Fe) 24 Hrs	505-827-9126
New Mexico State Emergency Operations Center	505-476-9635

**National**

National Emergency Response Center (Washington, D.C.)	800-424-8802
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**Medical**

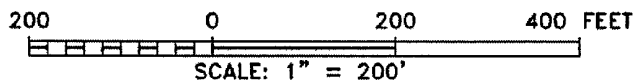
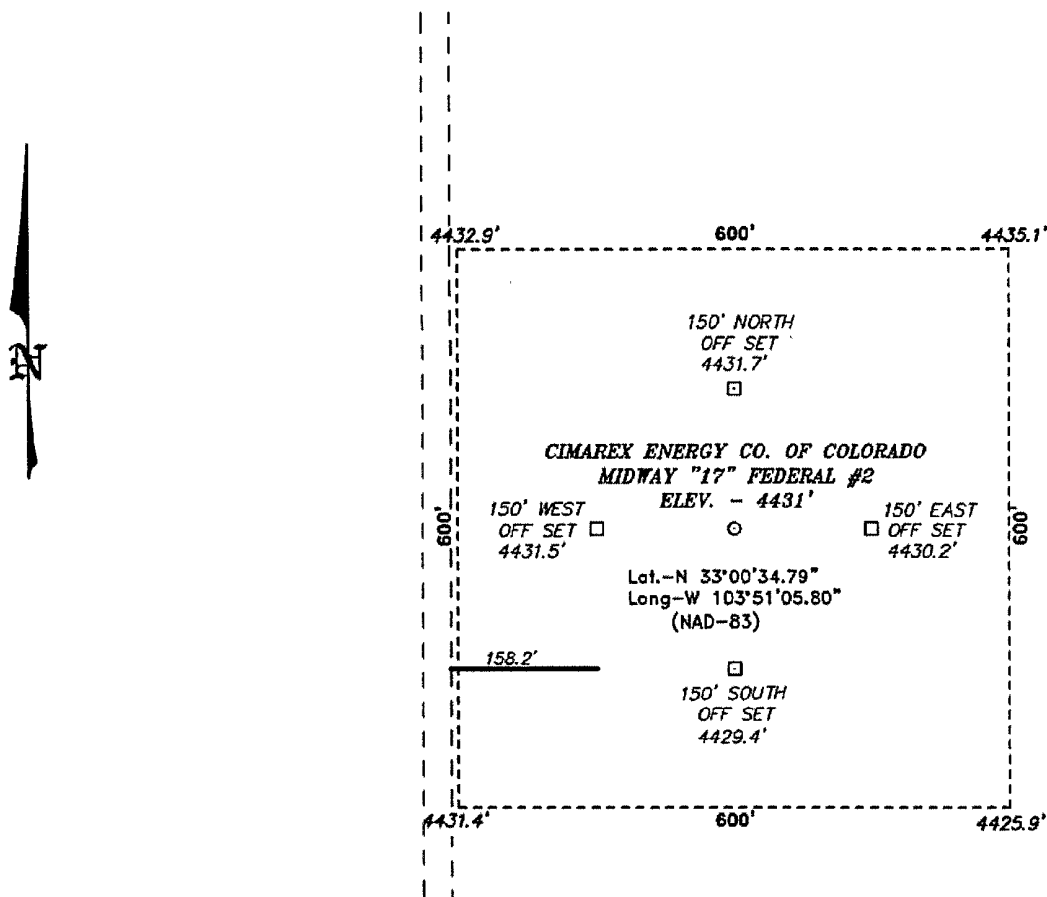
Flight for Life - 4000 24th St.; Lubbock, TX	806-743-9911
Aerocare - R3, Box 49F; Lubbock, TX	806-747-8923
Med Flight Air Amb - 2301 Yale Blvd S.E., #D3; Albuquerque, NM	505-842-4433
SB Air Med Service - 2505 Clark Carr Loop S.E.; Albuquerque, NM	505-842-4949

**Other**

Boots & Coots IWC	800-256-9688	or	281-931-8884
Cudd Pressure Control	432-699-0139	or	432-563-3356
Halliburton	575-746-2757		
B.J. Services	575-746-3569		



SECTION 17, TOWNSHIP 15 SOUTH, RANGE 31 EAST, N.M.P.M.,



Directions to Location:

FROM MILE MARKER 30 OF HWY 249; GO SOUTH 0.5 MILES TO PROPOSED LEASE ROAD.

**CIMAREX ENERGY CO. OF COLORADO**

REF: MIDWAY "17" FEDERAL #2 / WELL PAD TOPO

THE MIDWAY "17" FEDERAL #2 LOCATED 375'

FROM THE SOUTH LINE AND 330' FROM THE WEST LINE OF

SECTION 17, TOWNSHIP 15 SOUTH, RANGE 31 EAST,

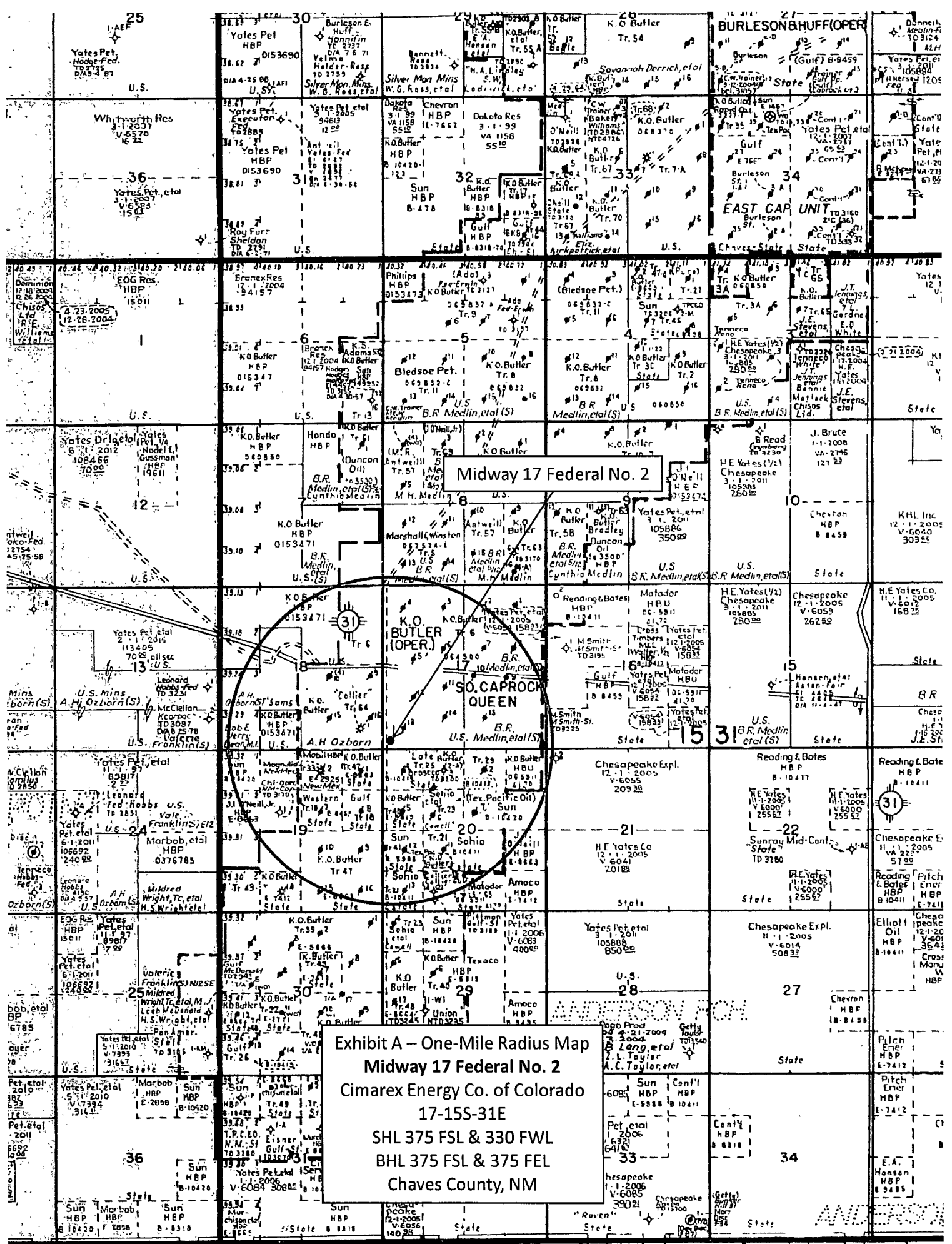
N.M.P.M., CHAVES COUNTY, NEW MEXICO.

