N.M. Oil Cons. DIV-Dist. 2
1301 W. Grand Avenue
Artesia, NM 88210

RECEIVED
APR 21 2005
OCD-ARTESIA

Form 3160-3
(April 2004)

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No. **NMNM 112898**

6. If Indian, Allotee or Tribe Name

1a. Type of work: ☑ DRILL ☐ REENTER

7. If Unit or CA Agreement, Name and No.

1b. Type of Well: ☐ Oil Well ☑ Gas Well ☐ Other ☑ Single Zone ☐ Multiple Zone

8. Lease Name and Well No. **McGruder Hill Federal #2**

2. Name of Operator **Cimarex Energy Co.**

9. API Well No. 30-015-34088

3a. Address **15 E 5th, Ste 1000, Tulsa, OK 74103**

3b. Phone No. *(include area code)* **918-585-1100**

10. Field and Pool, or Exploratory Happy Valley; Morrow

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*
At surface **Sec 13-22S-25E; 1350' FNL & 660' FEL, Eddy County**
At proposed prod. zone **Sec 13-22S-25E; 900' FNL & 1780' FEL, Eddy County**

11. Sec., T.R. M. or Blk. and Survey or Area **Sec 13-22S-25E NMPM**

14. Distance in miles and direction from nearest town or post office* **Approx 25 miles West and 4 miles South of Carlsbad, NM**

SUBJECT TO LIKE APPROVAL BY STATE

12. County or Parish **Eddy** 13. State **NM**

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) **660'**	16. No. of acres in lease **245.42**	17. Spacing Unit dedicated to this well **320 Acres**
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. **1100'**	19. Proposed Depth **11750'**	20. BLM/BIA Bond No. on file **COB000011**
21. Elevations (Show whether DF, KDB, RT, GL, etc.) **3797.2'**	22. Approximate date work will start* **04/17/2005**	23. Estimated duration **45 days**

24. Attachments

CARLSBAD 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.
2. A Drilling Plan.
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).
4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5. Operator certification
6. Such other site specific information and/or plans as may be required by the authorized officer.

25. Signature	Name *(Printed/Typed)*	Date
	Steve J. Simonton	**02/23/2005**

Title **Drilling Superintendent**

Approved by *(Signature)* **/s/ Tony J. Herrell**	Name *(Printed/Typed)* **/s/ Tony J. Herrell**	Date APR 19 2004
Title **FIELD MANAGER**	Office **CARLSBAD FIELD OFFICE**	

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
Conditions of approval, if any, are attached.

APPROVAL FOR 1 YEAR

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

**(Instructions on page 2)*

APPROVAL SUBJECT TO
GENERAL REQUIREMENTS
AND SPECIAL STIPULATIONS
ATTACHED

WITNESS 9 5/8" Cement Job

> 9.5

DISTRICT I
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

OIL CONSERVATION DIVISION
1220 SOUTH ST. FRANCIS DR.
Santa Fe, New Mexico 87505

Form C-102
Revised JUNE 10, 2003
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number	Pool Code	Pool Name

Property Code	Property Name	Well Number
	McGRUDER HILL FEDERAL	2

OGRID No.	Operator Name	Elevation
	CIMAREX ENERGY COMPANY	3797'

Surface Location

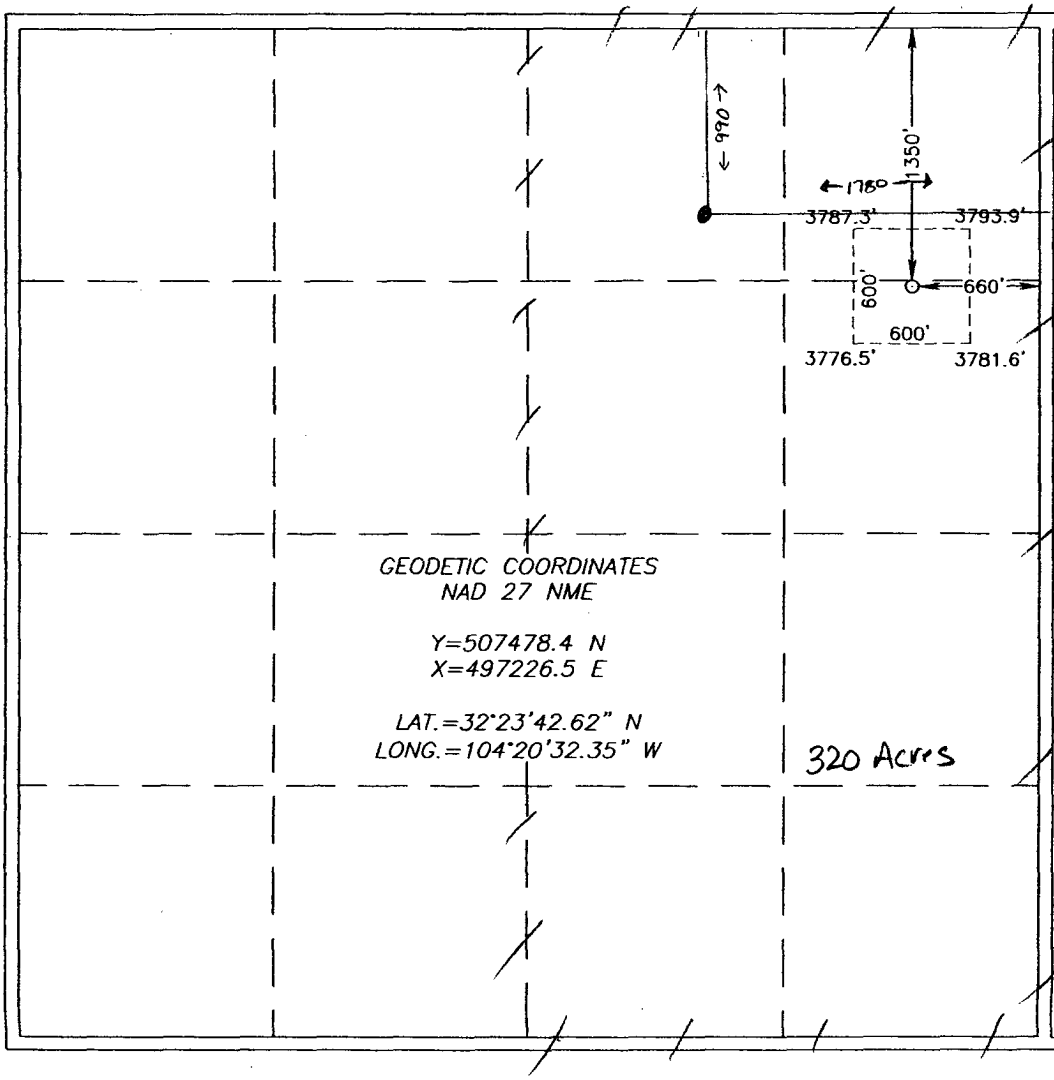
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
H	13	22-S	25-E		1350	NORTH	660	EAST	EDDY

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
H	13	22-S	25-E		900'	North	1780'	East	Eddy

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
320			

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



OPERATOR CERTIFICATION

I hereby certify the the information contained herein is true and complete to the best of my knowledge and belief.

Signature

Steve Simonton
Printed Name

Drilling Supertendent
Title

2-23-05
Date

SURVEYOR CERTIFICATION

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 supervison, and that the same is true and correct to the best of my belief.

