

ATS-08-121
EA-08-406



OCD-ARTESIA

FEB 11 2008
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

1a. Type of Work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No NM-12128
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 162683		7. If Unit or CA Agreement, Name and No. Pending
3a. Address PO Box 140907 Irving, TX 75014	3b. Phone No (include area code) 972-401-3111	8. Lease Name and Well No. 37001 Juno 27 Federal Com No. 1
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At Surface 660' FNL & 330' FWL At proposed prod Zone 660' FNL & 330' FEL Horizontal Abo Test		9. API Well No 30-015- 36111
14. Distance in miles and direction from nearest town or post office* 2 miles Northeast of Loco Hills		10. Field and Pool, or Exploratory Abo Wildcat
15. Distance from proposed* location to nearest property or lease line, ft (Also to nearest drig. unit line if any) 330'		11. Sec., T. R. M. or Blk and Survey or Area 27-16S-29E
16. No of acres in lease 720	17. Spacing Unit dedicated to this well N2N2 160	12. County or Parish Eddy
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. NA	19. Proposed Depth TVD 7240 MCD 11,674'	13. State NM
20. BLM/BIA Bond No on File NM-2575	21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3,657' GR	
22. Approximate date work will start* 2/1/2007	23. Estimated duration 35-45 days	

24 Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, shall be attached to this form:

- | | |
|--|--|
| 1. Well plat certified by a registered surveyor | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above) |
| 2. A Drilling Plan | 5. Operator Certification |
| 3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO shall be filed with the appropriate Forest Service Office) | 6. Such other site specific information and/or plans as may be required by the authorized officer. |

25. Signature <i>Zeno Farris</i>	Name (Printed/Typed) Zeno Farris	Date 12.12.07
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Title

Manager Operations Administration

Approved By (Signature) <i>/s/ Don Peterson</i>	Name (Printed/Typed) <i>/s/ Don Peterson</i>	Date FEB 07 2008
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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 TWO YEARS

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

*(Instructions on page 2)

Roswell Controlled Water Basin

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

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 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, 2006

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 30-015-36111	Pool Code 97019	Pool Name Abo Wildcat
Property Code	Property Name JUNO "27" FEDERAL COM	Well Number 1
OGRID No. 162683	Operator Name CIMAREX ENERGY CO. OF COLORADO	Elevation 3657'

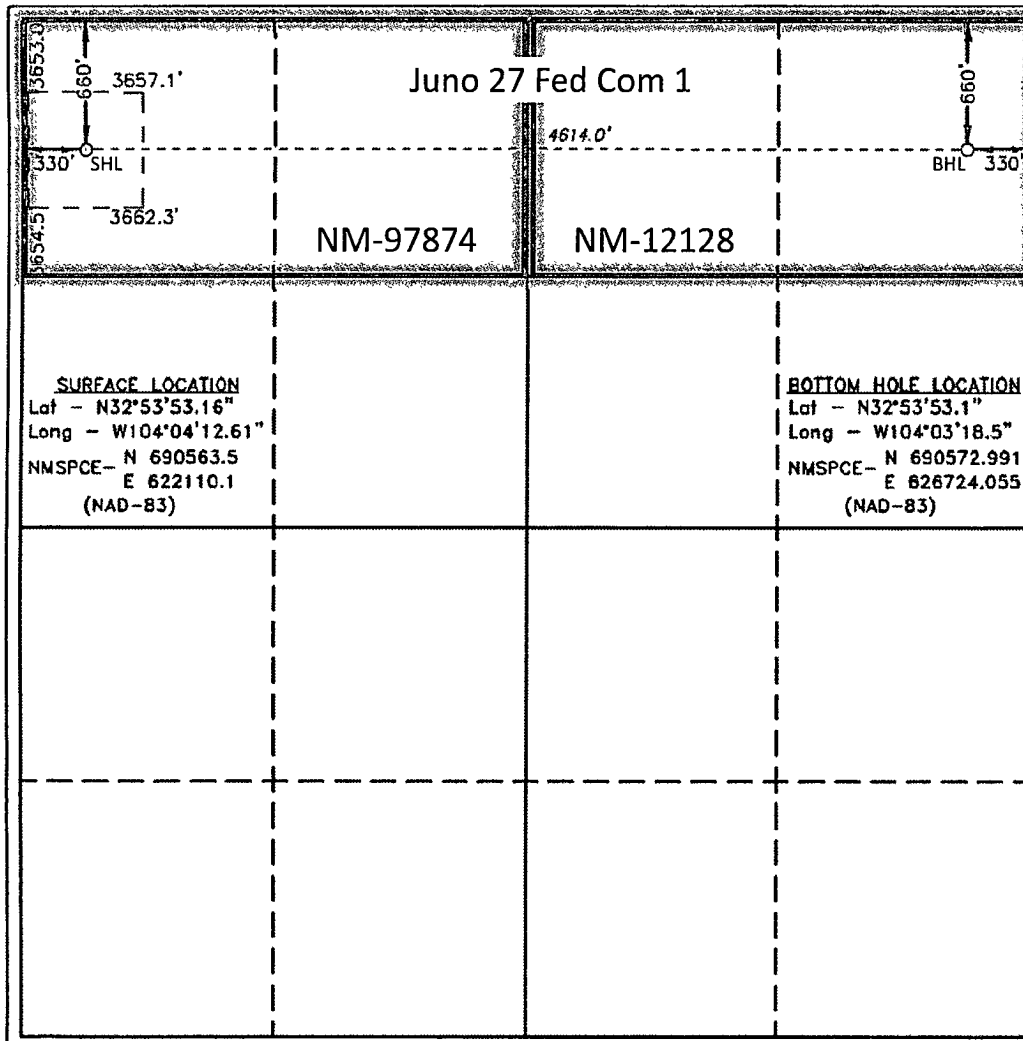
Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	27	16 S	29 E		660	NORTH	330	WEST	EDDY

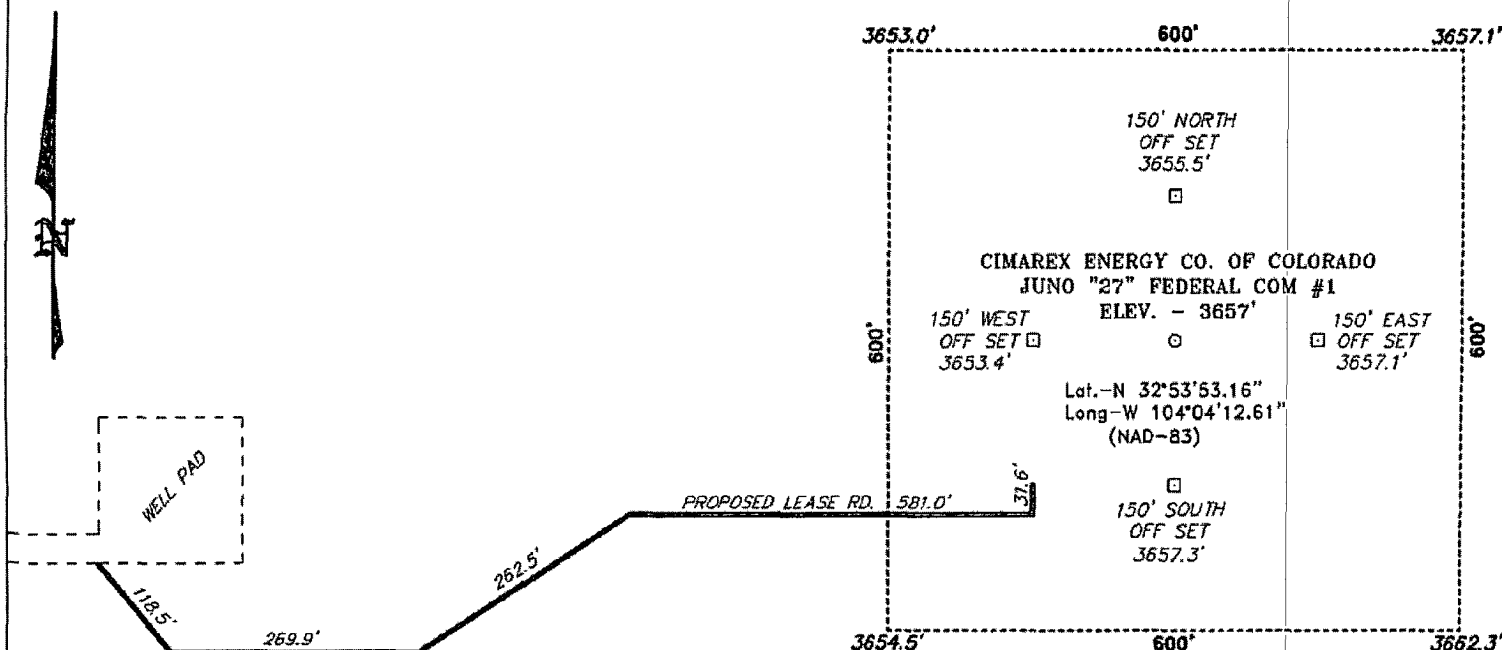
Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	27	16 S	29 E		660	NORTH	330	EAST	EDDY
Dedicated Acres 160	Joint or Infill	Consolidation Code P	Order No.						

**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 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. Zeno Farris 12-12-07 Signature Date Zeno Farris Printed Name	
SURFACE LOCATION Lat - N32°53'53.16" Long - W104°04'12.61" NMSPCE- N 690563.5 E 622110.1 (NAD-83)		BOTTOM HOLE LOCATION Lat - N32°53'53.1" Long - W104°03'18.5" NMSPCE- N 690572.991 E 626724.055 (NAD-83)	
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 supervision, and that the same is true and correct to the best of my belief. NOVEMBER 3, 2007 Date Surveyed Signature of Professional Surveyor W. Gary L. Jones Certificate No. Gary L. Jones 7977 BASIN SURVEYS			

SECTION 27, TOWNSHIP 16 SOUTH, RANGE 29 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO.



Directions to Location:

FROM JUNCTION OF US HWY 82 AND BARNIVAL DRAW ROAD, GO NORTH ON BARNIVAL DRAW FOR 5.2 MILES TO LEASE ROAD, ON LEASE ROAD GO NORTHEAST 0.5 MILES TO PROPOSED LEASE ROAD.

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

W.O. Number: 18749 Drawn By: J. SMALL

Date: 11-08-2007 Disk: JMS 18749W

CIMAREX ENERGY CO. OF COLORADO

REF: JUNO "27" FEDERAL COM #1 / WELL PAD TOPO

THE JUNO "27" FEDERAL COM #1 LOCATED 660' FROM
THE NORTH LINE AND 330' FROM THE WEST LINE OF
SECTION 27, TOWNSHIP 16 SOUTH, RANGE 29 EAST,
N.M.P.M., EDDY COUNTY, NEW MEXICO.