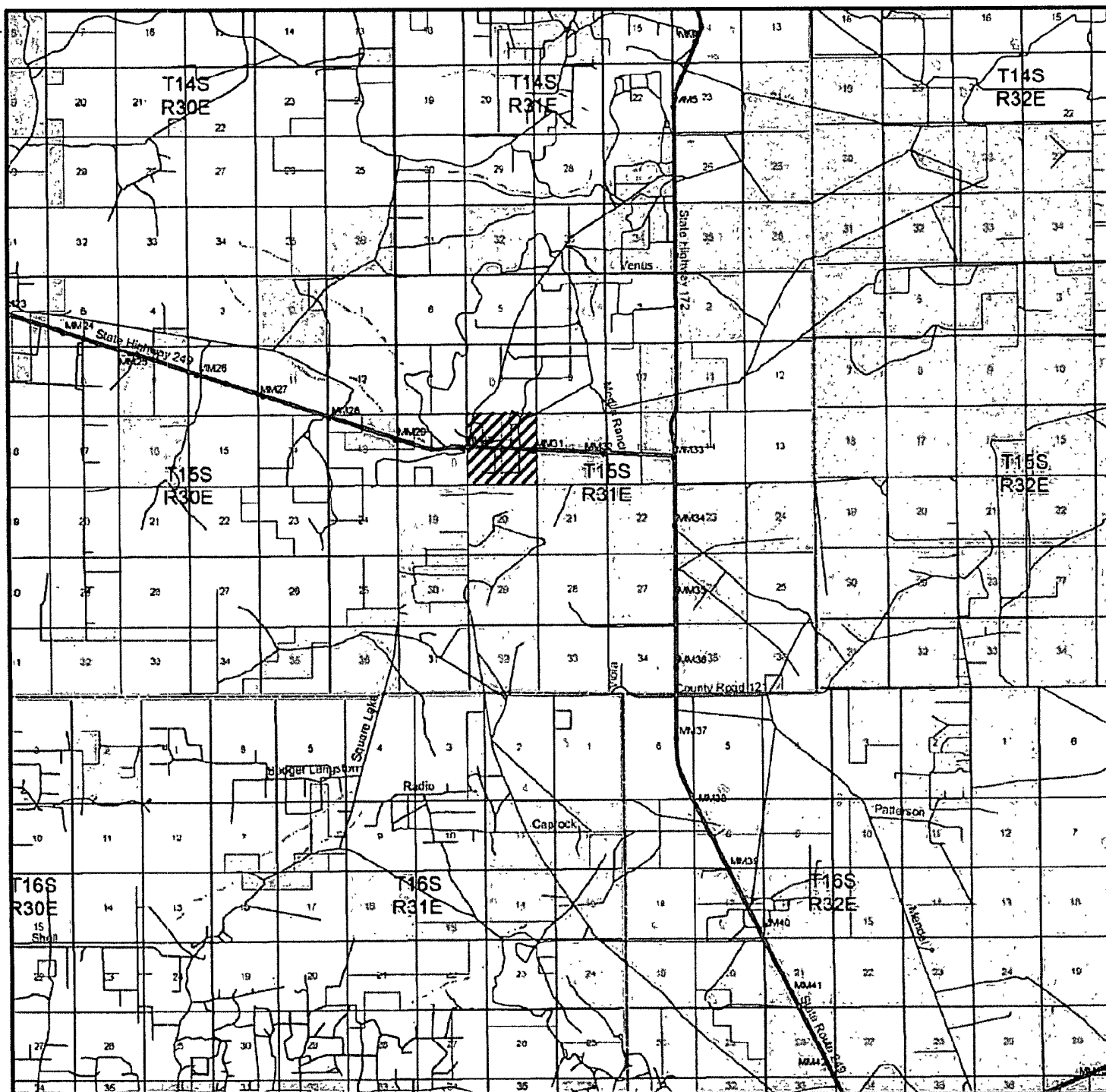
**BASIN SURVEYS** P.O. BOX 1786 - HOBBS, NEW MEXICO

W.O. Number: 19516 Drawn By: J. SMALL

Date: 05-28-2008 Disk: JMS 19516

Survey Date: 05-27-2008 Sheet 1 of 1 Sheets





MIDWAY "17" FEDERAL #2  
 Located 375' FSL and 330' FWL  
 Section 17, Township 15 South, Range 31 East,  
 N.M.P.M., Chaves County, New Mexico.

**basin**  
**surveys**  
 focused on excellence  
 in the oilfield

P.O. Box 1786  
 1120 N. West County Rd.  
 Hobbs, New Mexico 88241  
 (505) 393-7316 - Office  
 (505) 392-3074 - Fax  
 basinsurveys.com