FEBRUARY 14, 2005
Date Surveyed JR

Signature & Seal of Professional Surveyor

GARY L. EIDSON
NEW MEXICO
12641
REGISTERED PROFESSIONAL SURVEYOR

Gary L. Eidson 2/17/05

05.11.0171

Certificate No. GARY EIDSON 12641

Cimarex Energy Co., McGruder Hill Federal #2 Section 13-T22S-R25E, Eddy County, New Mexico. (Federal Lease No. US NMNM 112898).

This plan is to accompany Application for "Permit to Drill" the subject well which is located approximately 7 miles West and 4 miles South of Carlsbad, New Mexico. The following is a discussion of pertinent information concerning the possible effect, which the proposed drilling well may have on the environment of the well and road sites and surrounding acreage. A copy will be posted on the derrick floor so that all contractors and sub-contractors will be aware of all items of this plan.

1. EXISTING ROADS

A. **Directions to well**: From the intersection of State highway #524 and Co. Rd #427 (Jones Rd) go West on Co. Rd #427 for approx 4.9 miles. Turn left (South) and go approx. 0.55 miles. Road bends right, and meanders SW for approx. 0.6 miles. Road turns left and goes approx 0.4 miles. Follow bend to the right and go South. Follow road approx 0.1 miles. Proposed location is approx.175' West.

B. **Pad Mitigation**: The topsoil will be stockpiled for surface restoration; will maintain a 3:1 slope ratio. The reserve pit will be lined. The pad will be drained above the cut on the east side of location draining west. Culverts will be placed along the new road construction as necessary to accommodate runoff. All surface equipment will be painted Fed Juniper Green. Upon completion of drilling the location and surrounding area will be cleared of debris and will be reseeded using the appropriate BLM Seed Mix. During the life of the well, there may be either a compressor or a pump-jack installed. No drilling or construction will take place during those restricted periods of time as determined by the BLM.

2. PLANNED ACCESS ROADS:

A. **Length and Width:** Existing lease road will be used. The existing and new access road right-of-way will be approximately 20 feet wide, with the actual road surface being approximately 16 feet wide.

B. **Construction:** The existing leas road will be re constructed to provide all weather access to this property. Native on-site material will be used for surfacing with gravel furnished from a private commercial source. The entire length of location road will be maintained in a prudent manner with a motor grader as an all weather road. Maintenance activity shall include but not be limited to rerocking, reshaping, compacting and crowning said location road as necessary. Any ruts, rills, and eroded areas will be filled, and blocked drainages and culverts will be cleared. Attached is a plat of the proposed location road and detailed section maps showing the location of existing roads.

C. **Turnouts:** No turnouts are proposed

D. **Culverts:** Culverts are proposed as necessary

E. **Cuts and Fills:** An approximately 1.5' cut along the South side of the well site

and an approximately 1.7' fill along the North side of the well site will be required. An approximately 1.8' cut along the West side of the well site and an approximately 0.2' fill along the East side of the well site will be required. (see attached plat).

F. **Gates, Cattleguards:** No Gates or Cattleguards are needed

G. **Off Lease ROW:** None

3. **LOCATION OF EXISTING WELLS —**

A. See Attachment II for location of wells within a 1 mile radius:

4. **LOCATION OF EXSITING AND/OR PROPOSED FACILITIES:**

A. **Location of Tank Batteries, Production Facilities, Production Gathering and Service Lines:**

1 In the event of production, production facilities will be located on the drill pad. The actual placement of this equipment will be determined when the well's production characteristics can be evaluated after completion (including compression). The condensate tank will be enclosed by a dike and all BLM standards regarding compressors will be met.

2 The flow-line from this well will have to be constructed. It will be buried gas pipeline that will be approx. 9550' in length (See attached pipeline plat) and tie into an existing gas transmission pipeline. The pipe diameter, wall thickness and pipe wall strength will be determined upon the establishment of production and will be in accordance to BLM standards and regulations. The line will be owned and operated by Cimarex Energy Co. and qualifies for APD/ROW process.

3 Produced water, if any, will be stored on the well site in a closed or netted water tank and on regular intervals will be hauled to an approved disposal site.

5. **LOCATION AND TYPE OF WATER SUPPLY**

A. Water will be obtained from a non-federal private source.

6. **SOURCE OF CONSTRUCTION MATERIALS:**

A. No additional construction materials will be required to build the proposed location. The topsoil will be stockpiled for restoration. The dirt from the reserve pit will be back-sloped and saved for use when the pit is rehabilitated.

7. **METHODS FOR HANDLING WASTE DISPOSAL:**

A. A Conventional Drilling System will be used. The drill cuttings, fluids and completion fluids will be placed in the reserve pit. The reserve pit will be fenced with wire mesh on three sides away from the pad during drilling and the

fourth side fenced as soon as the rig moves out. The reserve pit will be backfilled and leveled as soon as practical.

B. All garbage and trash will be placed in specially constructed wire mesh containers. Upon cleanup, the refuse in the containers will be hauled to an approved landfill site.

1 All produced water will be collected in tanks until transported to an approved disposal system.

8. **ANCILLARY FACILITIES**:

A. None

9. **WELL SITE LAYOUT**:

A. Attached sketch shows the relative location and dimensions of the well pad, and reserve pit. The well pad will be 300' X 300'. The reserve pit will be 150' X 150'. (see diagram).

10. PLANS FOR RESTORATION OF SURFACE:

A. Pit will be filled and leveled as soon as practical. If well is productive, drilling pad will remain as well service pad. If dry hole, the pad will be ripped and re-seeded per regulations. See Pad Mitigation for details of the surface restoration and seeding details.

11. **OTHER INFORMATION:**
    A. **Terrain/Topography** – Gently sloping areas with ridges or mesa tops and Limestone out crops in places.
    B. **Soil:** *Ector stony loam, 0 to 9 percent slope-* grayish brown stony loam to light colored limestone bedrock
    C. Flora and Fauna: scrubland community consisting mainly of black grama, blue grama, beargrass, tobosa, sotol, agave, ocotillo, snakeweed, tarbush, and yucca.
    D. Ponds and Streams: None. Playas in the area will be avoided.
    E. **Residence and Other Structures:** There are no occupied residences or buildings within one quarter of a mile of the proposed well location
    F. **Land Use:** grazing, wildlife, mineral development.
    G. **Water Wells:** No water wells are located in Section.
    H. **Arroyos, Canyons, etc.:** none.
    I. **Well Sign;** Sign identifying and locating the well will be maintained at drill site with the spudding of the well.
    J. **Archaeological Resources**: Archaeological Survey is forth coming.
    K. **Surface Ownership:** Bureau of Land Management

12. **Operator's Representatives:** Field personnel who can be contacted concerning compliance of the Surface Use Plan are as follows:

Steve Simonton, Drilling Superintendent
Cimarex Energy Co.
15 East 5th Street, Suite 1000
Tulsa, OK 74103
918-295-1710

13. Certification:

I hereby certify that I, or persons under my direct supervision, have inspected the drill site and access route, that I am familiar with the conditions which presently exist; that the statements made in this plan are, to the best of my knowledge, true and correct, and that the work associated with the operations proposed herein will be performed by Cimarex Energy Co., and its contractors and sub-contractors in conformity with this plan and the terms and conditions under which it is approved.