Survey Date: 11-03-2007 Sheet 1 of 1 Sheets

Application to Drill
Cimarex Energy Co. of Colorado
Juno 27 Federal Com No. 1
Unit D Section 27
T16S R29E Eddy County, NM

In response to questions asked under Section II B of Bulletin NTL-6, the following information is provided for your consideration:

- 1 Location: SHL 660' FNL & 330' FWL
 BHL 660' FNL & 330' FEL *Horizontal Abo Test*

- 2 Elevation above sea level: 3,657' 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: 11,674'

- 6 Estimated tops of geological markers:

San Andres 2,450'
Abo Shale 5,900'
Lower Abo Dolomite 7,130'
Wolfcamp 7,260'

- 7 Possible mineral bearing formation:
Abo Oil

8 Proposed Mud Circulating System:

Depth	Mud Wt	Visc	Fluid Loss	Type Mud
0 to 400'	8.4 - 8.6	30-32	May lose circ	Fresh water spud mud
400' to 2,500'	10.0	28-29	May lose circ	Brine Water
2,500' to 11,674'	8.6 - 9.5	28-29	NC	Fresh water and brine, use hi-vis sweeps to keep hole clean

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 pilot hole to 7200.' Set KO Plug @ 7000.' Kick off horizontal leg @ 6940' and drill 7-7/8" hole to 11674' MD & 7240' TVD. Run 5-1/2" 17# P-110 BTC casing and cement as shown on Page 2, production casing details.

Application to Drill
Cimarex Energy Co. of Colorado
Juno 27 Federal Com No. 1
Unit D Section 27
T16S R29E Eddy County, NM

9 Casing & Cementing Program:

Hole Size	Depth		Casing OD	Weight	Thread	Collar	Grade
17-1/2"	0	to 400'	New 13-3/8"	48#	8-R	STC	H-40
11"	0	to 2,500'	New 8-5/8"	32#	8-R	LTC	J-55
7-7/8"	0	to 11,674'	New 5-1/2"	17#	8-R	BTC	P-110

10 Cementing & Setting Depth:

13-3/8" Surface Set 400' of 13-3/8" 48# H-40 STC
Lead: 171 sx Light Premium Plus + 0.125 lb/sk Poly-E-Flake + 1% CaCl
(wt 14.2, yld 1.64)
Tail: 220 sk Premium Plus + 2% CaCl (wt 14.8, yld 1.35)
TOC Surface

8-5/8" Intermediate Set 2,500' of 8-5/8" 32# J-55 LTC
Lead: 344 sks Interfill C + 0.125 lb/sk Poly-E-Flake (wt 11.9, yld 2.45)
Tail: 200 sks Premium Plus + 1% CaCl (wt 14.8, yld 1.33)
TOC Surface

5-1/2" Production Set 11,674' of 5-1/2" 17# P-110 BTC
1437 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 1,300'

Fresh water will be protected by setting 13-3/8" casing at 400' and cementing to Surface
Hydrocarbon zones will be protected by setting 8-5/8" casing at 2,500' and cementing to Surface
and by setting 5-1/2" casing at 11,674' and cementing to 1,300'

Cimarex uses the following minimum safety factors:

Burst	Collapse	Tension
1.125	1.0	1.80

Application to Drill
Cimarex Energy Co. of Colorado
Juno 27 Federal Com No. 1
Unit D Section 27
T16S R29E Eddy County, NM

11 Pressure control Equipment:

Exhibit "E". A 13 3/8" 5000 PSI working pressure B.O.P. consisting of one set of blind rams and one set of pipe rams and a 5000 # annular type preventer. A choke manifold and 120 gallon accumulator with floor and remote operating stations and auxiliary power system. Rotating head below 6000'. A kelly cock will be installed and maintained in operable condition and a drill string safety valve in the open position will be available on the rig floor.

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 13-3/8" 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 13-3/8" 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 2 man unit from 5500' to TD
- B. Electric logging program: CNL / LDT / CAL / GR, DLL / CAL / GR
- C. No DSTs 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 **155**

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.

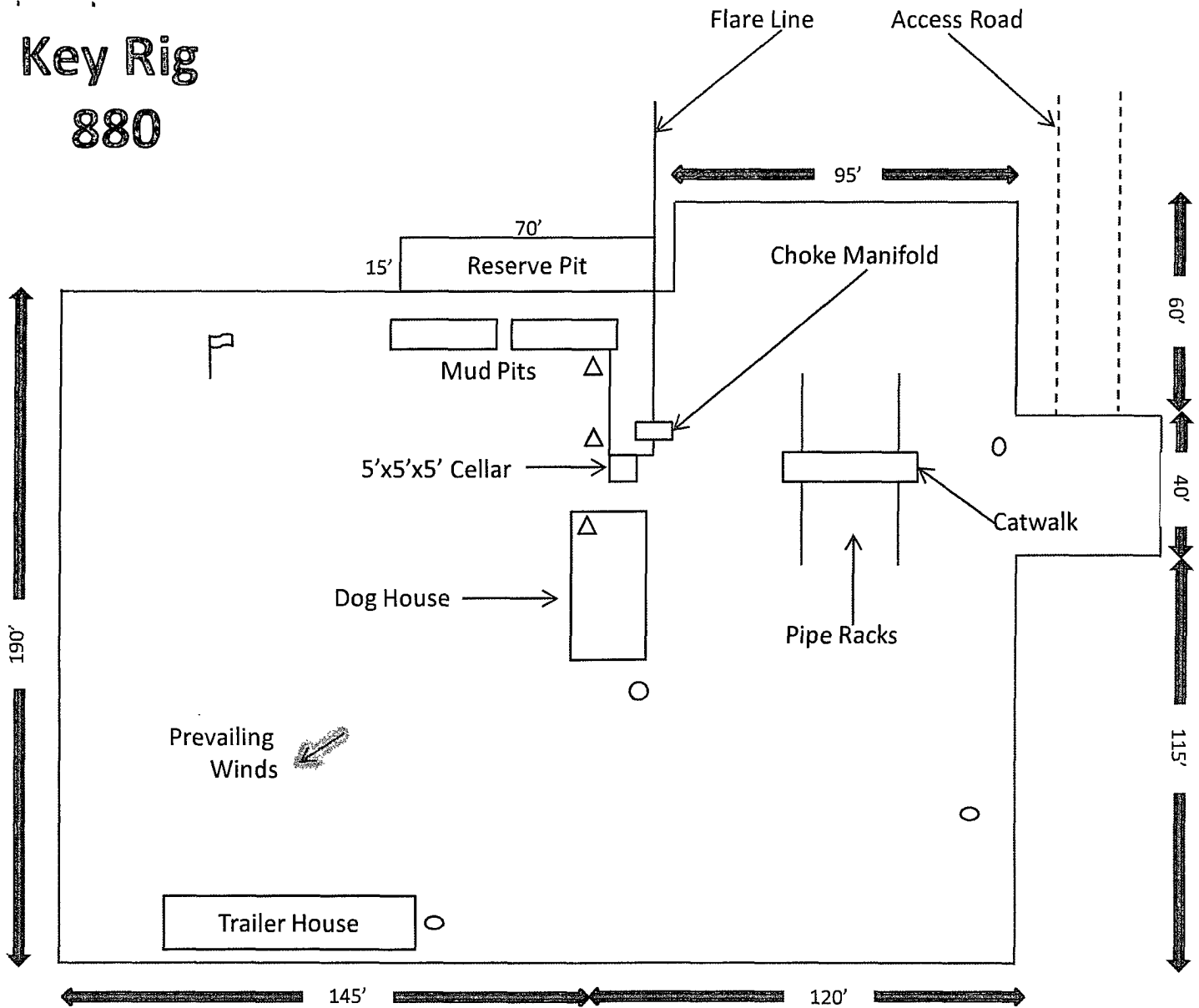
15 Other Facets of Operations:

After running casing, cased hole gamma ray neutron collar logs will be run from total depth over possible pay intervals.

Abo pay will be perforated and stimulated.

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

Key Rig 880



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

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

Exhibit D – Rig Diagram
Juno 27 Federal Com No. 1
Cimarex Energy Co. of Colorado
SHL 660' FNL & 330' FWL
BHL 660' FNL & 330' FEL
27-16S-29E
Eddy County, NM

SR & A

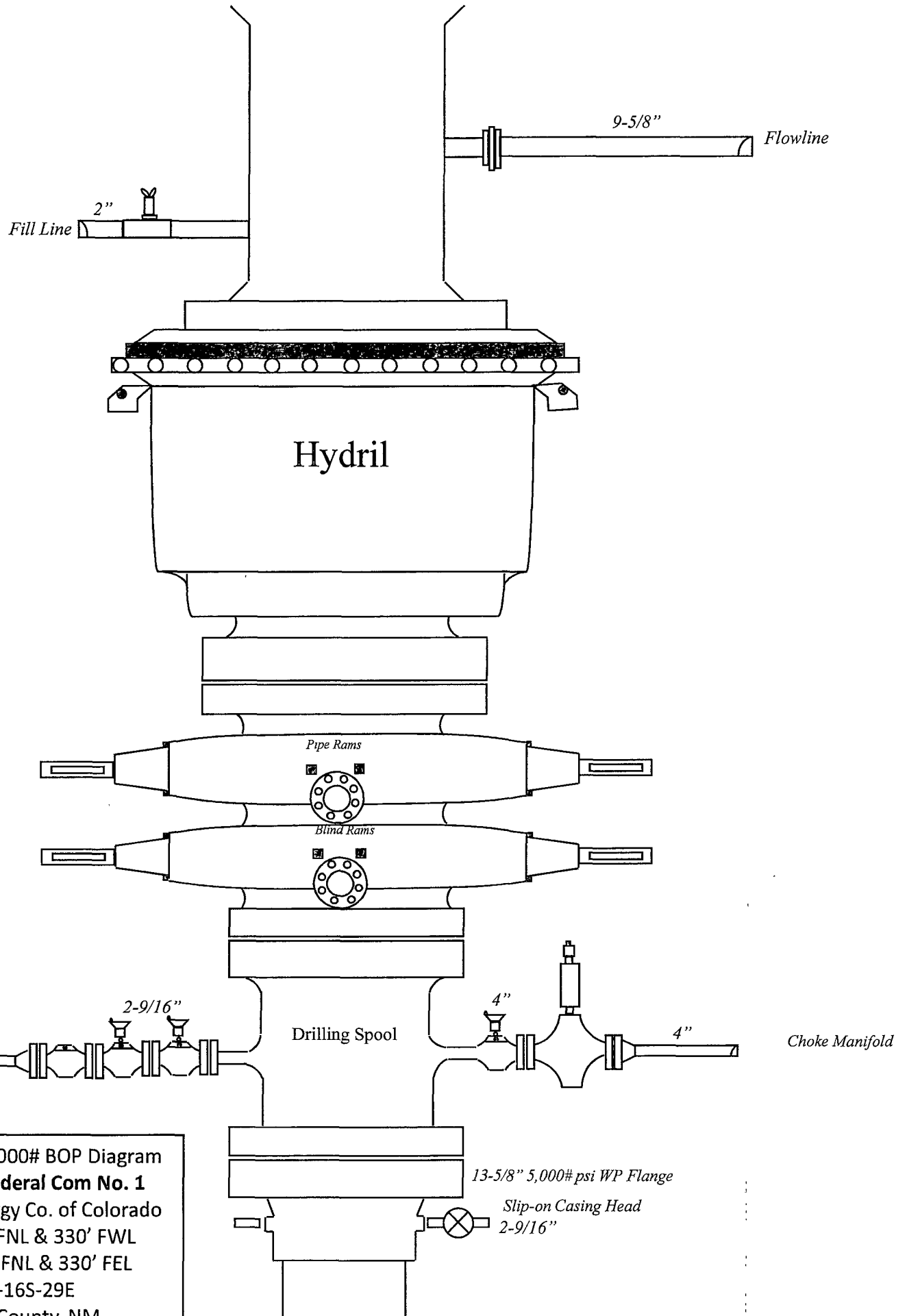


Exhibit E – 5000# BOP Diagram
Juno 27 Federal Com No. 1
 Cimarex Energy Co. of Colorado
 SHL 660' FNL & 330' FWL
 BHL 660' FNL & 330' FEL
 27-16S-29E
 Eddy County, NM