W.O. Number: JMS 19516

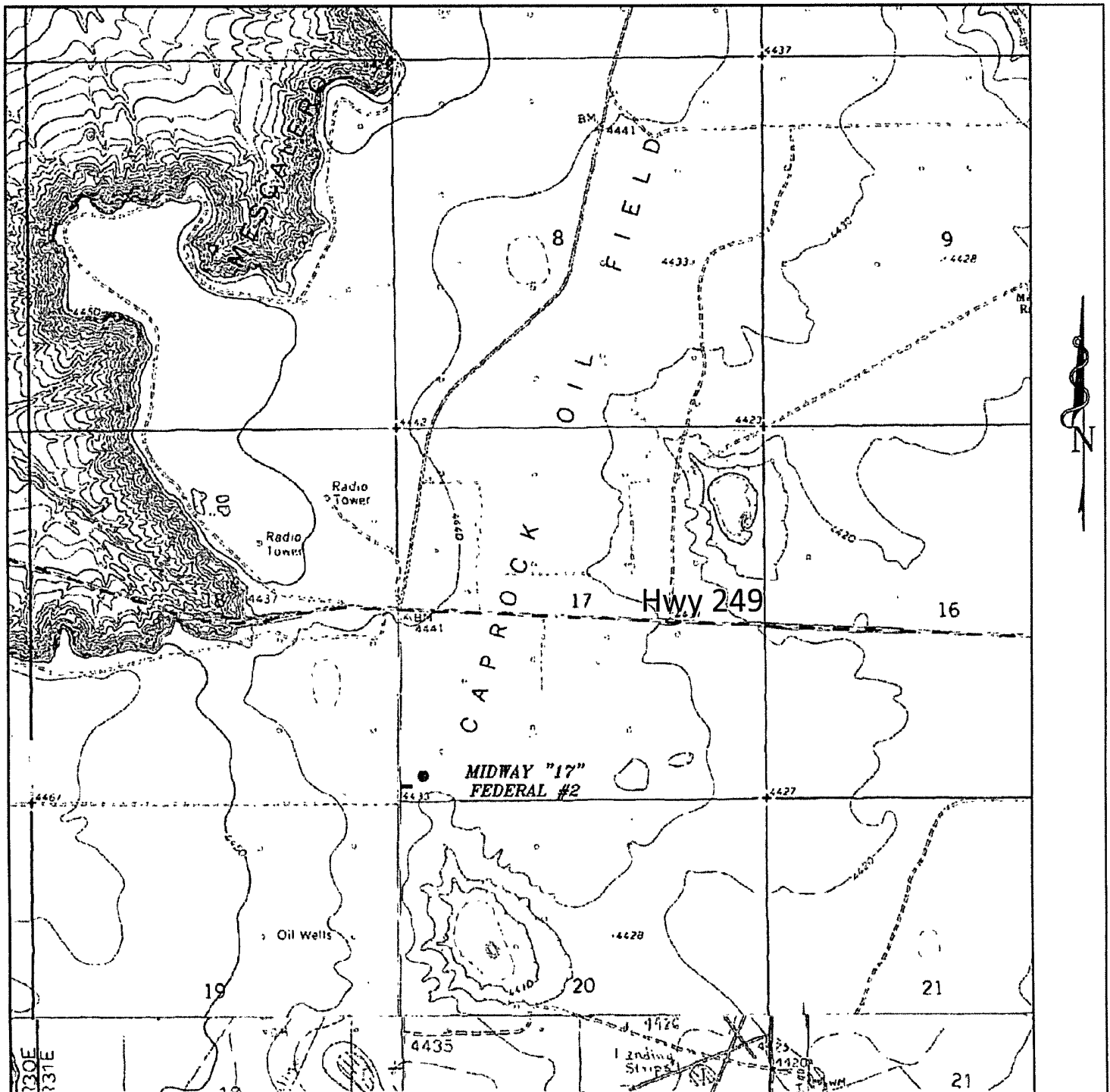
Survey Date: 05-27-2008

Scale: 1" = 2 MILES

Date: 05-28-2008

**CIMAREX**  
**ENERGY CO.**  
**OF COLORADO**

Exhibit B



**MIDWAY "17" FEDERAL #2**  
 Located 375' FSL and 330' FWL  
 Section 17, Township 15 South, Range 31 East,  
 N.M.P.M., Chaves County, New Mexico.

**basin**  
**surveys**  
 focused on excellence  
 in the oilfield

P.O. Box 1786  
 1120 N. West County Rd.  
 Hobbs, New Mexico 88241  
 (505) 393-7316 - Office  
 (505) 392-3074 - Fax  
 basinsurveys.com

W.O. Number: JMS 19516

Survey Date: 05-27-2008

Scale: 1" = 2000'

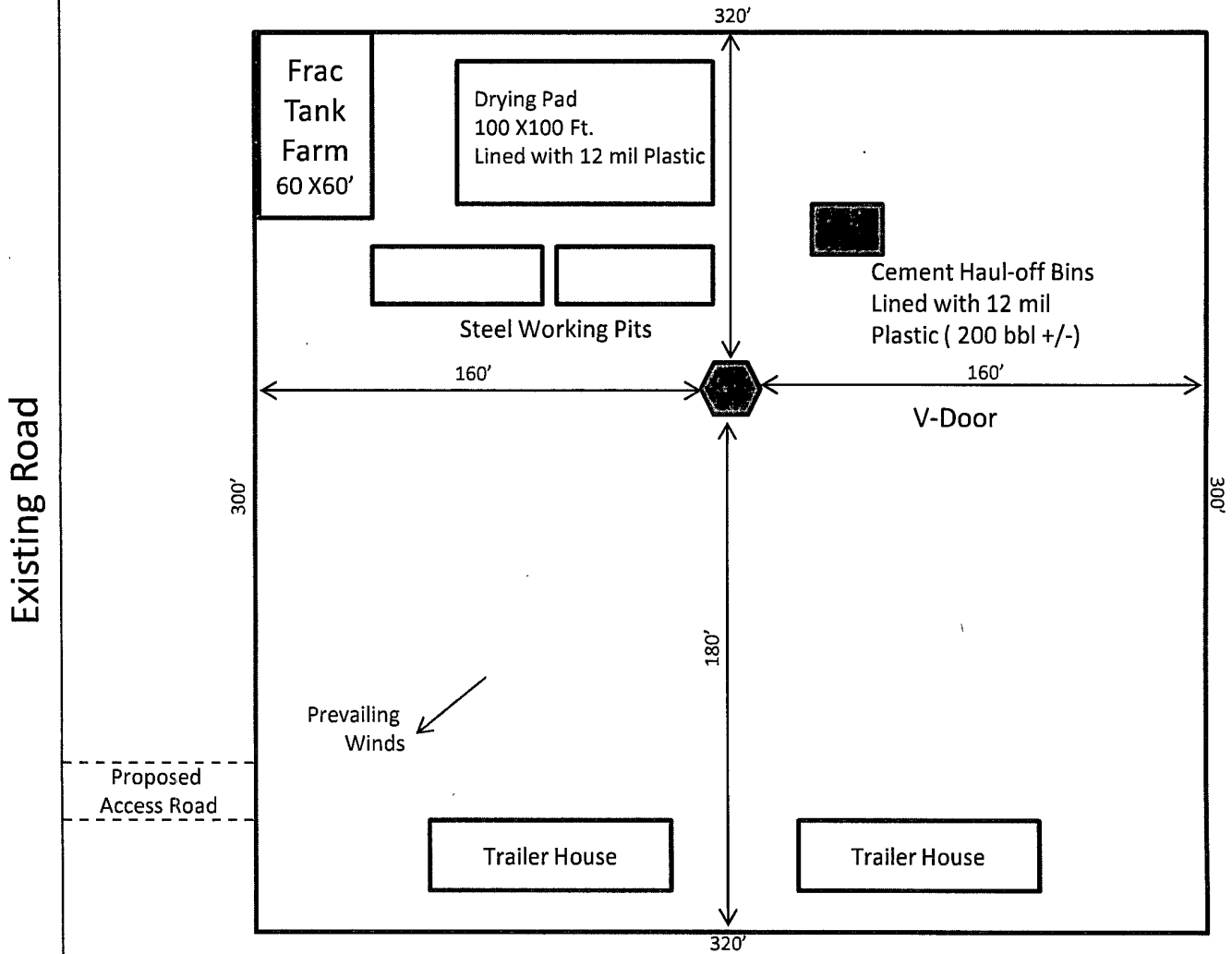
Date: 05-28-2008

**CIMAREX**  
**ENERGY CO.**  
**OF COLORADO**

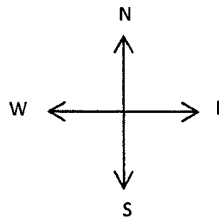
Exhibit C

# Patriot Rig 4

Cimarex Energy Co. of Colorado



Revised Rig Layout  
**Midway 17 Federal No. 2**  
Cimarex Energy Co. of Colorado  
17-15S-31E  
SHL 375 FSL & 330 FWL  
BHL 375 FSL & 375 FEL  
Chaves County, NM