BY: Steve Simonton, Drilling Superintendent

02/25/2005
DATE

CIMAREX ENERGY CO.

WELL NAME: **McGruder Hill Unit #2**

DRILLING PROGNOSIS

1. Location of Proposed Well: 1350' FNL & 660' FEL Section 13-T22S-R22E, Eddy County, New Mexico

2. Unprepared Ground Elevation: 3797'

3. The geological name of the surface formation is Tansill

4. Type of drilling tools will be rotary

5. This will be a directional well. BHL 970' FNL 1,800' FEL

6. Proposed drilling depth is 11,930' MD / 11,750' TVD

The estimated tops of important geologic markers are as follows:

ZONES	TOPS (TVD)
Tansill	Surface
Capitan	257'
Delaware	2,628'
Bone Spring	4,991'
Wolfcamp	8,562'
Cisco	9,769'
Strawn	10,047'
Atoka	10,433'
Morrow	10,830'
Lower Morrow	11,399'
TD	11,750'

7. The estimated depths at which anticipated water, oil, gas or other mineral bearing formations are expected to be encountered are as follows:

ZONES	DEPTH	FLUID
Tansill	0-100'	Water
Atoka	10,433' – 10,830'	Gas
Morrow	10,842 -11,600'	Gas

8. The proposed casing program is as follows:

Water: 13-3/8", 48 ppf, H-40, STC set at 650';
Burst – 1730 psi, Collapse – 740 psi, Joint Strength – 322,000#, Body Strength – 541,000#

Surface: 9-5/8", 36 ppf, K55, LTC set at 2650';
Burst – 2020 psi, Collapse – 3520 psi, Joint Strength – 489,000#, Body Strength – 564,000#

Production: 5-1/2", 17 ppf, P-110, LTC set at 11,920'.
Burst – 10640 psi, Collapse – 7480 psi, Joint Strength – 445,000#, Body Strength – 546,000#

9. Cement Program:

Water 13-3/8"

Lead: 330 sks 35:65 (Poz:C) + 6% D020 + 0.25 pps D029 + 2% S001 @ 12.6 ppg Excess = 100% Water = 10.78 gps Yield = 1.97 cuft/sk TOC = Surface

Tail: 200 sks Class C + 0.25 pps D029 + 2% S001 @ 14.8 Excess = 100% Water = 6.29 gps Yield = 1.34 cuft/sk TOC = 480'

Surface 9-5/8"

Lead: 530 sks 35:65 (Poz:C) + 5% D044(bwow) + 6% D020 + 0.2% D046 + 0.25 pps D029 @ 12.6 ppg Excess = 125% Water = 11.21 gps Yield = 2.04 cuft/sk TOC = Surface

Tail: 200 sks Class C + 0.25 pps D029 + 2% S001 @ 14.8 Excess = 0% Water = 6.29 gps Yield = 1.34 cuft/sk TOC = 1850'

Production 5-1/2"

First Stage: 570 sks 50:50 (Poz:H) + 5% D044(bwow) + 2% D020 + 0.3% D167 + 0.2% D065 + 0.2% D046 + 0.2% D013 @ 14.4 ppg Excess = 30% Water = 5.98 gps Yield = 1.31 cuft/sk TOC = 8,500'

Second Stage: 1570 sks 50:50 (Poz:H) + 5% D044(bwow) + 2% D020 + 0.3% D167 + 0.2% D065 + 0.2% D046 + 0.2% D013 @ 14.4 ppg Excess = 30% (OH) Water = 5.98 gps Yield = 1.31 cuft/sk TOC = Surface'

Stage Collar Program: DV tool will be ran ± 8,500' in the production casing. 1st stage cement will be circulate from TD to 8,500'. 2nd stage will go from 8,500 to surface.

10. Pressure Control Equipment:

A schematic diagram of the final BOP stack showing sizes and pressure ratings is

attached. A schematic diagram of the manifold showing sizes and pressure ratings is attached. The BOP will be set on casing head after drilling and setting surface casing. Pressure tests will be done as needed & after nippling up on the surface casing. Ram-Type preventors shall be actuated to test proper functioning at least once a day. The annular-type blowout preventor shall be actuated on the drill pipe at least once each week.

11 **Drilling Mud Prognosis:**

DEPTH INTERVAL	**WEIGHT (ppg)**	**VISCOSITY (Sec/Qt)**	**FLUID LOSS (ml/30 min)**	**MUD TYPE**
0-650	8.4 – 9.0	27 - 40	NC	Fresh water, native
650 - 2650	8.4 – 8.6	28 - 32	NC	Fresh water, gel sweeps
2300 – 11930	8.4 – 9.8	28 – 45	NC-10	Low Solids / Lightly dispersed

12. The testing, logging, and coring programs are as follows:

Neutron – Density: Surface to TD

Laterlog: Base of casing to TD

Sonic: Base of casing to TD

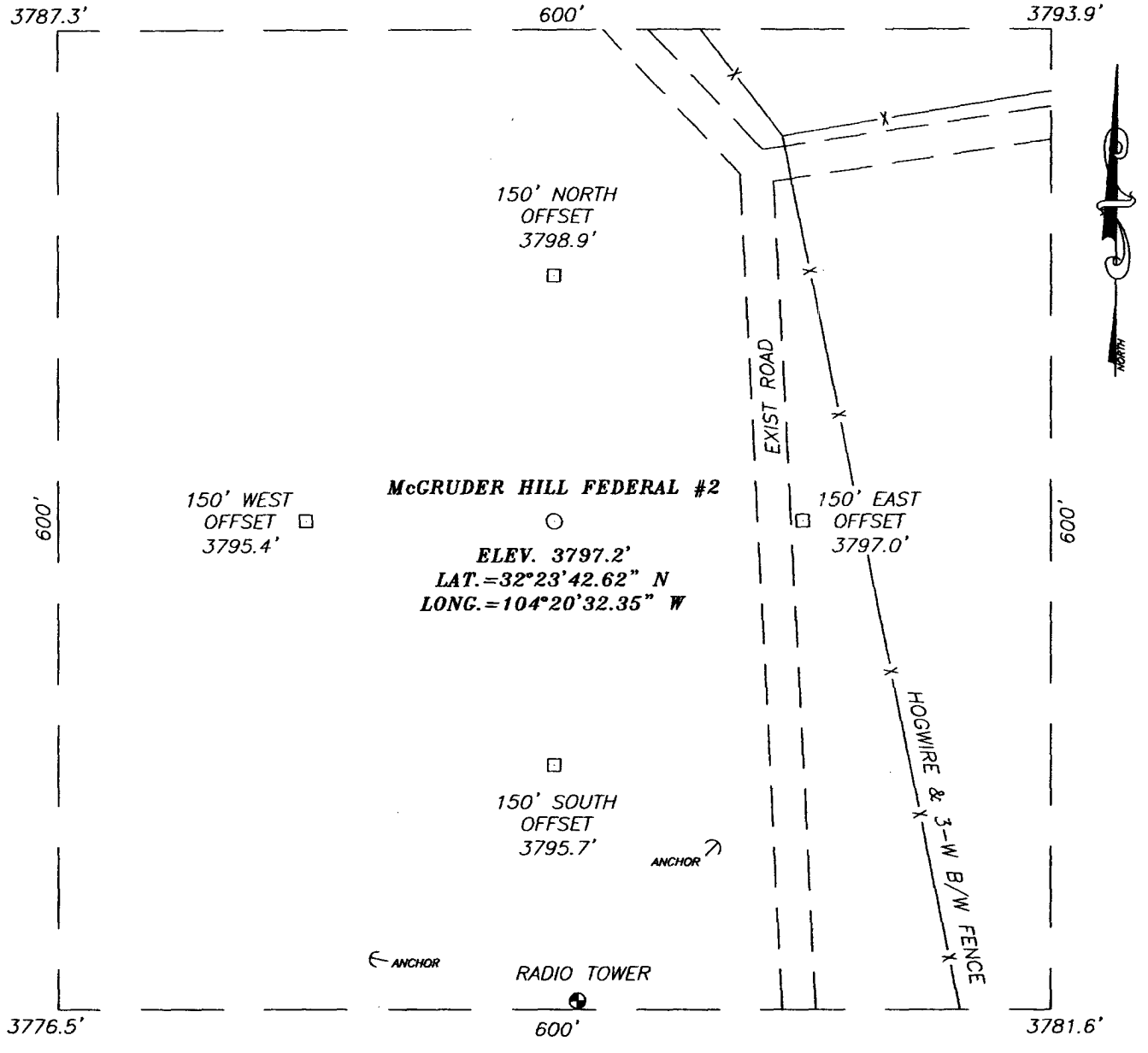
Formation Imager: 500' in Morrow and/or Wolfcamp