**DRILLING OPERATIONS
CHOKE MANIFOLD
SM SERVICE**

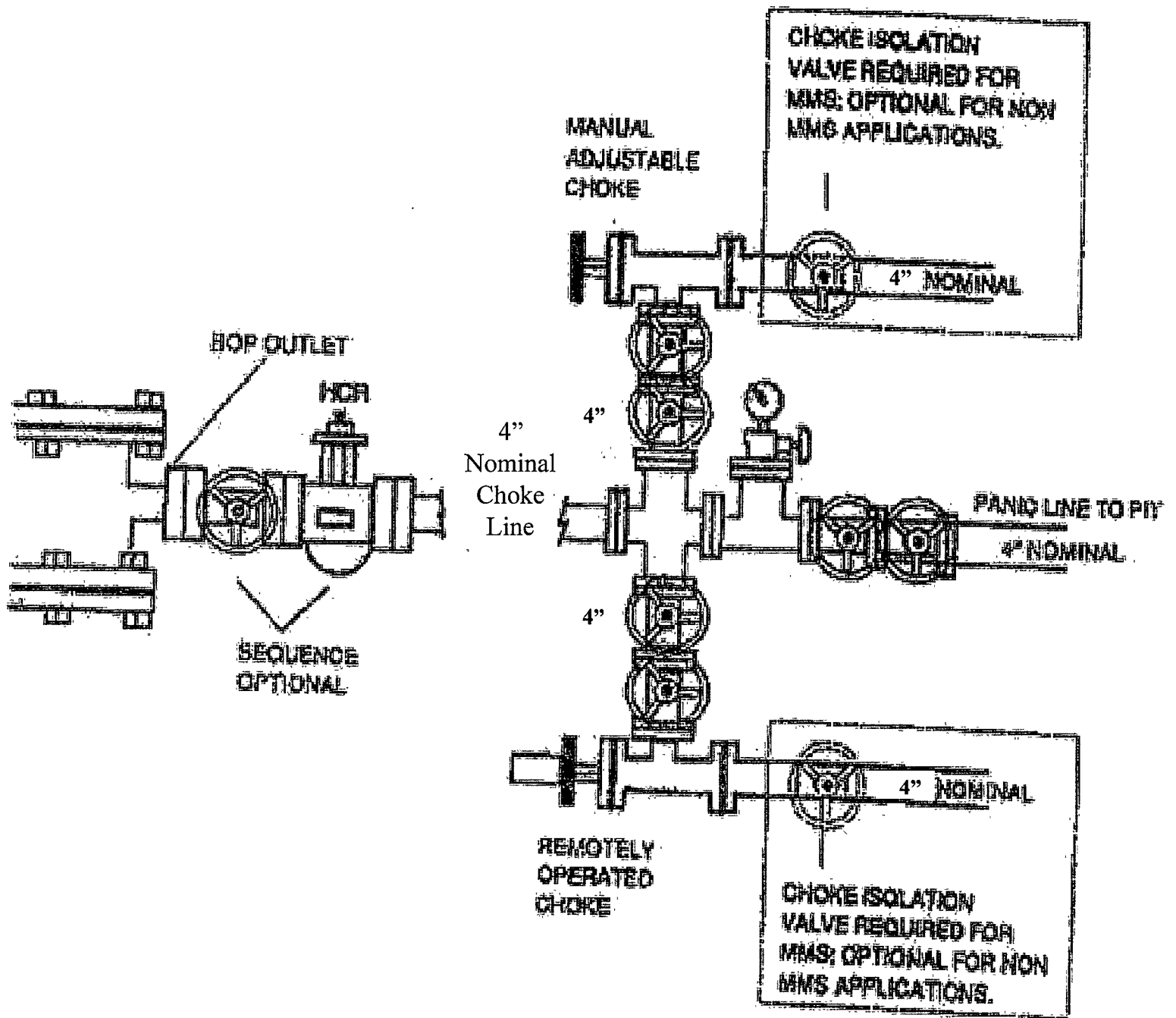


Exhibit E-1 – Choke Manifold Diagram
Juno 27 Federal Com No. 1
 Cimarex Energy Co. of Colorado
 SHL 660' FNL & 330' FWL
 BHL 660' FNL & 330' FEL
 27-16S-29E
 Eddy County, NM

Cimarex Energy Co., Inc.

Eddy Co., New Mexico

Juno "27" Federal Com #1H

Juno "27" Federal Com #1H

Lateral #1

Plan: Plan #1

Standard Survey Report

11 December, 2007

Black Viper Energy

Survey Report

Company:	Cimarex Energy Co., Inc.	Local Co-ordinate Reference:	Well Juno "27" Federal Com #1H
Project:	Eddy Co., New Mexico	TVD Reference:	WELL @ 3657.00ft (Original Well Elev)
Site:	Juno "27" Federal Com #1H	MD Reference:	WELL @ 3657.00ft (Original Well Elev)
Well:	Juno "27" Federal Com #1H	North Reference:	Grid
Wellbore:	Lateral #1	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	EDM 2003.14 Server Db

Project	Eddy Co., New Mexico		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site:	Juno "27" Federal Com #1H, Sec 27, T16S, R29E			
Site Position:		Northing:	690,563.50 ft	Latitude: 32° 53' 53.145 N
From:	Map	Easting:	622,110.10 ft	Longitude: 104° 4' 12.625 W
Position Uncertainty:	0.00 ft	Slot Radius:	"	Grid Convergence: 0.14 °

Well:	Juno "27" Federal Com #1H, Sec 27, T16S, R29E			
Well Position	+N/-S	0.00 ft	Northing:	690,563.50 ft
	+E/-W	0.00 ft	Easting:	622,110.10 ft
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft
			Ground Level:	0.00 ft

Wellbore:	Lateral #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	12/11/2007	8.28	60.82	49,339

Design:	Plan #1			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	6,940.00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction
	(ft)	(ft)	(ft)	(°)
	0.00	0.00	0.00	90.00

Survey Tool Program	Date 12/11/2007			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
6,940.00	11,673.50	Plan #1 (Lateral #1)	MWD	MWD - Standard

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)	
6,940.00	0.00	0.00	6,940.00	0.00	0.00	0.00	0.00	0.00	0.00	
KOP 6940' MD										
6,949.37	0.00	0.00	6,949.37	0.00	0.00	0.00	0.00	0.00	0.00	
Build 30.00°/100'										
6,960.00	3.19	90.00	6,959.99	0.00	0.30	0.30	30.00	30.00	0.00	
6,990.00	12.19	90.00	6,989.69	0.00	4.31	4.31	30.00	30.00	0.00	
7,020.00	21.19	90.00	7,018.40	0.00	12.91	12.91	30.00	30.00	0.00	
7,050.00	30.19	90.00	7,045.41	0.00	25.91	25.91	30.00	30.00	0.00	
7,080.00	39.19	90.00	7,070.05	0.00	42.96	42.96	30.00	30.00	0.00	
7,110.00	48.19	90.00	7,091.72	0.00	63.66	63.66	30.00	30.00	0.00	
7,140.00	57.19	90.00	7,109.88	0.00	87.50	87.50	30.00	30.00	0.00	
7,170.00	66.19	90.00	7,124.10	0.00	113.88	113.88	30.00	30.00	0.00	

Black Viper Energy

Survey Report

Company:	Cimarex Energy Co., Inc.	Local Co-ordinate Reference:	Well Juno "27" Federal Com #1H
Project:	Eddy Co., New Mexico	TVD Reference:	WELL @ 3657.00ft (Original Well Elev)
Site:	Juno "27" Federal Com #1H	MD Reference:	WELL @ 3657.00ft (Original Well Elev)
Well:	Juno "27" Federal Com #1H	North Reference:	Grid
Wellbore:	Lateral #1	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	EDM 2003.14 Server Db

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)
7,186.20	71.05	90.00	7,130.00	0.00	128.96	128.96	30.00	30.00	0.00
Lower Abo Shale									
7,200.00	75.19	90.00	7,134.01	0.00	142.17	142.17	30.00	30.00	0.00
7,230.00	84.19	90.00	7,139.37	0.00	171.65	171.65	30.00	30.00	0.00
7,245.07	88.71	90.00	7,140.30	0.00	186.69	186.69	30.00	30.00	0.00
EOC Hold 88.71° Inc. @ 90° Azm.									
7,260.00	88.71	90.00	7,140.64	0.00	201.62	201.62	0.00	0.00	0.00
7,290.00	88.71	90.00	7,141.31	0.00	231.61	231.61	0.00	0.00	0.00
7,320.00	88.71	90.00	7,141.99	0.00	261.60	261.60	0.00	0.00	0.00
7,350.00	88.71	90.00	7,142.67	0.00	291.59	291.59	0.00	0.00	0.00
7,380.00	88.71	90.00	7,143.34	0.00	321.59	321.59	0.00	0.00	0.00
7,410.00	88.71	90.00	7,144.02	0.00	351.58	351.58	0.00	0.00	0.00
7,440.00	88.71	90.00	7,144.69	0.00	381.57	381.57	0.00	0.00	0.00
7,470.00	88.71	90.00	7,145.37	0.00	411.56	411.56	0.00	0.00	0.00
7,500.00	88.71	90.00	7,146.04	0.00	441.56	441.56	0.00	0.00	0.00
7,530.00	88.71	90.00	7,146.72	0.00	471.55	471.55	0.00	0.00	0.00
7,560.00	88.71	90.00	7,147.39	0.00	501.54	501.54	0.00	0.00	0.00
7,590.00	88.71	90.00	7,148.07	0.00	531.53	531.53	0.00	0.00	0.00
7,620.00	88.71	90.00	7,148.74	0.00	561.53	561.53	0.00	0.00	0.00
7,650.00	88.71	90.00	7,149.42	0.00	591.52	591.52	0.00	0.00	0.00
7,680.00	88.71	90.00	7,150.09	0.00	621.51	621.51	0.00	0.00	0.00
7,710.00	88.71	90.00	7,150.77	0.00	651.50	651.50	0.00	0.00	0.00
7,740.00	88.71	90.00	7,151.45	0.00	681.50	681.50	0.00	0.00	0.00
7,770.00	88.71	90.00	7,152.12	0.00	711.49	711.49	0.00	0.00	0.00
7,800.00	88.71	90.00	7,152.80	0.00	741.48	741.48	0.00	0.00	0.00
7,830.00	88.71	90.00	7,153.47	0.00	771.47	771.47	0.00	0.00	0.00
7,860.00	88.71	90.00	7,154.15	0.00	801.46	801.46	0.00	0.00	0.00
7,890.00	88.71	90.00	7,154.82	0.00	831.46	831.46	0.00	0.00	0.00
7,920.00	88.71	90.00	7,155.50	0.00	861.45	861.45	0.00	0.00	0.00
7,950.00	88.71	90.00	7,156.17	0.00	891.44	891.44	0.00	0.00	0.00
7,980.00	88.71	90.00	7,156.85	0.00	921.43	921.43	0.00	0.00	0.00
8,010.00	88.71	90.00	7,157.52	0.00	951.43	951.43	0.00	0.00	0.00
8,040.00	88.71	90.00	7,158.20	0.00	981.42	981.42	0.00	0.00	0.00
8,070.00	88.71	90.00	7,158.87	0.00	1,011.41	1,011.41	0.00	0.00	0.00
8,100.00	88.71	90.00	7,159.55	0.00	1,041.40	1,041.40	0.00	0.00	0.00
8,130.00	88.71	90.00	7,160.23	0.00	1,071.40	1,071.40	0.00	0.00	0.00
8,160.00	88.71	90.00	7,160.90	0.00	1,101.39	1,101.39	0.00	0.00	0.00
8,190.00	88.71	90.00	7,161.58	0.00	1,131.38	1,131.38	0.00	0.00	0.00
8,220.00	88.71	90.00	7,162.25	0.00	1,161.37	1,161.37	0.00	0.00	0.00
8,250.00	88.71	90.00	7,162.93	0.00	1,191.37	1,191.37	0.00	0.00	0.00
8,280.00	88.71	90.00	7,163.60	0.00	1,221.36	1,221.36	0.00	0.00	0.00
8,310.00	88.71	90.00	7,164.28	0.00	1,251.35	1,251.35	0.00	0.00	0.00
8,340.00	88.71	90.00	7,164.95	0.00	1,281.34	1,281.34	0.00	0.00	0.00
8,370.00	88.71	90.00	7,165.63	0.00	1,311.34	1,311.34	0.00	0.00	0.00
8,400.00	88.71	90.00	7,166.30	0.00	1,341.33	1,341.33	0.00	0.00	0.00
8,430.00	88.71	90.00	7,166.98	0.00	1,371.32	1,371.32	0.00	0.00	0.00
8,460.00	88.71	90.00	7,167.65	0.00	1,401.31	1,401.31	0.00	0.00	0.00
8,490.00	88.71	90.00	7,168.33	0.00	1,431.31	1,431.31	0.00	0.00	0.00
8,520.00	88.71	90.00	7,169.01	0.00	1,461.30	1,461.30	0.00	0.00	0.00
8,550.00	88.71	90.00	7,169.68	0.00	1,491.29	1,491.29	0.00	0.00	0.00
8,580.00	88.71	90.00	7,170.36	0.00	1,521.28	1,521.28	0.00	0.00	0.00
8,610.00	88.71	90.00	7,171.03	0.00	1,551.27	1,551.27	0.00	0.00	0.00
8,640.00	88.71	90.00	7,171.71	0.00	1,581.27	1,581.27	0.00	0.00	0.00
8,670.00	88.71	90.00	7,172.38	0.00	1,611.26	1,611.26	0.00	0.00	0.00