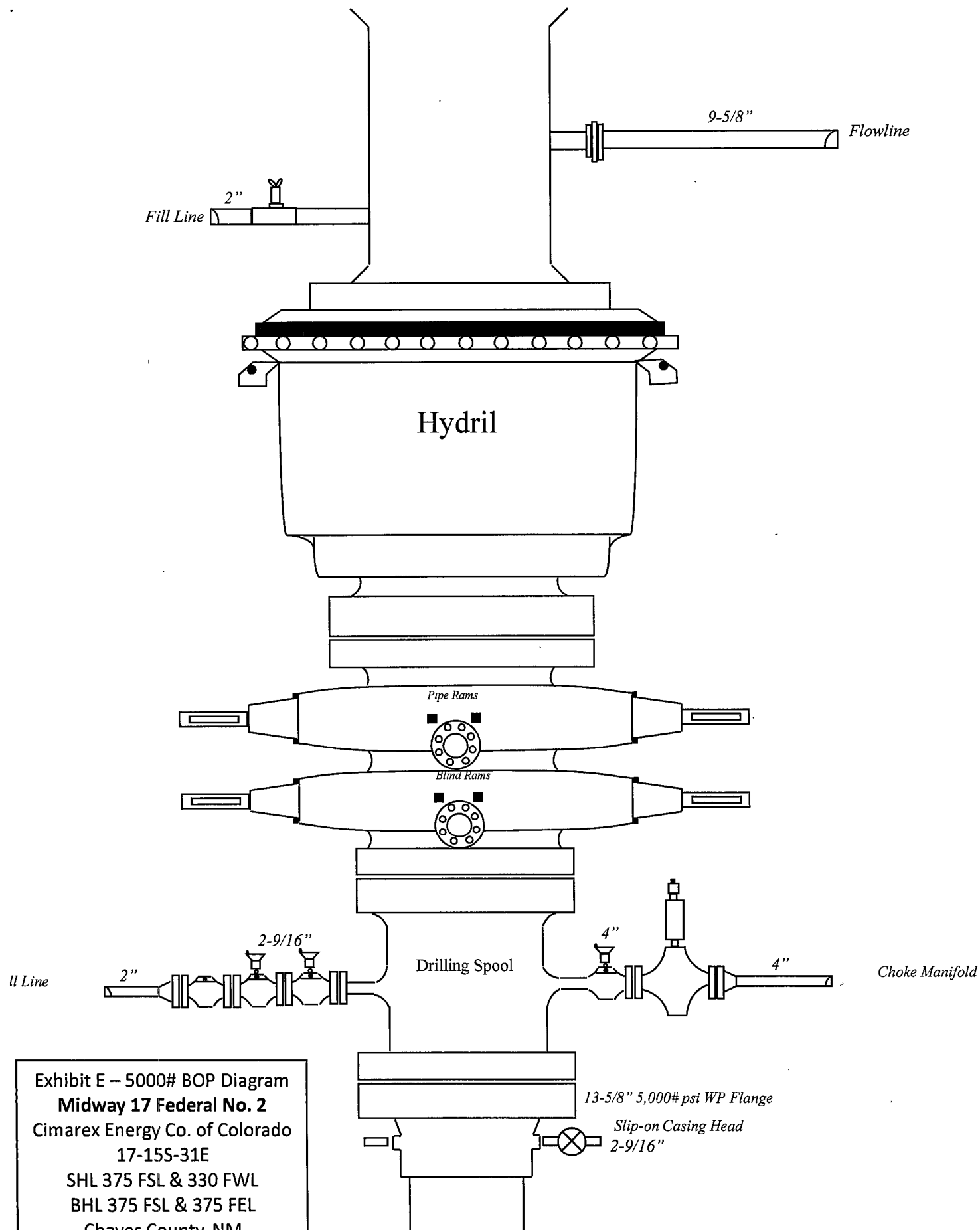


Exhibit E – 5000# BOP Diagram  
**Midway 17 Federal No. 2**  
 Cimarex Energy Co. of Colorado  
 17-15S-31E  
 SHL 375 FSL & 330 FWL  
 BHL 375 FSL & 375 FEL  
 Chaves County, NM

**DRILLING OPERATIONS  
CHOKE MANIFOLD  
5M SERVICE**

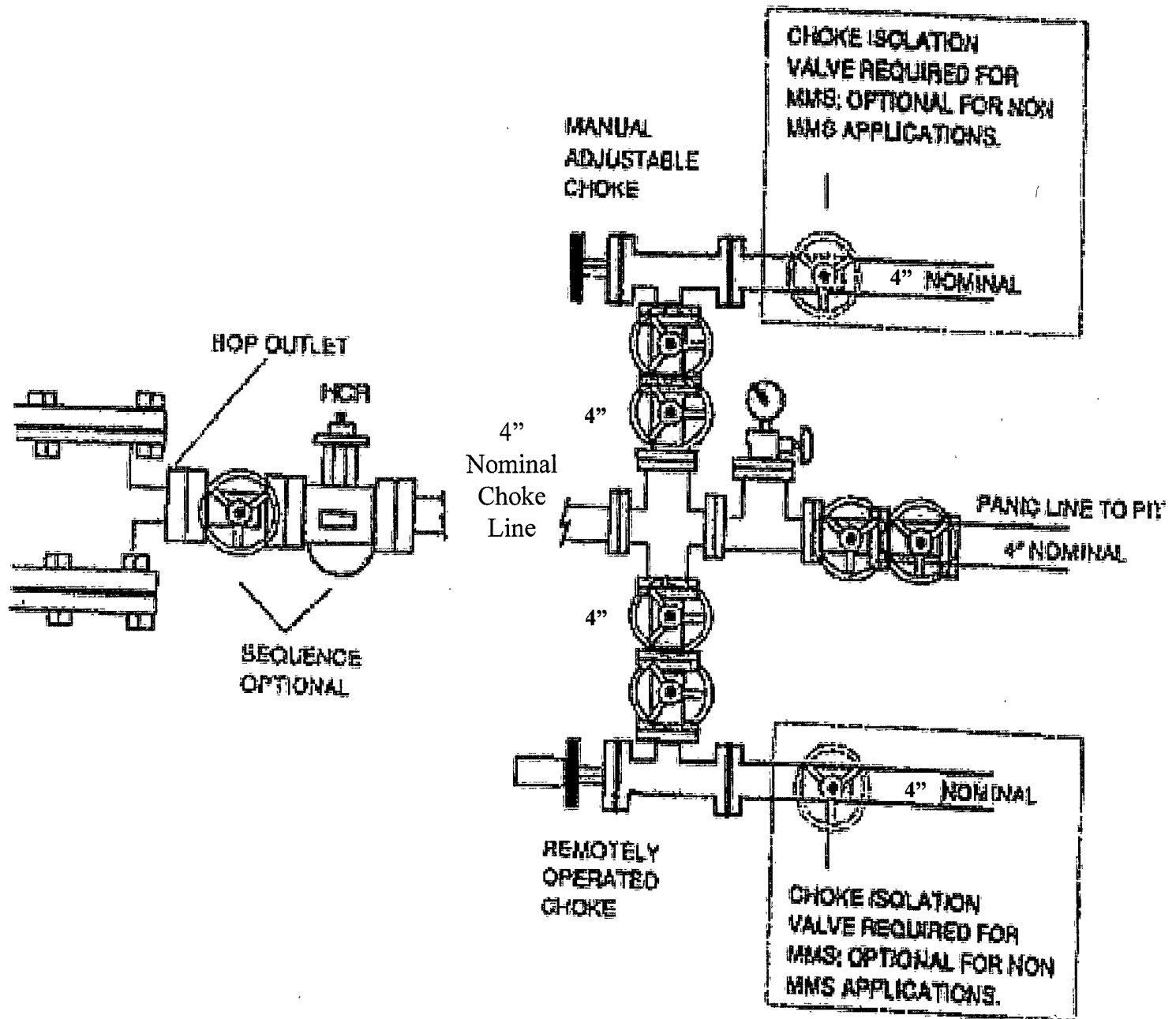


Exhibit E-1 – Choke Manifold Diagram  
**Midway 17 Federal No. 2**  
 Cimarex Energy Co. of Colorado  
 17-15S-31E  
 SHL 375 FSL & 330 FWL  
 BHL 375 FSL & 375 FEL  
 Chaves County, NM



# Planned Wellpath Report

Preliminary

Page 1 of 4



INTEQ

## REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co. of Colorado	Slot	No. 2H SHL
Area	Chaves County, NM	Well	No. 2H
Field	(Midway) Sec 17, T15S, R31E	Wellbore	No. 2H PWB
Facility	Midway 17 Fed 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	0.999934	Report Generated	7/10/2008 at 4:35:38 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	689006.90	731390.30	33°00'34.787"N	103°51'05.799"W
Facility Reference Pt			689006.90	731390.30	33°00'34.787"N	103°51'05.799"W
Field Reference Pt			689006.90	731390.30	33°00'34.787"N	103°51'05.799"W

## WELLPATH DATUM

Calculation method	Minimum curvature	Rig on No. 2H SHL (RT) to Facility Vertical Datum	18.00ft
Horizontal Reference Pt	Facility Center	Rig on No. 2H SHL (RT) to Mean Sea Level	4449.00ft
Vertical Reference Pt	Rig on No. 2H SHL (RT)	Facility Vertical Datum 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	89.79°