13. Abnormal temperatures are not anticipated to be encountered nor any other potential hazards such as Hydrogen Sulfide Gas. Low risk H_2S equipment will be used.

Estimated Bottom hole pressures: Morrow - +/- 5,790 psi

14. The anticipated starting date is sometime around April 17, 2005 with duration of drilling/completion operations for approximately 45 days thereafter.

ION 13, TOWNSHIP 22 SOUTH, RANGE 25 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO



DIRECTIONS TO LOCATION

FROM THE INTERSECTION OF ST. HIGHWAY. #524 AND CO. RD. #427 (JONES RD.) GO WEST ON CO. RD. #427 FOR APPROX. 4.9 MILES. TURN LEFT (SOUTH) AND GO APPROX. 0.55 MILES. ROAD BENDS RIGHT, AND MEANDERS SW FOR APPROX. 0.6 MILES. ROAD TURNS LEFT AND GOES APPROX. 0.4 MILES. FOLLOW BEND TO THE RIGHT AND GO SOUTH. FOLLOW ROAD APPROX. 0.1 MILES. PROPOSED LOCATION IS APPROX. 175' WEST.

100 0 100 200 Feet

Scale:1"=100'

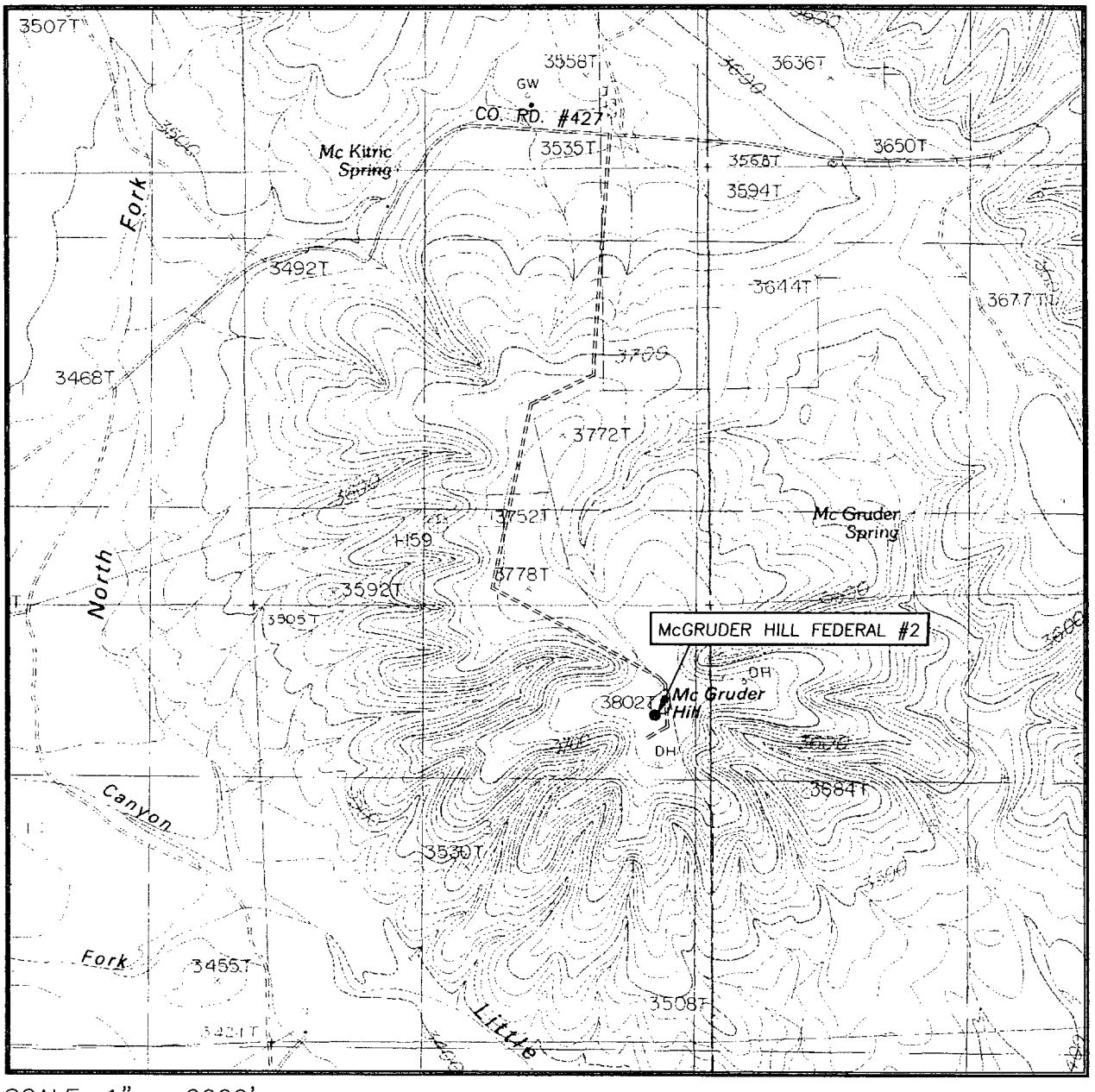
PROVIDING SURVEYING SERVICES SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(505) 393-3117

CIMAREX ENERGY COMPANY

McGRUDER HILL FEDERAL #2 WELL
LOCATED 1350 FEET FROM THE NORTH LINE
AND 660 FEET FROM THE EAST LINE OF SECTION 13,
TOWNSHIP 22 SOUTH, RANGE 25 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO.

Survey Date: 2/14/05	Sheet 1 of 1 Sheets		
W.O. Number: 05.11.0171	Dr By: J.R.	Rev 1:N/A	
Date: 2/17/05	Disk: CD#5	05110171	Scale:1"=100'

LOCATION VERIFICATION MAP



SCALE: 1" = 2000'

CONTOUR INTERVAL:
CARLSBAD WEST, N.M. – 20'

SEC. 13 TWP. 22-S RGE. 25-E

SURVEY N.M.P.M.