Black Viper Energy

Survey Report

Company:	Cimarex Energy Co., Inc.	Local Co-ordinate Reference:	Well Juno "27" Federal Com #1H
Project:	Eddy Co., New Mexico	TVD Reference:	WELL @ 3657.00ft (Original Well Elev)
Site:	Juno "27" Federal Com #1H	MD Reference:	WELL @ 3657.00ft (Original Well Elev)
Well:	Juno "27" Federal Com #1H	North Reference:	Grid
Wellbore:	Lateral #1	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	EDM 2003.14 Server Db

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)
8,700.00	88.71	90.00	7,173.06	0.00	1,641.25	1,641.25	0.00	0.00	0.00
8,730.00	88.71	90.00	7,173.73	0.00	1,671.24	1,671.24	0.00	0.00	0.00
8,760.00	88.71	90.00	7,174.41	0.00	1,701.24	1,701.24	0.00	0.00	0.00
8,790.00	88.71	90.00	7,175.08	0.00	1,731.23	1,731.23	0.00	0.00	0.00
8,820.00	88.71	90.00	7,175.76	0.00	1,761.22	1,761.22	0.00	0.00	0.00
8,850.00	88.71	90.00	7,176.43	0.00	1,791.21	1,791.21	0.00	0.00	0.00
8,880.00	88.71	90.00	7,177.11	0.00	1,821.21	1,821.21	0.00	0.00	0.00
8,910.00	88.71	90.00	7,177.79	0.00	1,851.20	1,851.20	0.00	0.00	0.00
8,940.00	88.71	90.00	7,178.46	0.00	1,881.19	1,881.19	0.00	0.00	0.00
8,970.00	88.71	90.00	7,179.14	0.00	1,911.18	1,911.18	0.00	0.00	0.00
9,000.00	88.71	90.00	7,179.81	0.00	1,941.18	1,941.18	0.00	0.00	0.00
9,030.00	88.71	90.00	7,180.49	0.00	1,971.17	1,971.17	0.00	0.00	0.00
9,060.00	88.71	90.00	7,181.16	0.00	2,001.16	2,001.16	0.00	0.00	0.00
9,090.00	88.71	90.00	7,181.84	0.00	2,031.15	2,031.15	0.00	0.00	0.00
9,120.00	88.71	90.00	7,182.51	0.00	2,061.15	2,061.15	0.00	0.00	0.00
9,150.00	88.71	90.00	7,183.19	0.00	2,091.14	2,091.14	0.00	0.00	0.00
9,180.00	88.71	90.00	7,183.86	0.00	2,121.13	2,121.13	0.00	0.00	0.00
9,210.00	88.71	90.00	7,184.54	0.00	2,151.12	2,151.12	0.00	0.00	0.00
9,240.00	88.71	90.00	7,185.21	0.00	2,181.12	2,181.12	0.00	0.00	0.00
9,270.00	88.71	90.00	7,185.89	0.00	2,211.11	2,211.11	0.00	0.00	0.00
9,300.00	88.71	90.00	7,186.57	0.00	2,241.10	2,241.10	0.00	0.00	0.00
9,330.00	88.71	90.00	7,187.24	0.00	2,271.09	2,271.09	0.00	0.00	0.00
9,360.00	88.71	90.00	7,187.92	0.00	2,301.08	2,301.08	0.00	0.00	0.00
9,390.00	88.71	90.00	7,188.59	0.00	2,331.08	2,331.08	0.00	0.00	0.00
9,420.00	88.71	90.00	7,189.27	0.00	2,361.07	2,361.07	0.00	0.00	0.00
9,450.00	88.71	90.00	7,189.94	0.00	2,391.06	2,391.06	0.00	0.00	0.00
9,480.00	88.71	90.00	7,190.62	0.00	2,421.05	2,421.05	0.00	0.00	0.00
9,510.00	88.71	90.00	7,191.29	0.00	2,451.05	2,451.05	0.00	0.00	0.00
9,540.00	88.71	90.00	7,191.97	0.00	2,481.04	2,481.04	0.00	0.00	0.00
9,570.00	88.71	90.00	7,192.64	0.00	2,511.03	2,511.03	0.00	0.00	0.00
9,600.00	88.71	90.00	7,193.32	0.00	2,541.02	2,541.02	0.00	0.00	0.00
9,630.00	88.71	90.00	7,193.99	0.00	2,571.02	2,571.02	0.00	0.00	0.00
9,660.00	88.71	90.00	7,194.67	0.00	2,601.01	2,601.01	0.00	0.00	0.00
9,690.00	88.71	90.00	7,195.35	0.00	2,631.00	2,631.00	0.00	0.00	0.00
9,720.00	88.71	90.00	7,196.02	0.00	2,660.99	2,660.99	0.00	0.00	0.00
9,750.00	88.71	90.00	7,196.70	0.00	2,690.99	2,690.99	0.00	0.00	0.00
9,780.00	88.71	90.00	7,197.37	0.00	2,720.98	2,720.98	0.00	0.00	0.00
9,810.00	88.71	90.00	7,198.05	0.00	2,750.97	2,750.97	0.00	0.00	0.00
9,840.00	88.71	90.00	7,198.72	0.00	2,780.96	2,780.96	0.00	0.00	0.00
9,870.00	88.71	90.00	7,199.40	0.00	2,810.96	2,810.96	0.00	0.00	0.00
9,900.00	88.71	90.00	7,200.07	0.00	2,840.95	2,840.95	0.00	0.00	0.00
9,930.00	88.71	90.00	7,200.75	0.00	2,870.94	2,870.94	0.00	0.00	0.00
9,960.00	88.71	90.00	7,201.42	0.00	2,900.93	2,900.93	0.00	0.00	0.00
9,990.00	88.71	90.00	7,202.10	0.00	2,930.92	2,930.92	0.00	0.00	0.00
10,020.00	88.71	90.00	7,202.77	0.00	2,960.92	2,960.92	0.00	0.00	0.00
10,050.00	88.71	90.00	7,203.45	0.00	2,990.91	2,990.91	0.00	0.00	0.00
10,080.00	88.71	90.00	7,204.13	0.00	3,020.90	3,020.90	0.00	0.00	0.00
10,110.00	88.71	90.00	7,204.80	0.00	3,050.89	3,050.89	0.00	0.00	0.00
10,140.00	88.71	90.00	7,205.48	0.00	3,080.89	3,080.89	0.00	0.00	0.00
10,170.00	88.71	90.00	7,206.15	0.00	3,110.88	3,110.88	0.00	0.00	0.00
10,200.00	88.71	90.00	7,206.83	0.00	3,140.87	3,140.87	0.00	0.00	0.00
10,230.00	88.71	90.00	7,207.50	0.00	3,170.86	3,170.86	0.00	0.00	0.00
10,260.00	88.71	90.00	7,208.18	0.00	3,200.86	3,200.86	0.00	0.00	0.00
10,290.00	88.71	90.00	7,208.85	0.00	3,230.85	3,230.85	0.00	0.00	0.00

Black Viper Energy

Survey Report

Company:	Cimarex Energy Co., Inc.	Local Co-ordinate Reference:	Well Juno "27" Federal Com #1H
Project:	Eddy Co., New Mexico	TVD Reference:	WELL @ 3657.00ft (Original Well Elev)
Site:	Juno "27" Federal Com #1H	MD Reference:	WELL @ 3657.00ft (Original Well Elev)
Well:	Juno "27" Federal Com #1H	North Reference:	Grid
Wellbore:	Lateral #1	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	EDM 2003.14 Server Db