# Planned Wellpath Report

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INTEQ

REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co. of Colorado	Slot	No. 2H SHL
Area	Chaves County, NM	Well	No. 2H
Field	(Midway) Sec 17, T15S, R31E	Wellbore	No. 2H PWB
Facility	Midway 17 Fed No. 2H		

WELLPATH DATA (50 stations) † = interpolated/extrapolated station								
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
0.00	0.000	89.792	0.00	0.00	0.00	0.00	0.00	Tie On
8660.00	0.000	89.792	8660.00	0.00	0.00	0.00	0.00	KOP
8760.00†	30.000	89.792	8755.49	25.59	0.09	25.59	30.00	
8860.00†	60.000	89.792	8825.40	95.49	0.35	95.49	30.00	
8960.00†	90.000	89.792	8850.99	190.99	0.69	190.98	30.00	
8964.39	91.316	89.792	8850.94	195.37	0.71	195.37	30.00	EOC
9060.00†	91.316	89.792	8848.74	290.96	1.06	290.96	0.00	
9160.00†	91.316	89.792	8846.44	390.93	1.42	390.93	0.00	
9260.00†	91.316	89.792	8844.14	490.91	1.78	490.90	0.00	
9360.00†	91.316	89.792	8841.85	590.88	2.14	590.88	0.00	
9460.00†	91.316	89.792	8839.55	690.85	2.51	690.85	0.00	
9560.00†	91.316	89.792	8837.25	790.83	2.87	790.82	0.00	
9660.00†	91.316	89.792	8834.96	890.80	3.23	890.80	0.00	
9760.00†	91.316	89.792	8832.66	990.78	3.60	990.77	0.00	
9860.00†	91.316	89.792	8830.36	1090.75	3.96	1090.74	0.00	
9960.00†	91.316	89.792	8828.06	1190.72	4.32	1190.71	0.00	
10060.00†	91.316	89.792	8825.77	1290.70	4.68	1290.69	0.00	
10160.00†	91.316	89.792	8823.47	1390.67	5.05	1390.66	0.00	
10260.00†	91.316	89.792	8821.17	1490.64	5.41	1490.63	0.00	
10360.00†	91.316	89.792	8818.87	1590.62	5.77	1590.61	0.00	
10460.00†	91.316	89.792	8816.58	1690.59	6.14	1690.58	0.00	
10560.00†	91.316	89.792	8814.28	1790.56	6.50	1790.55	0.00	
10660.00†	91.316	89.792	8811.98	1890.54	6.86	1890.53	0.00	
10760.00†	91.316	89.792	8809.69	1990.51	7.22	1990.50	0.00	
10860.00†	91.316	89.792	8807.39	2090.49	7.59	2090.47	0.00	
10960.00†	91.316	89.792	8805.09	2190.46	7.95	2190.44	0.00	
11060.00†	91.316	89.792	8802.79	2290.43	8.31	2290.42	0.00	
11160.00†	91.316	89.792	8800.50	2390.41	8.68	2390.39	0.00	
11260.00†	91.316	89.792	8798.20	2490.38	9.04	2490.36	0.00	
11360.00†	91.316	89.792	8795.90	2590.35	9.40	2590.34	0.00	



# Planned Wellpath Report

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INTEQ

REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co. of Colorado	Slot	No. 2H SHL
Area	Chaves County, NM	Well	No. 2H
Field	(Midway) Sec 17, T15S, R31E	Wellbore	No. 2H PWB
Facility	Midway 17 Fed No. 2H		

WELLPATH DATA (50 stations) † = interpolated/extrapolated station								
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	DLS [°/100ft]	Comments
11460.00†	91.316	89.792	8793.61	2690.33	9.76	2690.31	0.00	
11560.00†	91.316	89.792	8791.31	2790.30	10.13	2790.28	0.00	
11660.00†	91.316	89.792	8789.01	2890.27	10.49	2890.26	0.00	
11760.00†	91.316	89.792	8786.71	2990.25	10.85	2990.23	0.00	
11860.00†	91.316	89.792	8784.42	3090.22	11.22	3090.20	0.00	
11960.00†	91.316	89.792	8782.12	3190.19	11.58	3190.17	0.00	
12060.00†	91.316	89.792	8779.82	3290.17	11.94	3290.15	0.00	
12160.00†	91.316	89.792	8777.52	3390.14	12.30	3390.12	0.00	
12260.00†	91.316	89.792	8775.23	3490.12	12.67	3490.09	0.00	
12360.00†	91.316	89.792	8772.93	3590.09	13.03	3590.07	0.00	
12460.00†	91.316	89.792	8770.63	3690.06	13.39	3690.04	0.00	
12560.00†	91.316	89.792	8768.34	3790.04	13.76	3790.01	0.00	
12660.00†	91.316	89.792	8766.04	3890.01	14.12	3889.98	0.00	
12760.00†	91.316	89.792	8763.74	3989.98	14.48	3989.96	0.00	
12860.00†	91.316	89.792	8761.44	4089.96	14.84	4089.93	0.00	
12960.00†	91.316	89.792	8759.15	4189.93	15.21	4189.90	0.00	
13060.00†	91.316	89.792	8756.85	4289.90	15.57	4289.88	0.00	
13160.00†	91.316	89.792	8754.55	4389.88	15.93	4389.85	0.00	
13260.00†	91.316	89.792	8752.25	4489.85	16.29	4489.82	0.00	
13358.15	91.316	89.792	8750.00	4587.98	16.65	4587.95	0.00	No. 2H BHL



# Planned Wellpath Report

Preliminary  
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## REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co. of Colorado	Slot	No. 2H SHL
Area	Chaves County, NM	Well	No. 2H
Field	(Midway) Sec 17, T15S, R31E	Wellbore	No. 2H PWB
Facility	Midway 17 Fed No. 2H		

## TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	Shape
1) No. 2H BHL	13358.15	8750.00	16.65	4587.95	693594.54	731406.95	33°00'34.740"N	103°50'11.924"W	point

## SURVEY PROGRAM Ref Wellbore: No. 2H PWB Ref Wellpath: Preliminary

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
18.00	13358.15	NaviTrak (Standard)		No. 2H PWB