COUNTY EDDY

DESCRIPTION 1350' FNL & 660' FEL

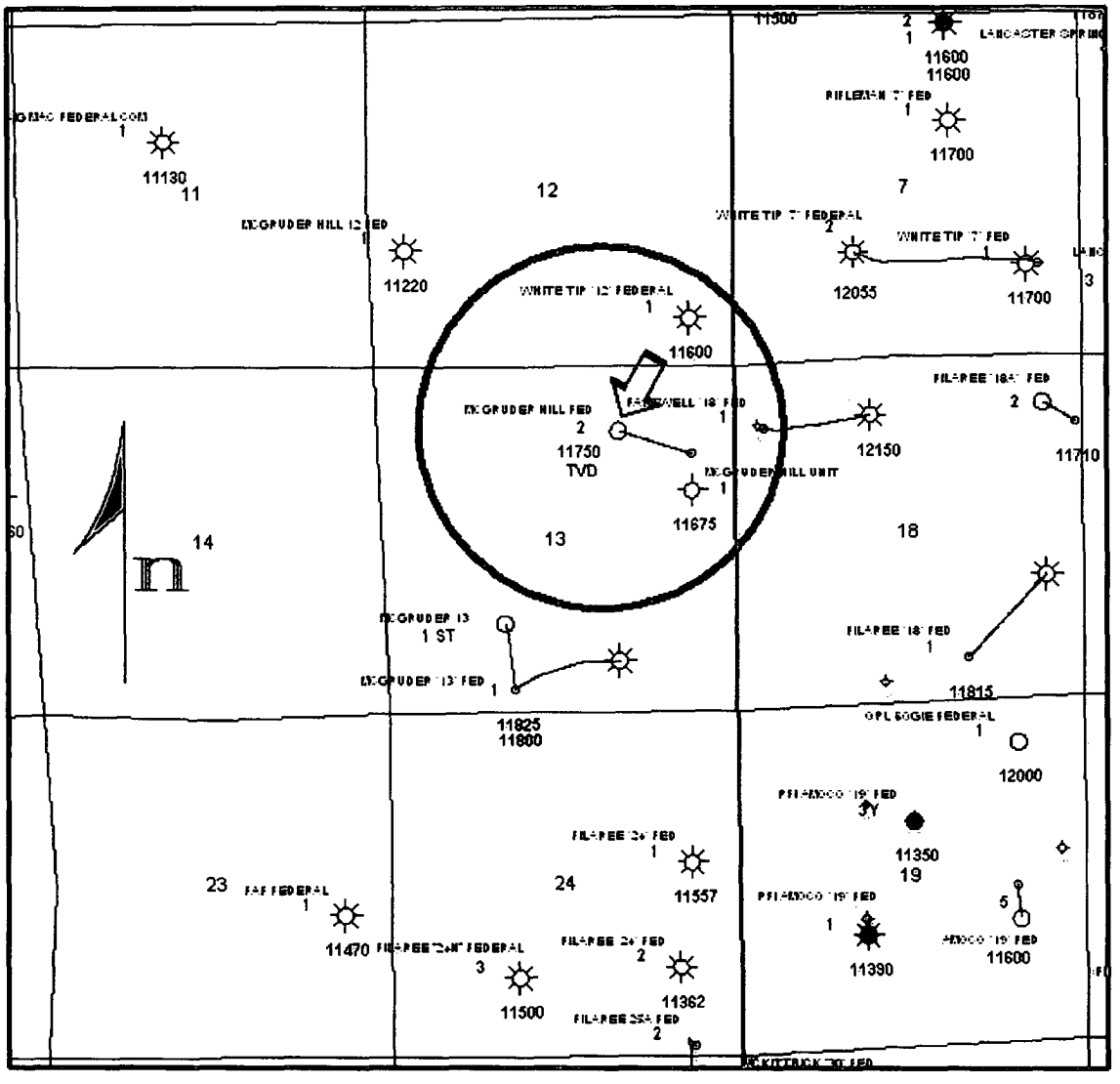
ELEVATION 3797'

OPERATOR CIMAREX ENERGY COMPANY

LEASE McGRUDER HILL FEDERAL

U.S.G.S. TOPOGRAPHIC MAP
CARLSBAD WEST, N.M.

PROVIDING SURVEYING SERVICES
SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(505) 393-3117

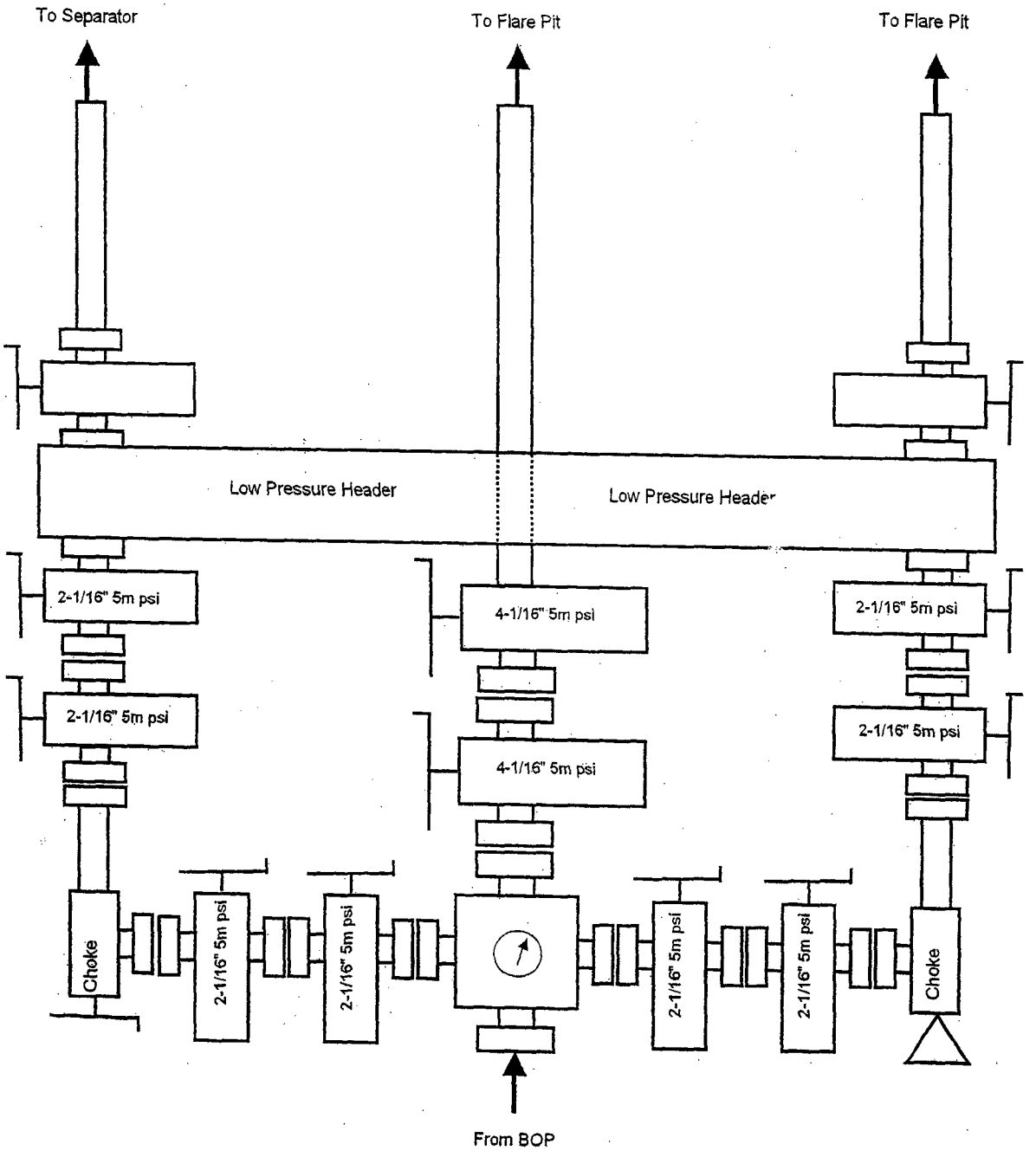


1" = 4000'