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)
10,320.00	88.71	90.00	7,209.53	0.00	3,260.84	3,260.84	0.00	0.00	0.00
10,350.00	88.71	90.00	7,210.20	0.00	3,290.83	3,290.83	0.00	0.00	0.00
10,380.00	88.71	90.00	7,210.88	0.00	3,320.83	3,320.83	0.00	0.00	0.00
10,410.00	88.71	90.00	7,211.55	0.00	3,350.82	3,350.82	0.00	0.00	0.00
10,440.00	88.71	90.00	7,212.23	0.00	3,380.81	3,380.81	0.00	0.00	0.00
10,470.00	88.71	90.00	7,212.91	0.00	3,410.80	3,410.80	0.00	0.00	0.00
10,500.00	88.71	90.00	7,213.58	0.00	3,440.80	3,440.80	0.00	0.00	0.00
10,530.00	88.71	90.00	7,214.26	0.00	3,470.79	3,470.79	0.00	0.00	0.00
10,560.00	88.71	90.00	7,214.93	0.00	3,500.78	3,500.78	0.00	0.00	0.00
10,590.00	88.71	90.00	7,215.61	0.00	3,530.77	3,530.77	0.00	0.00	0.00
10,620.00	88.71	90.00	7,216.28	0.00	3,560.77	3,560.77	0.00	0.00	0.00
10,650.00	88.71	90.00	7,216.96	0.00	3,590.76	3,590.76	0.00	0.00	0.00
10,680.00	88.71	90.00	7,217.63	0.00	3,620.75	3,620.75	0.00	0.00	0.00
10,710.00	88.71	90.00	7,218.31	0.00	3,650.74	3,650.74	0.00	0.00	0.00
10,740.00	88.71	90.00	7,218.98	0.00	3,680.73	3,680.73	0.00	0.00	0.00
10,770.00	88.71	90.00	7,219.66	0.00	3,710.73	3,710.73	0.00	0.00	0.00
10,800.00	88.71	90.00	7,220.33	0.00	3,740.72	3,740.72	0.00	0.00	0.00
10,830.00	88.71	90.00	7,221.01	0.00	3,770.71	3,770.71	0.00	0.00	0.00
10,860.00	88.71	90.00	7,221.69	0.00	3,800.70	3,800.70	0.00	0.00	0.00
10,890.00	88.71	90.00	7,222.36	0.00	3,830.70	3,830.70	0.00	0.00	0.00
10,920.00	88.71	90.00	7,223.04	0.00	3,860.69	3,860.69	0.00	0.00	0.00
10,950.00	88.71	90.00	7,223.71	0.00	3,890.68	3,890.68	0.00	0.00	0.00
10,980.00	88.71	90.00	7,224.39	0.00	3,920.67	3,920.67	0.00	0.00	0.00
11,010.00	88.71	90.00	7,225.06	0.00	3,950.67	3,950.67	0.00	0.00	0.00
11,040.00	88.71	90.00	7,225.74	0.00	3,980.66	3,980.66	0.00	0.00	0.00
11,070.00	88.71	90.00	7,226.41	0.00	4,010.65	4,010.65	0.00	0.00	0.00
11,100.00	88.71	90.00	7,227.09	0.00	4,040.64	4,040.64	0.00	0.00	0.00
11,130.00	88.71	90.00	7,227.76	0.00	4,070.64	4,070.64	0.00	0.00	0.00
11,160.00	88.71	90.00	7,228.44	0.00	4,100.63	4,100.63	0.00	0.00	0.00
11,190.00	88.71	90.00	7,229.12	0.00	4,130.62	4,130.62	0.00	0.00	0.00
11,220.00	88.71	90.00	7,229.79	0.00	4,160.61	4,160.61	0.00	0.00	0.00
11,250.00	88.71	90.00	7,230.47	0.00	4,190.61	4,190.61	0.00	0.00	0.00
11,280.00	88.71	90.00	7,231.14	0.00	4,220.60	4,220.60	0.00	0.00	0.00
11,310.00	88.71	90.00	7,231.82	0.00	4,250.59	4,250.59	0.00	0.00	0.00
11,340.00	88.71	90.00	7,232.49	0.00	4,280.58	4,280.58	0.00	0.00	0.00
11,370.00	88.71	90.00	7,233.17	0.00	4,310.58	4,310.58	0.00	0.00	0.00
11,400.00	88.71	90.00	7,233.84	0.00	4,340.57	4,340.57	0.00	0.00	0.00
11,430.00	88.71	90.00	7,234.52	0.00	4,370.56	4,370.56	0.00	0.00	0.00
11,460.00	88.71	90.00	7,235.19	0.00	4,400.55	4,400.55	0.00	0.00	0.00
11,490.00	88.71	90.00	7,235.87	0.00	4,430.54	4,430.54	0.00	0.00	0.00
11,520.00	88.71	90.00	7,236.54	0.00	4,460.54	4,460.54	0.00	0.00	0.00
11,550.00	88.71	90.00	7,237.22	0.00	4,490.53	4,490.53	0.00	0.00	0.00
11,580.00	88.71	90.00	7,237.90	0.00	4,520.52	4,520.52	0.00	0.00	0.00
11,610.00	88.71	90.00	7,238.57	0.00	4,550.51	4,550.51	0.00	0.00	0.00
11,640.00	88.71	90.00	7,239.25	0.00	4,580.51	4,580.51	0.00	0.00	0.00
11,670.00	88.71	90.00	7,239.92	0.00	4,610.50	4,610.50	0.00	0.00	0.00
11,673.50	88.71	90.00	7,240.00	0.00	4,614.00	4,614.00	0.00	0.00	0.00

Black Viper Energy

Survey Report

Company:	Cimarex Energy Co., Inc.	Local Co-ordinate Reference:	Well Juno "27" Federal Com #1H
Project:	Eddy Co., New Mexico	TVD Reference:	WELL @ 3657.00ft (Original Well Elev)
Site:	Juno "27" Federal Com #1H	MD Reference:	WELL @ 3657.00ft (Original Well Elev)
Well:	Juno "27" Federal Com #1H	North Reference:	Grid
Wellbore:	Lateral #1	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	EDM 2003.14 Server Db

Targets

Target Name	hit/miss target	Dip Angle	Dip Dir	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape		(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
PBHL [Juno 27 Fed Con		0 00	0.00	7,240.00	0 00	4,614.00	690,563.50	626,724.10	32° 53' 53 028 N	104° 3' 18.507 W
- plan hits target										
- Point										

Formations

Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction
(ft)	(ft)			(°)	(°)
	2,450.00	San Andres		0.00	
	5,900.00	Abo Shale		0 00	
7,186.20	7,130.00	Lower Abo Shale		0 00	
	7,260.00	Wolfcamp		0 00	

Plan Annotations

Measured Depth	Vertical Depth	Local Coordinates		Comment
(ft)	(ft)	+N/-S	+E/-W	
(ft)	(ft)	(ft)	(ft)	
6,940.00	6,940.00	0.00	0.00	KOP 6940' MD
6,949.37	6,949.37	0.00	0.00	Build 30.00"/100'
7,245.07	7,140.30	0.00	186.69	EOC Hold 88.71° Inc. @ 90° Azm.

Checked By: _____ Approved By: _____ Date: _____



Project: Eddy Co., New Mexico
 Site: Juno "27" Federal Com #1H
 Well: Juno "27" Federal Com #1H
 Wellbore: Lateral #1
 Plan: Plan #1 (Juno "27" Federal Com #1H/Lateral #1)

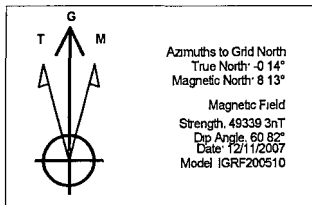
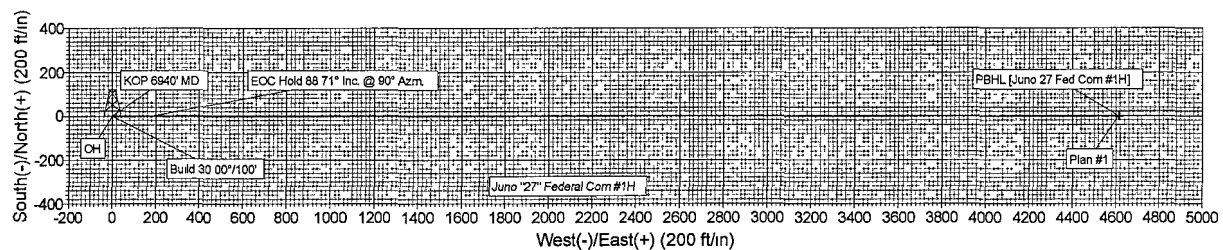


PROJECT DETAILS Eddy Co., New Mexico

Geodetic System US State Plane 1983
 Datum North American Datum 1983
 Ellipsoid GRS 1980
 Zone New Mexico Eastern Zone
 System Datum Mean Sea Level

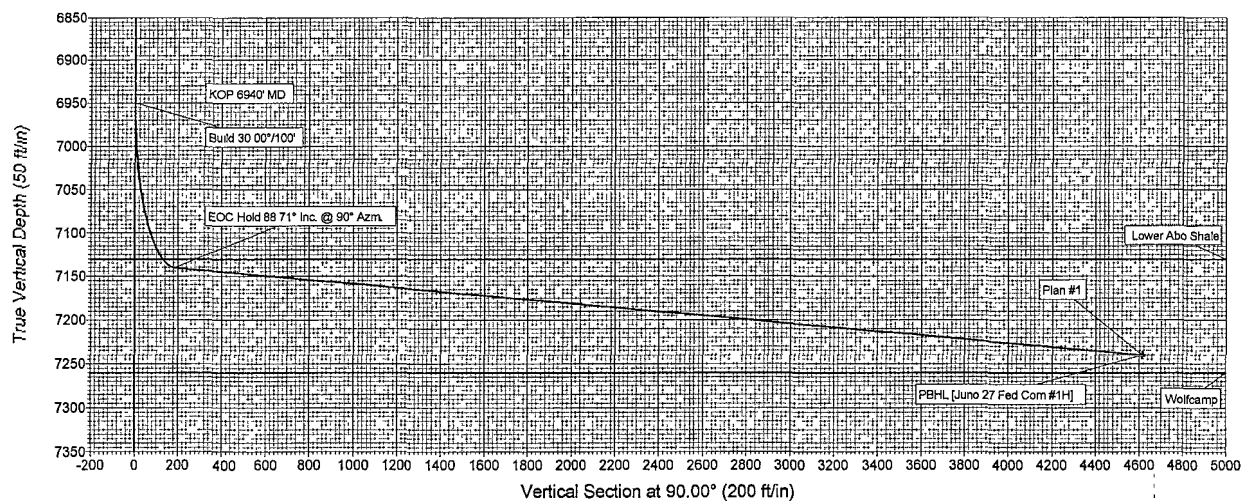
ANNOTATIONS

TVD	MD	Annotation
6940.00	6940.00	KOP 6940' MD
6949.37	6949.37	Build 30 00"/100'
7140.30	7245.07	EOC Hold 88.71" Inc. @ 90° Azm



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N-S	+E-W	DLeg	TFace	VSec	Target
1	6940.00	0.00	0.00	6940.00	0.00	0.00	0.00	0.00	0.00	
2	6949.37	0.00	0.00	6949.37	0.00	0.00	0.00	0.00	0.00	
3	7245.07	88.71	90.00	7140.30	0.00	186.69	30.00	90.00	186.69	
4	11673.50	88.71	90.00	7240.00	0.00	4614.00	0.00	0.00	4614.00	PBHL (Juno 27 Fed Com #1H)



Plan: Plan #1 (Juno "27" Federal Com #1H/Lateral #1)
 Created By: Heather Vannoy Date: December 11, 2007

Juno 27 Fed Com #1 Lateral #1 Plan #1 Report 12-11-07.txt
 Cimarex Energy Co., Inc.
 Juno "27" Federal Com #1H - Plan #1