# Cimarex Energy Co. of Colorado

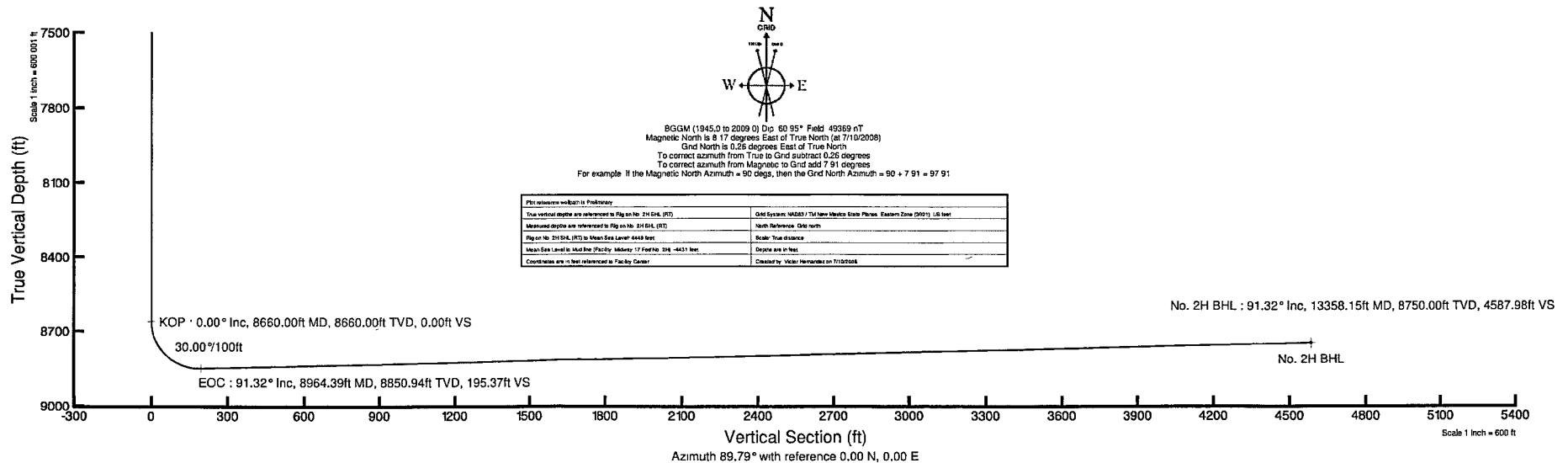
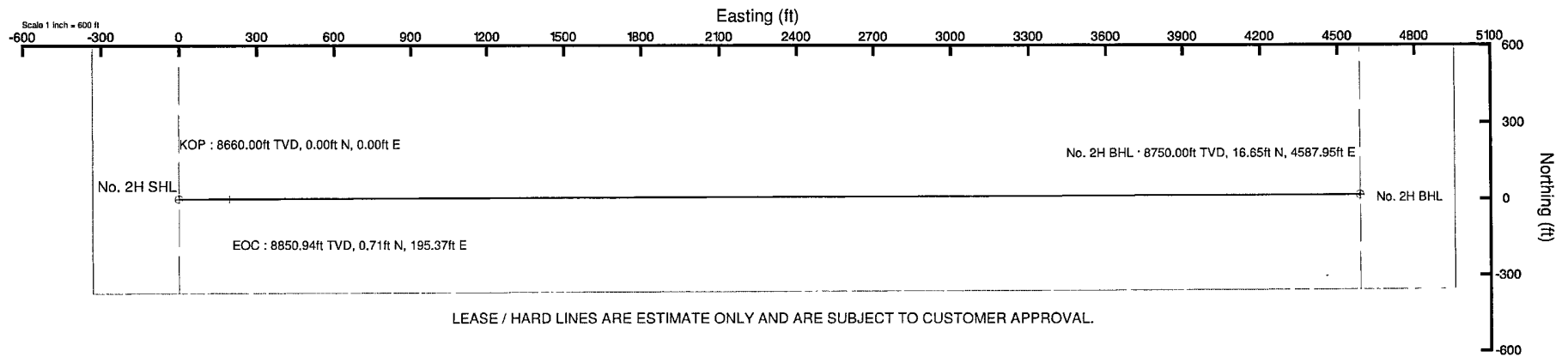
Location: Chaves County, NM  
Field: (Midway) Sec 17, T15S, R31E  
Facility: Midway 17 Fed No. 2H

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

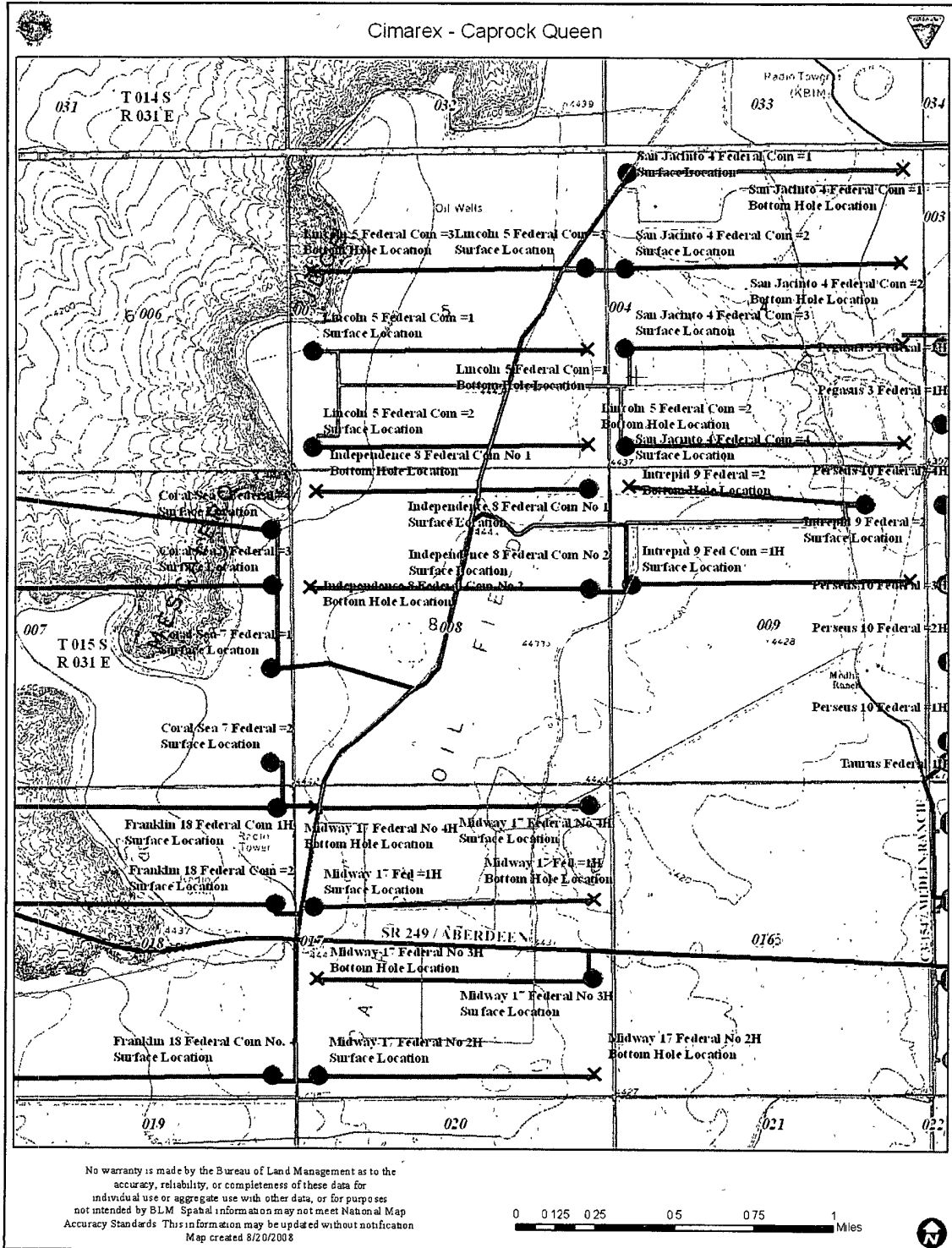


## Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (%100ft)	VS (ft)
Tie On	0.00	0.000	89.792	0.00	0.00	0.00	0.00	0.00
KOP	8660.00	0.000	89.792	8660.00	0.00	0.00	0.00	0.00
EOC	8964.39	91.316	89.792	8850.94	0.71	195.37	30.00	195.37
No. 2H BHL	13358.15	91.316	89.792	8750.00	16.65	4587.95	0.00	4587.98



# Exhibit A – General Location Map



**EXHIBIT B**  
**PECOS DISTRICT - RFO**  
**CONDITIONS OF APPROVAL**

**November 10, 2008**

Midway 17 Federal #2

Surface Hole Location: 375' FSL & 375' FEL, Sec. 17, T15S-R31E  
Bottom Hole Location: 375' FSL & 375' FWL, Sec. 17, T15S-R31E  
Chaves County, New Mexico NMPM  
Cimarex Energy Company of Colorado  
Mineral Lease Number: LC-064900

**GENERAL PROVISIONS**

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

**I. PERMIT EXPIRATION**

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD (Filing of a Sundry Notice is required for this 60 day extension).

**II. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES**

Any cultural and/or paleontological resource discovered by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery shall be made by the Authorized Officer to determine the appropriate actions that shall be required to prevent the loss of significant cultural or scientific values of the discovery. The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery. Any unauthorized collection or disturbance of cultural or paleontological resources may result in a shutdown order by the Authorized Officer.