Cimarex Energy Company		
McGruder Hill Federal #2 Section 13-T22S-R25E Eddy Co, NM		
Author: Dave Rittersbacher		Date: 21 February, 2005
	Scale: 1"=4000'	

CIMAREX ENERGY CO. – McGruder Hill Federal #2

Choke Manifold



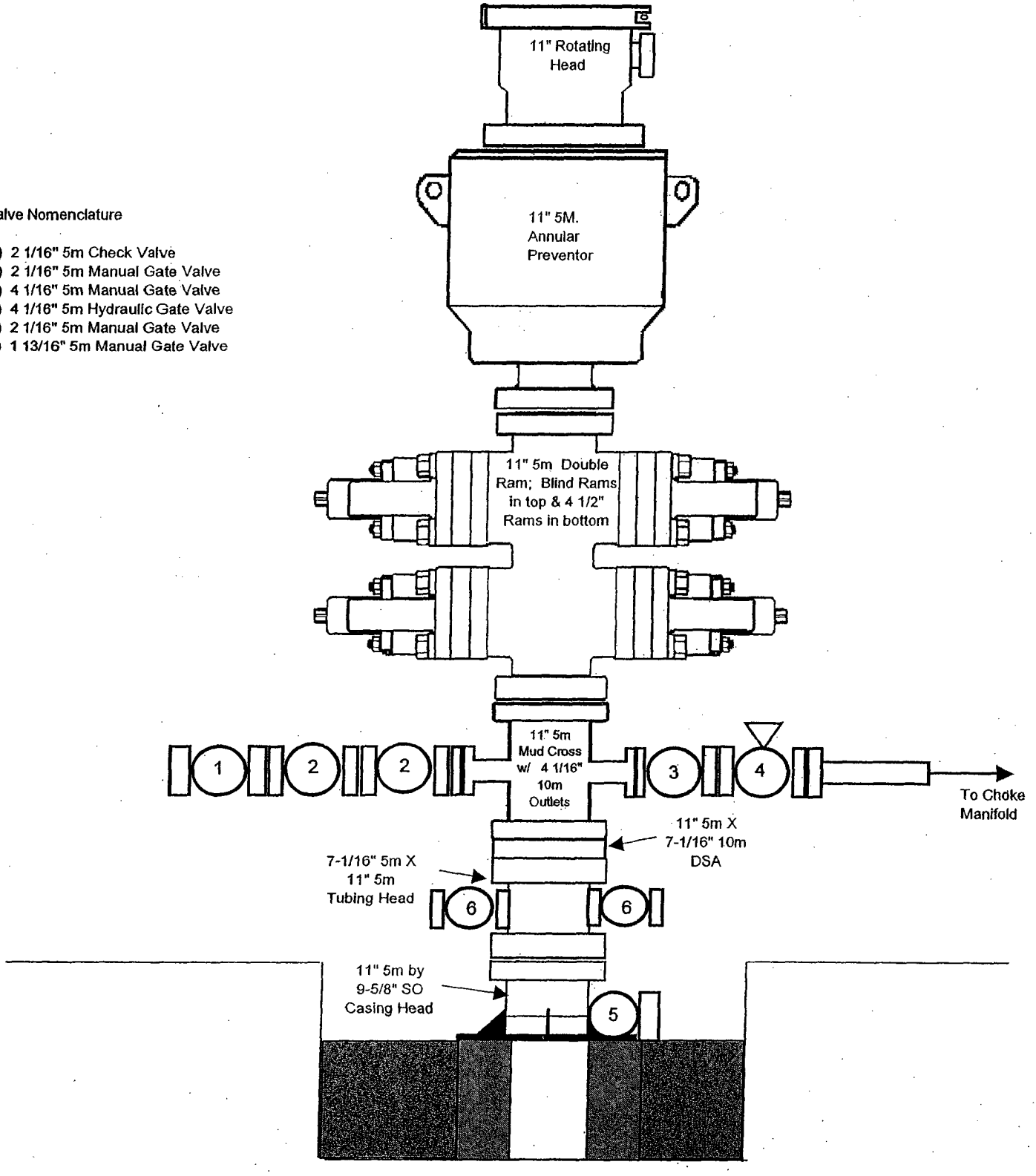
CIMAREX ENERGY CO.

McGruder Hill Federal #2

Proposed Blowout Preventor Stack

Valve Nomenclature

1.) 2 1/16" 5m Check Valve
2.) 2 1/16" 5m Manual Gate Valve
3.) 4 1/16" 5m Manual Gate Valve
4.) 4 1/16" 5m Hydraulic Gate Valve
5.) 2 1/16" 5m Manual Gate Valve
6.) 1 13/16" 5m Manual Gate Valve



United State Department of the Interior
Bureau of Land Management
Roswell Field Office
2909 West Second Street
Roswell, New Mexico 88201-1287

Statement Accepting Responsibility for Operations

Operator Name: Cimarex Energy Co.
Street or Box: 15 E 5th, Ste 1000
City, State: Tulsa, OK
Zip Code: 74103

The undersigned accepts all applicable terms, conditions, stipulations, and restrictions concerning operations conducted on the leased land or portion thereof, as described below:

Lease No: NMNM 112898

Legal Description of Land: Sec 13-22S-25E
Eddy County, NM

Formation(s) (if applicable):