Eddy Co., New Mexico
 Juno "27" Federal Com #1H

Measured Dogleg Depth Rate (ft) (°/100ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)
6940.00	0.000	0.000	6940.00	0.00 N	0.00 E	0.00
0.00						
6949.37	0.000	0.000	6949.37	0.00 N	0.00 E	0.00
0.00						
6960.00	3.190	90.000	6959.99	0.00 N	0.30 E	0.30
30.00						
6990.00	12.190	90.000	6989.69	0.00 N	4.31 E	4.31
30.00						
7020.00	21.190	90.000	7018.40	0.00 N	12.91 E	12.91
30.00						
7050.00	30.190	90.000	7045.41	0.00 N	25.91 E	25.91
30.00						
7080.00	39.190	90.000	7070.05	0.00 N	42.96 E	42.96
30.00						
7110.00	48.190	90.000	7091.72	0.00 N	63.66 E	63.66
30.00						
7140.00	57.190	90.000	7109.88	0.00 N	87.50 E	87.50
30.00						
7170.00	66.190	90.000	7124.10	0.00 N	113.88 E	113.88
30.00						
7200.00	75.190	90.000	7134.01	0.00 N	142.17 E	142.17
30.00						
7230.00	84.190	90.000	7139.37	0.00 N	171.65 E	171.65
30.00						
7245.07	88.710	90.000	7140.30	0.00 N	186.69 E	186.69
30.00						
7260.00	88.710	90.000	7140.64	0.00 N	201.62 E	201.62
0.00						
7290.00	88.710	90.000	7141.31	0.00 N	231.61 E	231.61
0.00						
7320.00	88.710	90.000	7141.99	0.00 N	261.60 E	261.60
0.00						
7350.00	88.710	90.000	7142.67	0.00 N	291.59 E	291.59
0.00						
7380.00	88.710	90.000	7143.34	0.00 N	321.59 E	321.59
0.00						
7410.00	88.710	90.000	7144.02	0.00 N	351.58 E	351.58
0.00						
7440.00	88.710	90.000	7144.69	0.00 N	381.57 E	381.57
0.00						
7470.00	88.710	90.000	7145.37	0.00 N	411.56 E	411.56
0.00						
7500.00	88.710	90.000	7146.04	0.00 N	441.56 E	441.56
0.00						
7530.00	88.710	90.000	7146.72	0.00 N	471.55 E	471.55
0.00						
7560.00	88.710	90.000	7147.39	0.00 N	501.54 E	501.54
0.00						
7590.00	88.710	90.000	7148.07	0.00 N	531.53 E	531.53
0.00						

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7620.00	88.710	90.000	7148.74	0.00 N	561.53 E	561.53
0.00						
7650.00	88.710	90.000	7149.42	0.00 N	591.52 E	591.52
0.00						
7680.00	88.710	90.000	7150.09	0.00 N	621.51 E	621.51
0.00						
7710.00	88.710	90.000	7150.77	0.00 N	651.50 E	651.50
0.00						
7740.00	88.710	90.000	7151.45	0.00 N	681.50 E	681.50
0.00						
7770.00	88.710	90.000	7152.12	0.00 N	711.49 E	711.49
0.00						
7800.00	88.710	90.000	7152.80	0.00 N	741.48 E	741.48
0.00						
7830.00	88.710	90.000	7153.47	0.00 N	771.47 E	771.47
0.00						
7860.00	88.710	90.000	7154.15	0.00 N	801.46 E	801.46
0.00						
7890.00	88.710	90.000	7154.82	0.00 N	831.46 E	831.46
0.00						
7920.00	88.710	90.000	7155.50	0.00 N	861.45 E	861.45
0.00						
7950.00	88.710	90.000	7156.17	0.00 N	891.44 E	891.44
0.00						
7980.00	88.710	90.000	7156.85	0.00 N	921.43 E	921.43
0.00						
8010.00	88.710	90.000	7157.52	0.00 N	951.43 E	951.43
0.00						
8040.00	88.710	90.000	7158.20	0.00 N	981.42 E	981.42
0.00						
8070.00	88.710	90.000	7158.87	0.00 N	1011.41 E	1011.41
0.00						
8100.00	88.710	90.000	7159.55	0.00 N	1041.40 E	1041.40
0.00						
8130.00	88.710	90.000	7160.23	0.00 N	1071.40 E	1071.40
0.00						
8160.00	88.710	90.000	7160.90	0.00 N	1101.39 E	1101.39
0.00						
8190.00	88.710	90.000	7161.58	0.00 N	1131.38 E	1131.38
0.00						
8220.00	88.710	90.000	7162.25	0.00 N	1161.37 E	1161.37
0.00						
8250.00	88.710	90.000	7162.93	0.00 N	1191.37 E	1191.37
0.00						
8280.00	88.710	90.000	7163.60	0.00 N	1221.36 E	1221.36
0.00						
8310.00	88.710	90.000	7164.28	0.00 N	1251.35 E	1251.35
0.00						
8340.00	88.710	90.000	7164.95	0.00 N	1281.34 E	1281.34
0.00						
8370.00	88.710	90.000	7165.63	0.00 N	1311.34 E	1311.34
0.00						
8400.00	88.710	90.000	7166.30	0.00 N	1341.33 E	1341.33
0.00						
8430.00	88.710	90.000	7166.98	0.00 N	1371.32 E	1371.32
0.00						
8460.00	88.710	90.000	7167.65	0.00 N	1401.31 E	1401.31
0.00						
8490.00	88.710	90.000	7168.33	0.00 N	1431.31 E	1431.31
0.00						
8520.00	88.710	90.000	7169.01	0.00 N	1461.30 E	1461.30
0.00						
8550.00	88.710	90.000	7169.68	0.00 N	1491.29 E	1491.29

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0.00						
8580.00	88.710	90.000	7170.36	0.00 N	1521.28 E	1521.28
0.00						
8610.00	88.710	90.000	7171.03	0.00 N	1551.27 E	1551.27
0.00						
8640.00	88.710	90.000	7171.71	0.00 N	1581.27 E	1581.27
0.00						
8670.00	88.710	90.000	7172.38	0.00 N	1611.26 E	1611.26
0.00						
8700.00	88.710	90.000	7173.06	0.00 N	1641.25 E	1641.25
0.00						
8730.00	88.710	90.000	7173.73	0.00 N	1671.24 E	1671.24
0.00						
8760.00	88.710	90.000	7174.41	0.00 N	1701.24 E	1701.24
0.00						
8790.00	88.710	90.000	7175.08	0.00 N	1731.23 E	1731.23
0.00						
8820.00	88.710	90.000	7175.76	0.00 N	1761.22 E	1761.22
0.00						
8850.00	88.710	90.000	7176.43	0.00 N	1791.21 E	1791.21
0.00						
8880.00	88.710	90.000	7177.11	0.00 N	1821.21 E	1821.21
0.00						
8910.00	88.710	90.000	7177.79	0.00 N	1851.20 E	1851.20
0.00						
8940.00	88.710	90.000	7178.46	0.00 N	1881.19 E	1881.19
0.00						
8970.00	88.710	90.000	7179.14	0.00 N	1911.18 E	1911.18
0.00						
9000.00	88.710	90.000	7179.81	0.00 N	1941.18 E	1941.18
0.00						
9030.00	88.710	90.000	7180.49	0.00 N	1971.17 E	1971.17
0.00						
9060.00	88.710	90.000	7181.16	0.00 N	2001.16 E	2001.16
0.00						
9090.00	88.710	90.000	7181.84	0.00 N	2031.15 E	2031.15
0.00						
9120.00	88.710	90.000	7182.51	0.00 N	2061.15 E	2061.15
0.00						
9150.00	88.710	90.000	7183.19	0.00 N	2091.14 E	2091.14
0.00						
9180.00	88.710	90.000	7183.86	0.00 N	2121.13 E	2121.13
0.00						
9210.00	88.710	90.000	7184.54	0.00 N	2151.12 E	2151.12
0.00						
9240.00	88.710	90.000	7185.21	0.00 N	2181.12 E	2181.12
0.00						
9270.00	88.710	90.000	7185.89	0.00 N	2211.11 E	2211.11
0.00						
9300.00	88.710	90.000	7186.57	0.00 N	2241.10 E	2241.10
0.00						
9330.00	88.710	90.000	7187.24	0.00 N	2271.09 E	2271.09
0.00						
9360.00	88.710	90.000	7187.92	0.00 N	2301.08 E	2301.08
0.00						
9390.00	88.710	90.000	7188.59	0.00 N	2331.08 E	2331.08
0.00						
9420.00	88.710	90.000	7189.27	0.00 N	2361.07 E	2361.07
0.00						
9450.00	88.710	90.000	7189.94	0.00 N	2391.06 E	2391.06
0.00						
9480.00	88.710	90.000	7190.62	0.00 N	2421.05 E	2421.05
0.00						

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9510.00	88.710	90.000	7191.29	0.00 N	2451.05 E	2451.05
0.00						
9540.00	88.710	90.000	7191.97	0.00 N	2481.04 E	2481.04
0.00						
9570.00	88.710	90.000	7192.64	0.00 N	2511.03 E	2511.03
0.00						
9600.00	88.710	90.000	7193.32	0.00 N	2541.02 E	2541.02
0.00						
9630.00	88.710	90.000	7193.99	0.00 N	2571.02 E	2571.02
0.00						
9660.00	88.710	90.000	7194.67	0.00 N	2601.01 E	2601.01
0.00						
9690.00	88.710	90.000	7195.35	0.00 N	2631.00 E	2631.00
0.00						
9720.00	88.710	90.000	7196.02	0.00 N	2660.99 E	2660.99
0.00						
9750.00	88.710	90.000	7196.70	0.00 N	2690.99 E	2690.99
0.00						
9780.00	88.710	90.000	7197.37	0.00 N	2720.98 E	2720.98
0.00						
9810.00	88.710	90.000	7198.05	0.00 N	2750.97 E	2750.97
0.00						
9840.00	88.710	90.000	7198.72	0.00 N	2780.96 E	2780.96
0.00						
9870.00	88.710	90.000	7199.40	0.00 N	2810.96 E	2810.96
0.00						
9900.00	88.710	90.000	7200.07	0.00 N	2840.95 E	2840.95
0.00						
9930.00	88.710	90.000	7200.75	0.00 N	2870.94 E	2870.94
0.00						
9960.00	88.710	90.000	7201.42	0.00 N	2900.93 E	2900.93
0.00						
9990.00	88.710	90.000	7202.10	0.00 N	2930.92 E	2930.92
0.00						
10020.00	88.710	90.000	7202.77	0.00 N	2960.92 E	2960.92
0.00						
10050.00	88.710	90.000	7203.45	0.00 N	2990.91 E	2990.91
0.00						
10080.00	88.710	90.000	7204.13	0.00 N	3020.90 E	3020.90
0.00						
10110.00	88.710	90.000	7204.80	0.00 N	3050.89 E	3050.89
0.00						
10140.00	88.710	90.000	7205.48	0.00 N	3080.89 E	3080.89
0.00						
10170.00	88.710	90.000	7206.15	0.00 N	3110.88 E	3110.88
0.00						
10200.00	88.710	90.000	7206.83	0.00 N	3140.87 E	3140.87
0.00						
10230.00	88.710	90.000	7207.50	0.00 N	3170.86 E	3170.86
0.00						
10260.00	88.710	90.000	7208.18	0.00 N	3200.86 E	3200.86
0.00						
10290.00	88.710	90.000	7208.85	0.00 N	3230.85 E	3230.85
0.00						
10320.00	88.710	90.000	7209.53	0.00 N	3260.84 E	3260.84
0.00						
10350.00	88.710	90.000	7210.20	0.00 N	3290.83 E	3290.83
0.00						
10380.00	88.710	90.000	7210.88	0.00 N	3320.83 E	3320.83
0.00						
10410.00	88.710	90.000	7211.55	0.00 N	3350.82 E	3350.82
0.00						
10440.00	88.710	90.000	7212.23	0.00 N	3380.81 E	3380.81