### **III. NOXIOUS WEEDS**

The operator shall be held responsible if noxious weeds become established within the areas of operations (access road and/or well pad). Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

### **IV. CONSTRUCTION**

#### **A. NOTIFICATION:**

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Roswell Field Office at (505) 627-0247 at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved Application for Permit to Drill and Conditions of Approval on the well site and they shall be made available upon request by the Authorized Officer.

#### **B. TOPSOIL:**

The topsoil will be stripped to approximately 6 inches in depth within the area designated for construction of the well pad. The operator shall stockpile the stripped topsoil on the side of the well pad. The topsoil will be used for interim and final reclamation of the surface disturbance created by the construction of the well pad.

#### **C. CLOSED SYSTEMS OR STEEL TANKS: No reserve pit will be used.**

Steel tanks are required for drilling operations: No Pits Allowed.

The operator shall properly dispose of drilling contents at an authorized disposal site.

#### **D. FEDERAL MINERAL MATERIALS PIT:**

If the operator elects to surface the access road and/or well pad, mineral materials extracted during construction of the reserve pit may be used for surfacing the well pad and access road and other facilities on the lease.

Payment shall be made to the BLM prior to removal of any additional federal mineral materials from any site other than the reserve pit. Call the Roswell Field Office at (505) 627-0236.

#### **E. WELL PAD SURFACING:**

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation.

The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational need.

## **F. ON LEASE ACCESS ROADS:**

### **Road Egress and Ingress**

The access road shall be constructed to access the corner of the well pad.

### **Road Width**

The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed thirty (30) feet.

### **Surfacing**

Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

### **Crowning**

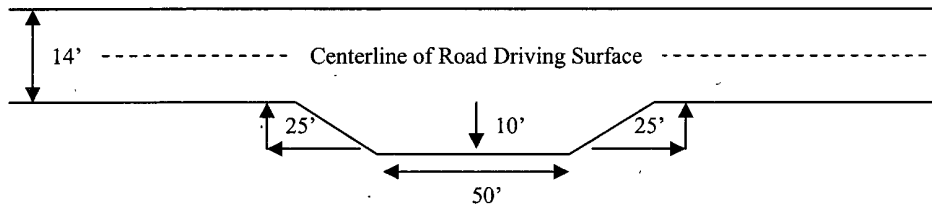
Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

### **Turnouts**

Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall be constructed on all blind curves. Turnouts shall conform to the following diagram:



### Standard Turnout – Plan View

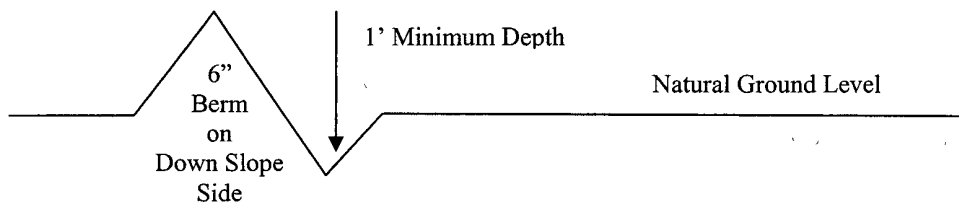


### Drainage

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outsloping and insloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.

### Cross Section Of Typical Lead-off Ditch



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

### Formula For Spacing Interval Of Lead-off Ditches

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

$$400 \text{ foot road with } 4\% \text{ road slope: } \frac{400'}{4\%} + 100' = 200' \text{ lead-off ditch interval}$$

### Cattleguards

An appropriately sized cattleguard(s) sufficient to carry out the project shall be installed and maintained at fence crossing(s).

Any existing cattleguard(s) on the access road shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattleguard(s) that are in place and are utilized during lease operations.

A gate shall be constructed and fastened securely to H-braces.

### **Fence Requirement**

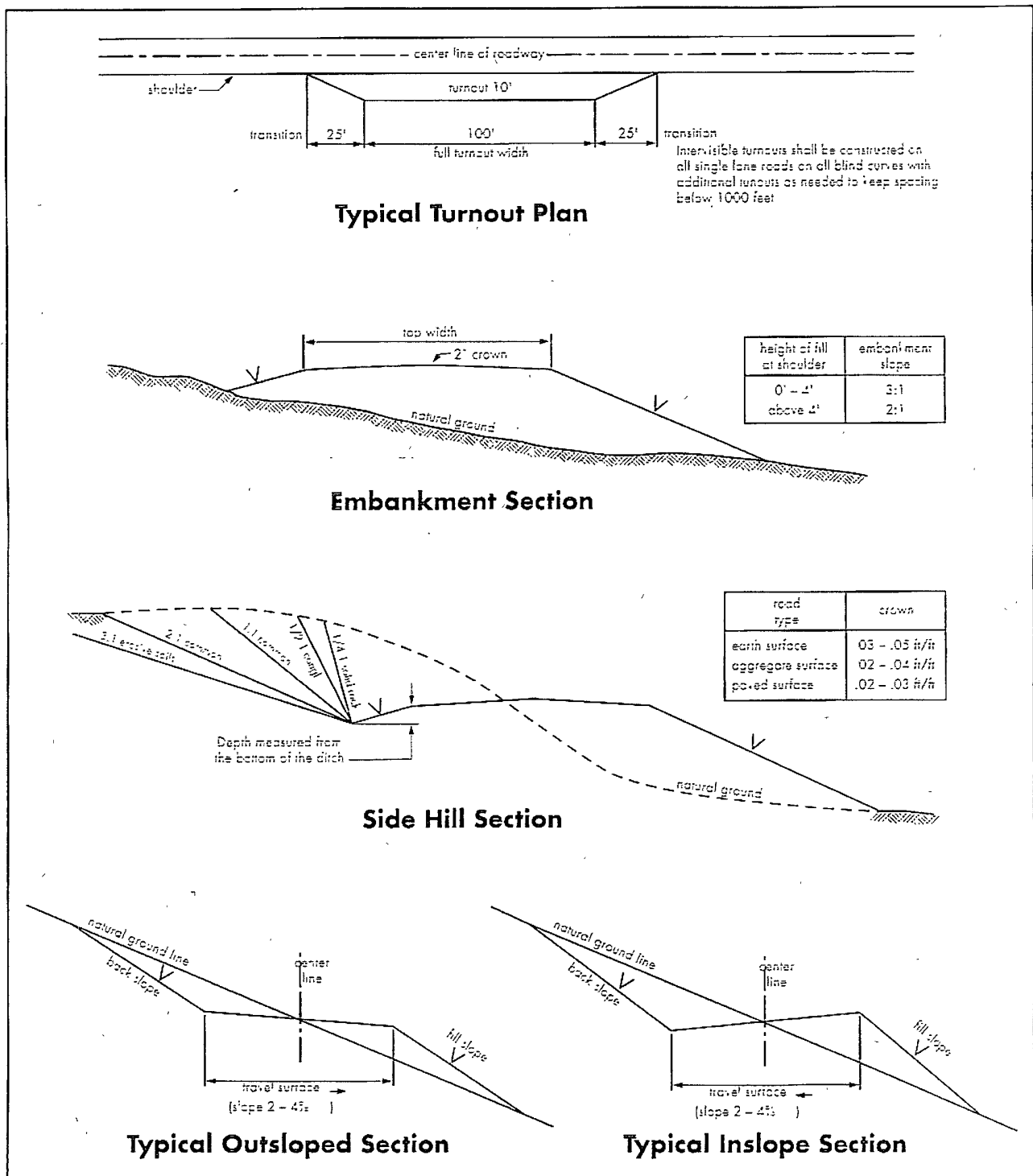
Where entry is required across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting.

The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fence(s).

### **Public Access**

Public access on this road shall not be restricted by the operator without specific written approval granted by the Authorized Officer.