Bond Coverage: Cimarex Energy Co. is individually bonded with the BLM

BLM Bond File No.: C0B000011

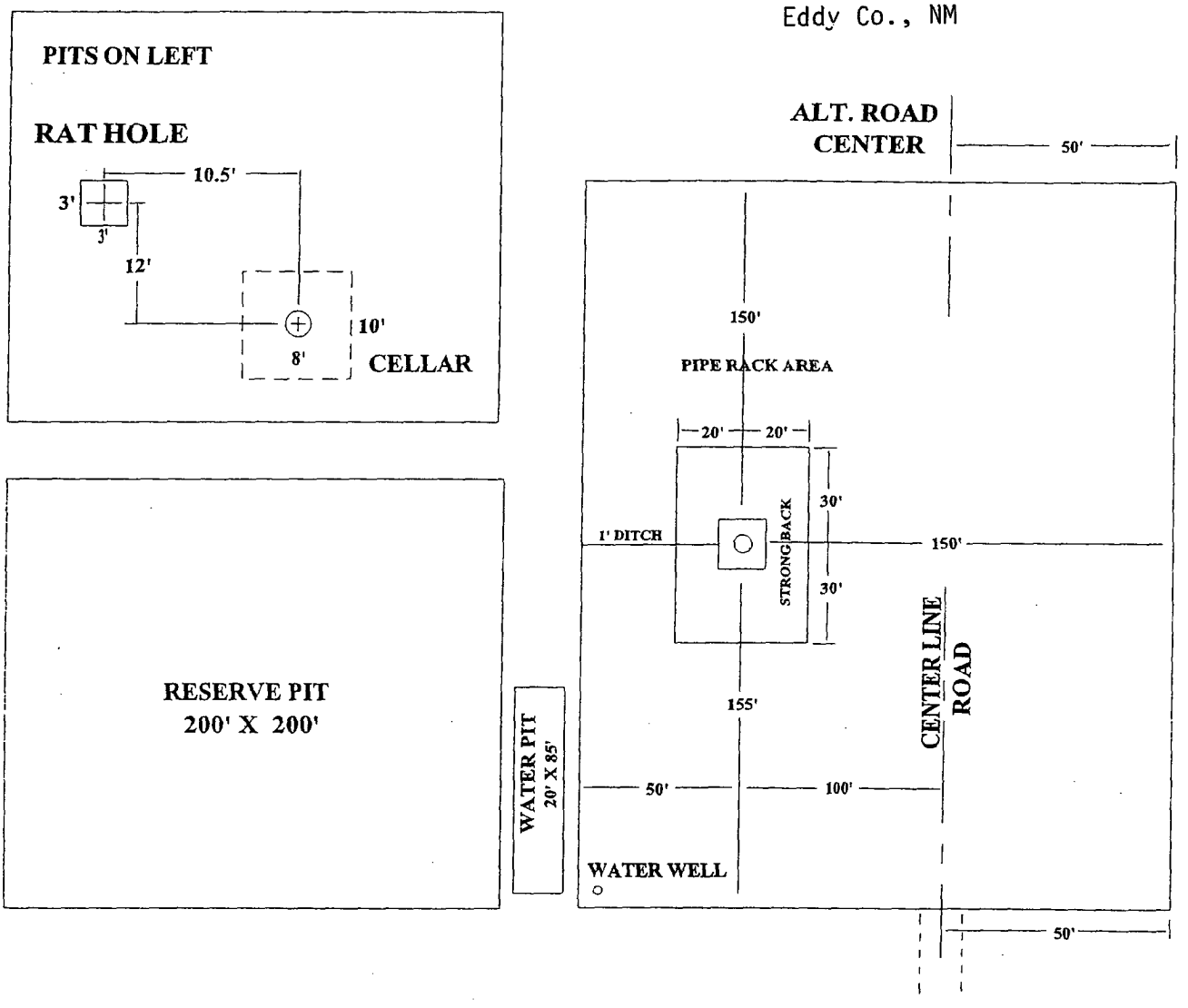
Authorized Signature:

Title: Drilling Superintendent

Date: February 23, 2005

GREY WOLF

Cimarex Energy Company
McGruder Hill Federal Well 2
1350' FNL & 660' FEL (SHL)
900' FNL & 1780' FEL (BHL)
Section 13-T22S-R25E
Eddy Co., NM



RIG 514

REV 05/28/04

Cimarex Energy Co., Inc.

Eddy Co., New Mexico
McGruder Hill Unit #2
McGruder Hill Unit #2
Slant #1

Plan: Plan #5

Standard Planning Report

26 April, 2005

BLACK VIPER
ENERGY SERVICES, LTD.

Database:	EDM 2003.5 Single User Db	**Local Co-ordinate Reference:**	Well McGruder Hill Unit #2
Company:	Cimarex Energy Co., Inc.	**TVD Reference:**	WELL @ 0.00ft (Original Well Elev)
Project:	Eddy Co., New Mexico	**MD Reference:**	WELL @ 0.00ft (Original Well Elev)
Site:	McGruder Hill Unit #2	**North Reference:**	True
Well:	McGruder Hill Unit #2	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Slant #1		
Design:	Plan #5		

Project Eddy Co., New Mexico

Map System:	US State Plane 1927 (Exact solution)	**System Datum:**	Ground Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site McGruder Hill Unit #2

Site Position:		**Northing:**	507527.42 ft	**Latitude:**	32° 23' 43.087" N
From:	Lat/Long	**Easting:**	492113.76 ft	**Longitude:**	104° 21' 31.992" W
Position Uncertainty:	0.00 ft	**Slot Radius:**	in	**Grid Convergence:**	-0.01 °

Well McGruder Hill Unit #2

Well Position	**+N/-S**	0.00 ft	**Northing:**	507527.42 ft	**Latitude:**	32° 23' 43.087" N
	+E/-W	0.00 ft	**Easting:**	492113.76 ft	**Longitude:**	104° 21' 31.992" W
Position Uncertainty		0.00 ft	**Wellhead Elevation:**	ft	**Ground Level:**	0.00 ft

Wellbore Slant #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2005-10	2/16/2005	8.69	60.35	49297

Design Plan #5

Audit Notes:

Version:	**Phase:**	PROTOTYPE	**Tie On Depth:** 7600.00

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	249.00

Plan Sections

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
7600.00	0.00	249.00	7600.00	0.00	0.00	0.00	0.00	0.00	0.00	
8234.22	19.03	249.00	8222.63	-37.40	-97.41	3.00	3.00	0.00	249.00	
11594.16	19.03	249.00	11399.00	-430.00	-1120.00	0.00	0.00	0.00	0.00	T1 [McGHU#2]
11965.44	19.03	249.00	11750.00	-473.38	-1233.00	0.00	0.00	0.00	0.00	

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
7600.00	0.00	249.00	7600.00	0.00	0.00	0.00	0.00	0.00	0.00
KOP - Build 3/100									
8234.22	19.03	249.00	8222.63	-37.40	-97.41	104.34	3.00	3.00	0.00
EOC - Hold 19.03*									
11594.16	19.03	249.00	11399.00	-430.00	-1120.00	1199.71	0.00	0.00	0.00
11965.44	19.03	249.00	11750.00	-473.38	-1233.00	1320.75	0.00	0.00	0.00

Database:	EDM 2003.5 Single User Db	**Local Co-ordinate Reference:**	Well McGruder Hill Unit #2
Company:	Cimarex Energy Co., Inc.	**TVD Reference:**	WELL @ 0.00ft (Original Well Elev)
Project:	Eddy Co., New Mexico	**MD Reference:**	WELL @ 0.00ft (Original Well Elev)
Site:	McGruder Hill Unit #2	**North Reference:**	True
Well:	McGruder Hill Unit #2	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Slant #1		
Design:	Plan #5		

Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S ft	+E/-W ft	Northing (ft)	Easting (ft)	Latitude	Longitude
T1 [McGHU#2] -Rectangle (sides W400.00 H400.00 D0.00)	0.00	0.00	11399.00	-430.00	-1120.00	507097.69	490993.66	32° 23' 38.831" N	104° 21' 45.055" W
PBHL [McGHU#2] -Point	0.00	0.00	11750.00	-430.00	-1120.00	507097.69	490993.66	32° 23' 38.831" N	104° 21' 45.055" W

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
8593.20	8562.00	Wolfcamp		0.00	
9869.96	9769.00	Cisco		0.00	
10164.02	10047.00	Strawn		0.00	
10572.33	10433.00	Atoka		0.00	
10992.27	10830.00	Morrow		0.00	
11594.16	11399.00	Lower Morrow		0.00	