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0.00						
10470.00	88.710	90.000	7212.91	0.00 N	3410.80 E	3410.80
0.00						
10500.00	88.710	90.000	7213.58	0.00 N	3440.80 E	3440.80
0.00						
10530.00	88.710	90.000	7214.26	0.00 N	3470.79 E	3470.79
0.00						
10560.00	88.710	90.000	7214.93	0.00 N	3500.78 E	3500.78
0.00						
10590.00	88.710	90.000	7215.61	0.00 N	3530.77 E	3530.77
0.00						
10620.00	88.710	90.000	7216.28	0.00 N	3560.77 E	3560.77
0.00						
10650.00	88.710	90.000	7216.96	0.00 N	3590.76 E	3590.76
0.00						
10680.00	88.710	90.000	7217.63	0.00 N	3620.75 E	3620.75
0.00						
10710.00	88.710	90.000	7218.31	0.00 N	3650.74 E	3650.74
0.00						
10740.00	88.710	90.000	7218.98	0.00 N	3680.73 E	3680.73
0.00						
10770.00	88.710	90.000	7219.66	0.00 N	3710.73 E	3710.73
0.00						
10800.00	88.710	90.000	7220.33	0.00 N	3740.72 E	3740.72
0.00						
10830.00	88.710	90.000	7221.01	0.00 N	3770.71 E	3770.71
0.00						
10860.00	88.710	90.000	7221.69	0.00 N	3800.70 E	3800.70
0.00						
10890.00	88.710	90.000	7222.36	0.00 N	3830.70 E	3830.70
0.00						
10920.00	88.710	90.000	7223.04	0.00 N	3860.69 E	3860.69
0.00						
10950.00	88.710	90.000	7223.71	0.00 N	3890.68 E	3890.68
0.00						
10980.00	88.710	90.000	7224.39	0.00 N	3920.67 E	3920.67
0.00						
11010.00	88.710	90.000	7225.06	0.00 N	3950.67 E	3950.67
0.00						
11040.00	88.710	90.000	7225.74	0.00 N	3980.66 E	3980.66
0.00						
11070.00	88.710	90.000	7226.41	0.00 N	4010.65 E	4010.65
0.00						
11100.00	88.710	90.000	7227.09	0.00 N	4040.64 E	4040.64
0.00						
11130.00	88.710	90.000	7227.76	0.00 N	4070.64 E	4070.64
0.00						
11160.00	88.710	90.000	7228.44	0.00 N	4100.63 E	4100.63
0.00						
11190.00	88.710	90.000	7229.12	0.00 N	4130.62 E	4130.62
0.00						
11220.00	88.710	90.000	7229.79	0.00 N	4160.61 E	4160.61
0.00						
11250.00	88.710	90.000	7230.47	0.00 N	4190.61 E	4190.61
0.00						
11280.00	88.710	90.000	7231.14	0.00 N	4220.60 E	4220.60
0.00						
11310.00	88.710	90.000	7231.82	0.00 N	4250.59 E	4250.59
0.00						
11340.00	88.710	90.000	7232.49	0.00 N	4280.58 E	4280.58
0.00						
11370.00	88.710	90.000	7233.17	0.00 N	4310.58 E	4310.58
0.00						

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11400.00 0.00	88.710	90.000	7233.84	0.00 N	4340.57 E	4340.57
11430.00 0.00	88.710	90.000	7234.52	0.00 N	4370.56 E	4370.56
11460.00 0.00	88.710	90.000	7235.19	0.00 N	4400.55 E	4400.55
11490.00 0.00	88.710	90.000	7235.87	0.00 N	4430.54 E	4430.54
11520.00 0.00	88.710	90.000	7236.54	0.00 N	4460.54 E	4460.54
11550.00 0.00	88.710	90.000	7237.22	0.00 N	4490.53 E	4490.53
11580.00 0.00	88.710	90.000	7237.90	0.00 N	4520.52 E	4520.52
11610.00 0.00	88.710	90.000	7238.57	0.00 N	4550.51 E	4550.51
11640.00 0.00	88.710	90.000	7239.25	0.00 N	4580.51 E	4580.51
11670.00 0.00	88.710	90.000	7239.92	0.00 N	4610.50 E	4610.50
11673.50 0.00	88.710	90.000	7240.00	0.00 N	4614.00 E	4614.00

All data are in feet unless otherwise stated. Directions and coordinates are relative to Grid North.
Vertical depths are relative to WELL. Northings and Eastings are relative to well.

The Dogleg Severity is in Degrees per 100 feet.
Vertical Section is from Site and calculated along an Azimuth of 90.000° (Grid).

Coordinate System is North American Datum 1983 US State Plane 1983, New Mexico Eastern Zone.
Central meridian is -104.333°.
Grid Convergence at Surface is 0.143°.

Based upon Minimum Curvature type calculations, at a Measured Depth of 11673.50ft., the Bottom Hole Displacement is 4614.00ft., in the Direction of 90.000° (Grid).

Hydrogen Sulfide Drilling Operations Plan

Cimarex Energy Co. of Colorado

Juno 27 Federal Com No. 1

Unit D

Section 27

T16S R29E

Eddy County, NM

- 1 All Company and Contract personnel admitted on location must be trained by a qualified H2S safety instructor to the following:
 - A. Characteristics of H2S
 - B. Physical effects and hazards
 - C. Proper use of safety equipment and life support systems.
 - D. Principle and operation of H2S detectors, warning system and briefing areas.
 - E. Evacuation procedure, routes and first aid.
 - F. Proper use of 30 minute pressure demand air pack.
- 2 H2S Detection and Alarm Systems:
 - A. H2S 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 (H2S 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 are planned at this time.
- 8 Drilling contractor supervisor will be required to be familiar with the effects H2S has on tubular goods and other mechanical equipment.
- 9 If H2S 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 H2S scavengers if necessary.

Surface Use Plan
Cimarex Energy Co. of Colorado
Juno 27 Federal Com No. 1
Unit D Section 27
T16S R29E Eddy County, NM

1 Existing Roads:

Area maps, Exhibit "B" is a reproduction of Eddy Co. General Highway Map. Exhibit "C" is a reproduction of a USGS Topographic Map, showing existing roads and proposed roads. All existing roads will be maintained in a condition equal to or better than current conditions. Any new roads will be constructed to BLM specifications.

A. Exhibit "A" shows the proposed well site as staked.

B. From the junction of US Hwy 82 and Barnival Draw Rd, go North on Barnival Draw for 5.2 miles to lease road. On lease road, go Northeast 0.5 miles to proposed lease road.

2 Planned Access Roads:

1263.5' of road will be constructed to access this well, approximately 198' of which will be on-lease.

3 Location of existing wells in a one-mile radius Exhibit "A":

- | | |
|----------------------|-------------------------|
| A. Water wells - | None known |
| B. Disposal wells - | None known |
| C. Drilling wells - | None known |
| D. Producing wells - | As shown on Exhibit "A" |
| E. Abandoned wells - | As shown on Exhibit "A" |

Surface Use Plan
Cimarex Energy Co. of Colorado
Juno 27 Federal Com No. 1
Unit D Section 27
T16S R29E Eddy County, NM

- 4 If on completion this well is a producer, Cimarex Energy Co. of Colorado will furnish maps and/or plats showing on site facilities or off site facilities if needed. This will be accompanied by a Sundry Notice.
- 5 Location and Type of Water Supply:
Water will be purchased locally from a commercial source and trucked over the access roads or piped in flexible lines laid on top of the ground.
- 6 Source of Construction Material:
If possible, construction will be obtained from the excavation of drill site. If additional material is needed, it will be purchased from a local source and transported over the access route as shown on Exhibit "C".
- 7 Methods of Handling Waste Material:
- A. Drill cuttings will be disposed of in the reserve pit and hauled to a State-approved disposal facility.
 - B. All trash, junk and other waste material will be contained in trash cages or bins to prevent scattering. When the job is completed all contents will be removed and disposed of in an approved sanitary land fill.
 - C. Salts remaining after completion of well will be picked up by supplier including broken sacks.
 - D. Sewage from living quarters will drain into holding tanks and be cleaned out periodically. A Porta-John will be provided for the rig crews. This equipment will be properly maintained during the drilling operations and removed upon completion of the well.
 - E. Remaining drilling fluids will be hauled off by transports and be disposed of at a State approved disposal facility. Water produced during drilling will be put in reserve pit. Any oil or condensate produced will be stored in test tanks until sold and hauled from the site.
- 8 Ancillary Facilities:
- A. No camps or airstrips to be constructed.

Surface Use Plan
Cimarex Energy Co. of Colorado
Juno 27 Federal Com No. 1
Unit D Section 27
T16S R29E Eddy County, NM

9 Well Site Layout:

- A. Exhibit "D" shows location and rig layout.
- B. This exhibit indicates proposed location of reserve and trash pits and living facilities.
- C. Mud pits in the active circulating system will be steel pits and the reserve pit is proposed to be lined with PVC or polyethylene liner. The pit liner will be 12 mils thick. Pit liner will extend a minimum, 2'00" over the reserve pits dikes where the liner will be anchored down.
- D. The reserve pit will be fenced on three sides with four strands of barbed wire during drilling and completion phases. The fourth side will be fenced after all drilling operations have ceased. If the well is a producer, the reserve pit fence will be torn down. The reserve pit and those areas of the location not essential to production facilities will be reclaimed and seeded per BLM requirements.

10 Plans for Restoration of Surface:

Rehabilitation of the location and reserve pit will start in a timely manner after all drilling operations cease. The type of reclamation will depend on whether the well is a producer or a dry hole.

However, in either event, fluid and cuttings will be removed and disposed of in accordance with Article 7.B as previously noted. The pit area will then be leveled and contoured to conform to the original and surrounding area. Drainage systems, if any, will be reshaped to the original configuration with provisions made to alleviate erosion. These may need to be modified in certain circumstances to prevent inundation of the location's pad and surface facilities. After the area has been shaped and contoured, topsoil from the spoil pile will be placed over the disturbed area to the extent possible. Revegetation procedures will comply with BLM standards.

If the well is a dry hole, the pad and road area will be recountoured to match the existing terrain. Topsoil will be spread to the extent possible. Revegetation will comply with BLM standards.

Should the well be a producer, the previously noted procedures will apply to those areas which are not required for production facilities.

11 Other Information:

- A. Topography consists of a sloping plane with loose tan sands. Vegetation is mainly yucca, mesquite and shin oak.
- B. The wellsite is on surface owned by the Department of the Interior, Bureau of Land Management. The land is used mainly for farming, cattle ranching, recreational use, and oil and gas production.
- C. An Archaeological survey will be conducted on the location and proposed roads, and this report will be filed with the Bureau of Land Management in the Carlsbad BLM office.
- D. There are no know dwellings within 1 1/2 miles of this location.