Figure 1 – Cross Sections and Plans For Typical Road Sections



## **V. DRILLING**

### **DRILLING OPERATIONS REQUIREMENTS**

- 1 Call the Roswell Field Office, 2909 West Second St., Roswell, NM 88201. During office hours call (575) 627-0205 or after office hours call (575) 910-6024. Engineer on call during office hours call (575) 627-0275 or after office hours call (575) 626-5749.
2. The BLM is to be notified a minimum of 24 hours in advance for a representative to witness:
  - a. Spudding well
  - b. Setting and/or Cementing of all casing strings

The BLM is to be notified a minimum of 4 hours in advance for a representative to witness:

#### **BOPE Tests**

3. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
4. Include the API Number assigned to well by NMOCD on the subsequent report of setting the first casing string.
5. The operator will accurately measure the drilling rate in ft/min to set the base of the usable water protection casing string(s) opposite competent rock. The record of the drilling rate along with the caliper-gamma ray-neutron well log run to surface will be submitted to this office as well as all other logs run on the borehole 30 days from completion
6. Air, air-mist or fresh water and non toxic drilling mud shall be used to drill to the base of the usable water protection casing string(s). Any polymers used will be water based and non-toxic.

## **B. CASING**

1. The 13 3/8 inch usable water protection casing string(s) shall be set at approximately 340 ft. opposite competent bedrock.

If not the operator is required to set usable water protecting casing in the next thick competent bedding (i.e. 15 to 25 ft or greater) encountered and cemented to the surface.

- a. If cement does not circulate to the surface, the Roswell Field Office shall be notified and a temperature survey utilizing an electronic type temperature survey with a surface log readout will be used or a cement bond log shall be run to verify the top of the cement.
- b. Wait on cement (WOC) time for a primary cement job will be a minimum 18 hours for a water basin or 500 pounds compression strength, whichever is greater. (This is to include the lead cement).

- c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compression strength, whichever is greater.
- d. If cement falls back, remedial action will be done prior to drilling out that string.
2. The minimum required fill of cement behind the 9-5/8 inch intermediate casing is **sufficient to circulate to the surface**. If cement does not circulate see B.1.a-d above.
3. The minimum required fill of cement behind the 7 inch production casing is **sufficient to tie back 500 feet above the uppermost perforation in the pay zone**. If cement does not circulate, a temperature survey utilizing an electronic type temperature survey with a surface log readout will be used or a cement bond log shall be run to verify the top of the cement.
4. There is no required fill of cement behind the 4-1/2 inch production casing since a Peak Systems Iso-Pak liner will be used for lateral and will not require cementing.
5. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

#### **C. PRESSURE CONTROL:**

1. Before drilling below the 13-3/8 inch surface casing shoe, the blowout preventer assembly shall consist of a minimum of One Annular Preventer or Two Ram-Type Preventers and a Kelly Cock/Stabbing Valve. Before drilling below the 9-5/8 inch intermediate casing shoe, the blowout preventer assembly shall consist of a minimum of One Annular Preventer, Two Ram-Type Preventers, and a Kelly Cock/Stabbing Valve.
2. Before drilling below the 13-3/8 inch surface casing shoe, minimum working pressure of the blowout preventer and related equipment (BOPE) shall be 2000 psi. Before drilling below the 9-5/8 inch intermediate casing shoe, minimum working pressure of the blowout preventer and related equipment (BOPE) shall be 3000 psi.
3. The BOPE shall be installed before drilling below the 13-3/8 inch surface casing and the 9-5/8 inch intermediate casing and shall be tested as described in Onshore Order No. 2. Any equipment failing to test satisfactorily shall be repaired or replaced.
  - a. The BLM Roswell Field office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
  - b. The tests shall be done by an independent service company.
  - c. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug.

d. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the BLM Roswell Field Office at 2909 West Second Street, Roswell, New Mexico 88201.

e. Testing fluid must be water or an appropriate clear liquid suitable for sub-freezing temperatures. Use of drilling mud for testing is not permitted since it can mask small leaks.

f. Testing must be done in a safe workman like manner. Hard line connections shall be required.

## **VI. PRODUCTION**

### **A. WELL STRUCTURES & FACILITIES**

#### **Placement of Production Facilities**

Production facilities should be placed on the well pad to allow for maximum interim re-contouring and re-vegetation of the well location.

#### **Containment Structures**

The containment structure shall be constructed to hold the capacity of the entire contents of the largest tank, plus 24 hour production, unless more stringent protective requirements are deemed necessary by the Authorized Officer.

#### **Painting Requirement**

All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color, Juniper Green (Standard Environmental Color Chart June 2008).

#### **VRM Facility Requirement**

Low-profile tanks not greater than eight-feet-high shall be used.

## **VII. INTERIM RECLAMATION**

If the well is a producer, interim reclamation shall be conducted on the well site in accordance with the orders of the Authorized Officer. The operator shall submit a Sundry Notices and Reports on Wells (Notice of Intent), Form 3160-5, prior to conducting interim reclamation.

During the life of the development, all disturbed areas not needed for active support of production operations should undergo "interim" reclamation in order to minimize the environmental impacts of development on other resources and uses.

During reclamation, the removal of caliche is important to increasing the success of re-vegetating the site. Removed caliche may be used in road repairs, fire walls or for building other roads and

locations. In addition, in order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

The following soil or soil associations may represent these ecological sites:

Alama silt loam, dry, 0-3% Slope, Atoka, Bigetty-Pecos, Harkey fine sandy loam, Holloman, Holloman-Gypsum Land, Hollomex loam, 1-9% slope, dry, Largo loam, Milner loam, 0-2% slope, dry, Reagan loam, Reakor, Reakor-Bigetty, Reakor-Tencee, Reeves loam, 0-2% slope, dry, Russler, Shanta, Upton-Reakor.

<b>Loamy, SD-3 Ecological Site; Loamy CP-2; Gyp Upland CP-2 (for Loamy HP-3)</b>		
<b>Common Name and Preferred Variety</b>	<b>Scientific Name</b>	<b>Pounds of Pure Live Seed Per Acre</b>
Blue grama,	<i>(Bouteloua gracilis)</i>	4.00 LBS.
Sideoats grama,	<i>(Bouteloua curtipendula)</i>	1.0 LB.
Sand dropseed	<i>(Sporobolus cryptandrus)</i>	0.5 LB.
Vine mesquite	<i>(Panicum obtusum)</i>	1.0 LB.
Plains bristlegrass	<i>(Setaria macrostachya)</i>	1.0 LB.
Indian blanketflower	<i>(Gaillardia aristata)</i>	0.5 LB.
Desert or Scarlet	<i>(Sphaeralcea ambigua)</i>	1.0 LB.
Globemallow or	<i>(S. coccinea)</i>	
Annual sunflower	<i>(Helianthus annuus)</i>	<u>0.75 LB.</u>
<b>TOTAL POUNDS PURE LIVE SEED (pls) PER ACRE</b>		<b>9.75 LBS.</b>

Certified Weed Free Seed. If one species is not available, increase ALL others proportionately. Use No Less than 4 species, including one forb. No less than 9.75 pounds lbs per acre shall be applied.

## **VIII. FINAL ABANDONMENT & REHABILITATION REQUIREMENTS**

- a. Upon abandonment of the well and/or when the access road is no longer in service, a Notice of Intent for Final Abandonment with the proposed surface restoration procedure must be submitted for approval.
- b. On private surface/federal mineral estate land the reclamation procedures on the road and well pad shall be accomplished in accordance with the Private Surface Land Owner agreements and a copy of the release is to be submitted upon abandonment.
- c. Upon abandonment of the well, all casing shall be cut-off at the base of the cellar or 3-feet below final restored ground level (whichever is deeper). A 4-inch pipe, 10 feet in length, shall be installed 4 feet above ground and embedded in cement. The following information shall be permanently inscribed on the dry hole marker: Well name and number, the name of the operator,

the lease serial number, the surveyed location (the quarter-quarter section, section, township and range or other authorized survey designation acceptable to the authorized officer; such as metes and bounds).

d. Surface Reclamation must be completed within 6 months of well plugging. If the operator proposes to modify the plans for surface reclamation approved on the APD, the operator must attach these modifications to the Subsequent Report of Plug and Abandon using Sundry Notices and Reports on Wells, Form 3160-5.