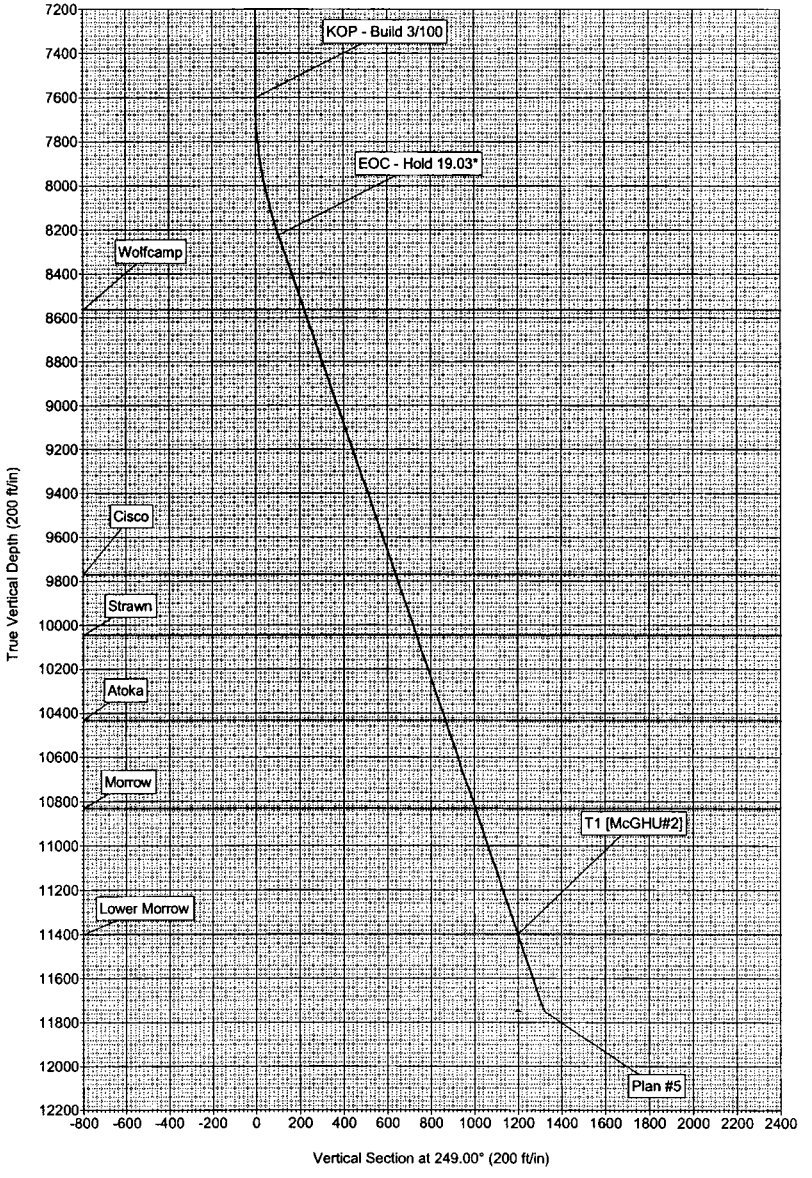
Plan Annotations

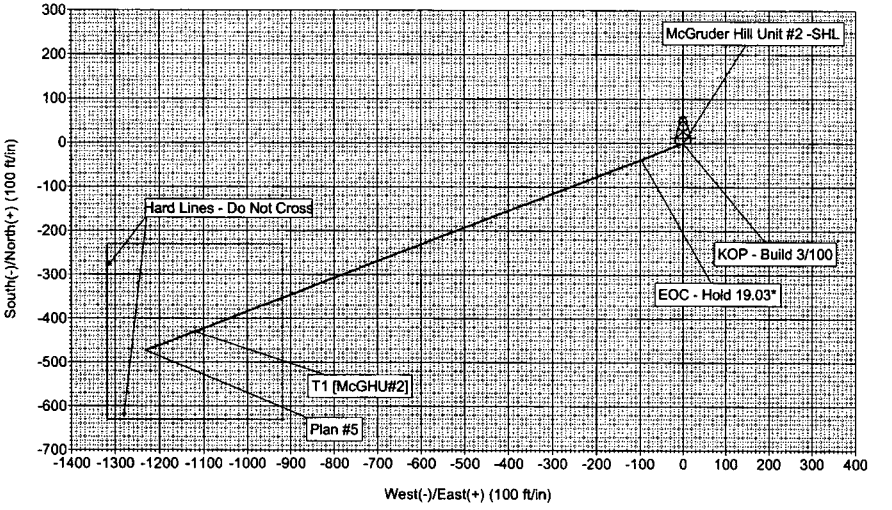
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
7600.00	7600.00	0.00	0.00	KOP - Build 3/100
8234.22	8222.63	-37.40	-97.41	EOC - Hold 19.03*

CIMAREX

Project: Eddy Co., New Mexico
Site: McGruder Hill Unit #2
Well: McGruder Hill Unit #2
Wellbore: Slant #1
Plan: Plan #5

BLACK VIPER ENERGY SERVICES, LTD.





Azimuths to True North
Magnetic North: 8.69°

Magnetic Field
Strength: 49296.5nT
Dip Angle: 60.35°
Date: 2/16/2005
Model: IGRF2005-10

ANNOTATIONS

TVD	MD	Annotation
7600.00	7600.00	KOP - Build 3/100
8222.63	8234.22	EOC - Hold 19.03°

Plan: Plan #5 (McGruder Hill Unit #2/Slant #1)
Created By: John Hatteberg Date: 2/16/2005

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	7600.00	0.00	249.00	7600.00	0.00	0.00	0.00	0.00	0.00	
2	8234.22	19.03	249.00	8222.63	-37.40	-97.41	3.00	249.00	104.34	
3	11594.16	19.03	249.00	11399.00	-430.00	-1120.00	0.00	0.00	1199.71	T1 [McGHU#2]
4	11965.44	19.03	249.00	11750.00	-473.38	-1233.00	0.00	0.00	1320.75	

NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

BILL RICHARDSON
Governor
Joanna Prukop
Cabinet Secretary

Mark E. Fesmire, P.E.
Director
Oil Conservation Division

April 27, 2005
Cimarex Energy Company
15 E 5th Ste 1000
Tulsa, OK 74103
Attn: Ms. Sharon LaValley

RE: Cimarex Energy Company, located in Unit H (1350' FNL & 660' FEL, Surface Location) of Section 13, Township 21 South Range 25 East Eddy County, New Mexico.
API # 30-015-34088

Dear Sharon,
In regards to conditions for approval of the above captioned well, the New Mexico Oil Conservation Division (NMOCD) will require the following:
This is for Cimarex Energy Company to take samples from the flow line of the drilling mud every 100' in order to determine the chloride levels from the surface casing setting depth of @ 650' to the projected 9 5/8" intermediate casing setting depth of @ 2650'. Please note that we are aware that lost circulation in drilling of the reef may occur and the collection of samples may not be possible at times.
In addition, Cimarex Energy Company is to drill said well with a 'fresh water mud' system from surface to the as intermediate casing point stated in your APD.
The results of this data are to be submitted to the NMOCD and the Bureau of Land Management.
Please call our office if you have any questions regarding this matter.

Respectfully yours,

Bryan G. Arrant
PES

CC: Bureau of Land Management
Well File