Operator Certification Statement
Cimarex Energy Co. of Colorado
Juno 27 Federal Com No. 1
Unit D Section 27
T16S R29E Eddy County, NM

Operator's Representative:

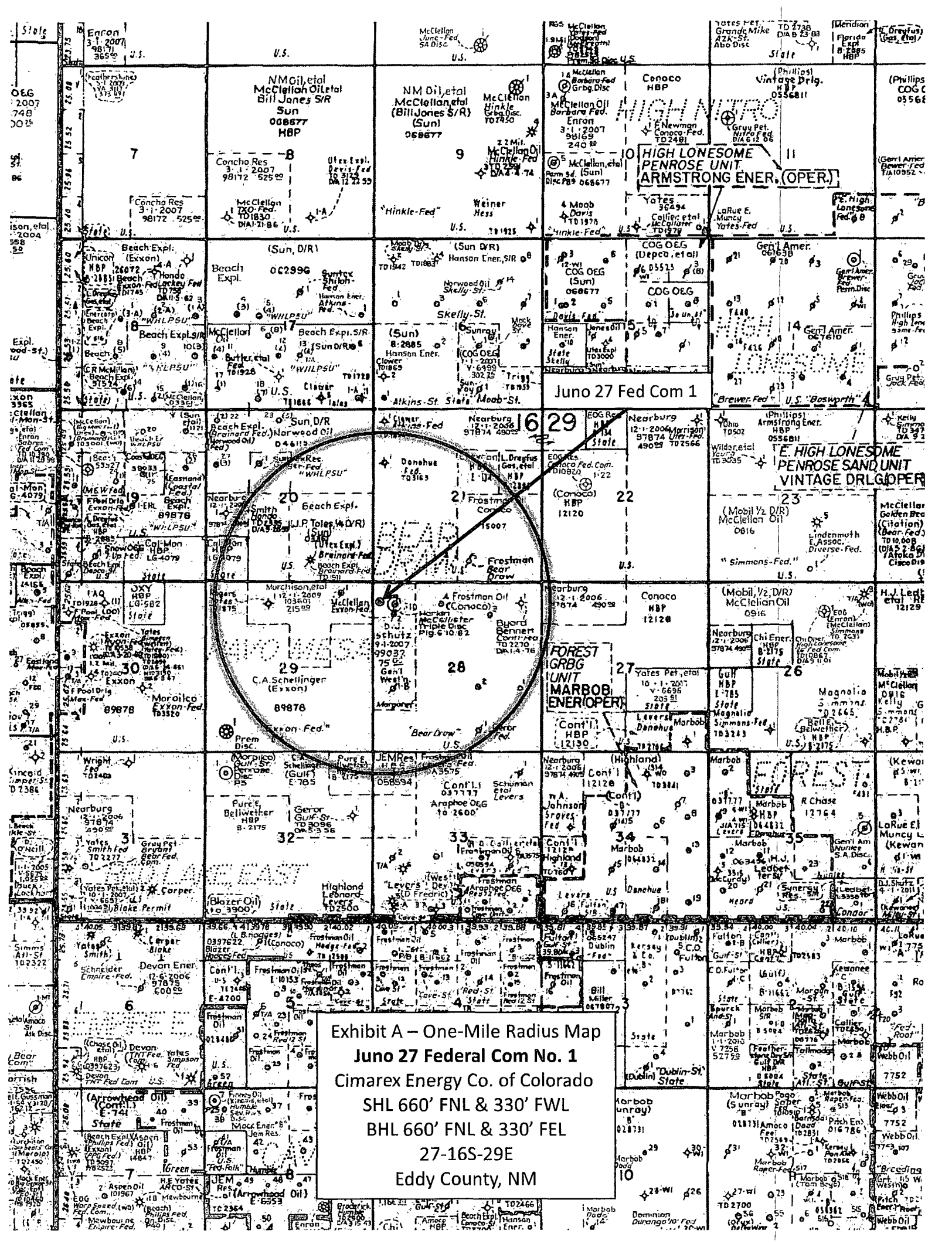
Cimarex Energy Co. of Colorado
P.O. Box 140907
Irving, TX 75014
Office Phone: (972) 443-6489
Zeno Farris

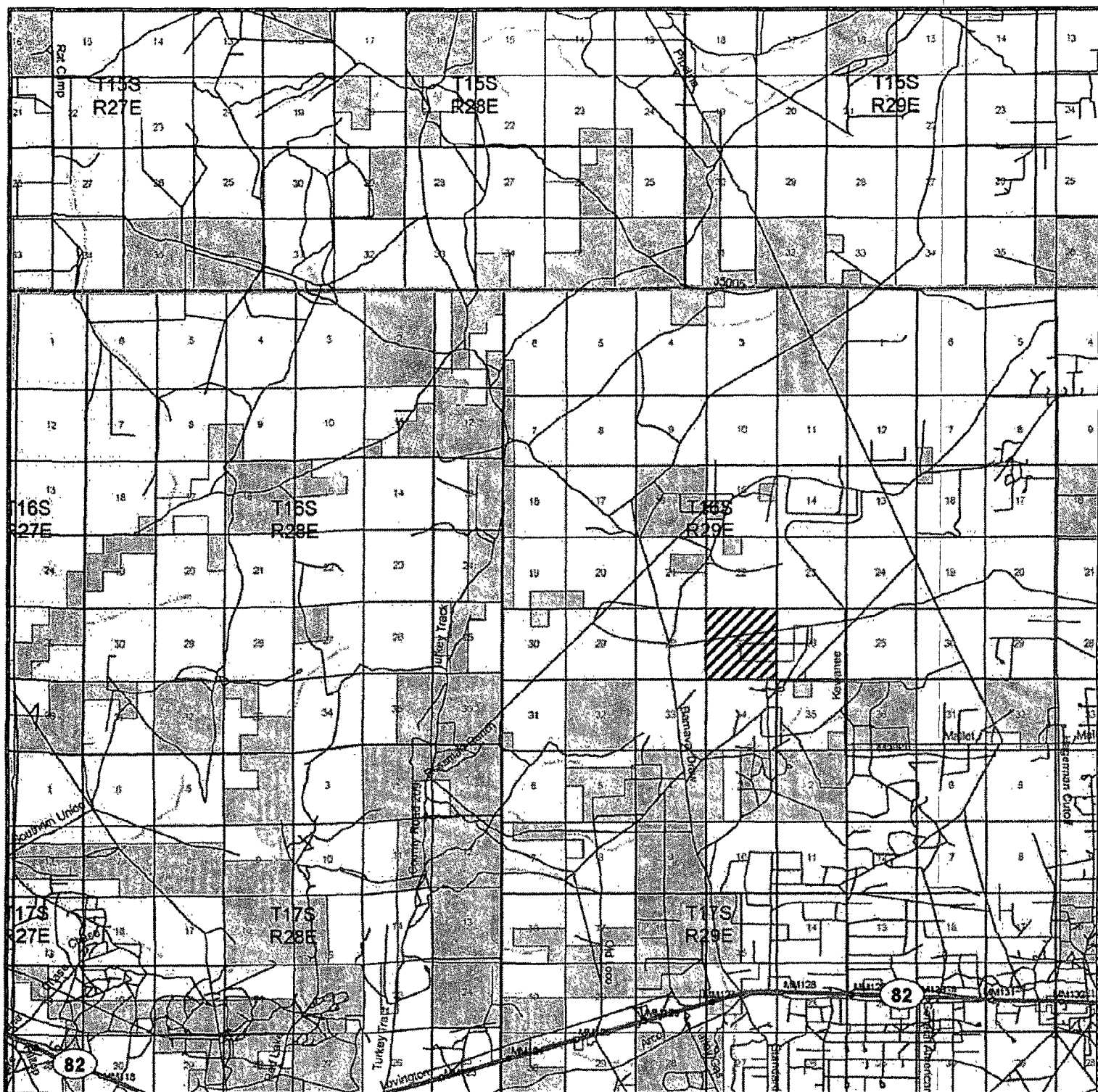
CERTIFICATION: I hereby certify that the statements and plans made in this APD are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed by Cimarex Energy Co. of Colorado and/or its contractors/subcontractors and is in conformity with this plan and the terms and conditions under which it is approved. This statement is subject to the provision of U.S.C. 1001 for the filing of a false statement.

NAME: Zeno Farris
Zeno Farris

DATE: December 12, 2007

TITLE: Manager Operations Administration





JUNO "27" FEDERAL COM #1
 Located 660' FNL and 330' FWL
 Section 27, Township 16 South, Range 29 East,
 N.M.P.M., Eddy 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 18749TR

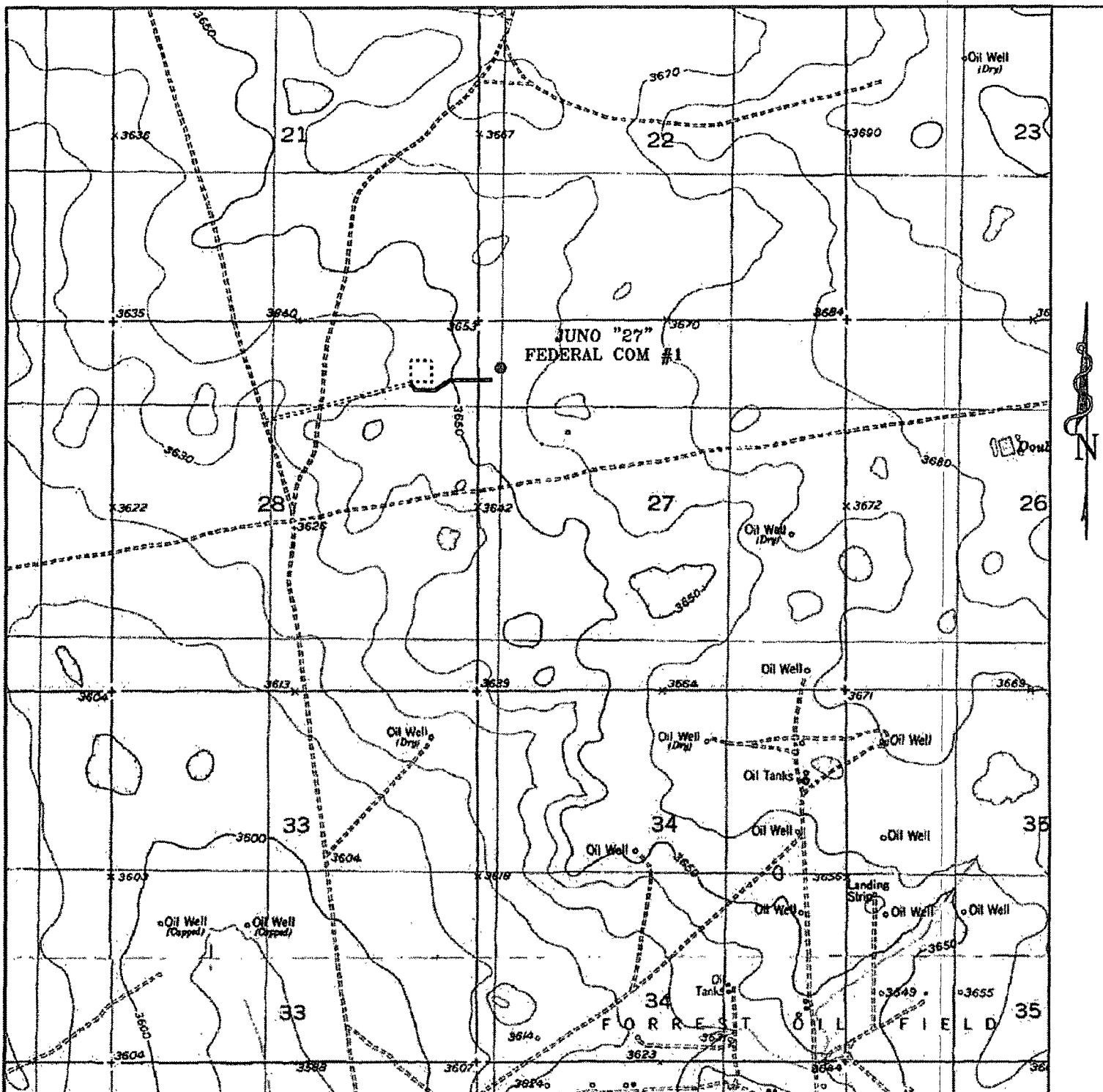
Survey Date: 11-03-2007

Scale: 1" = 2 MILES

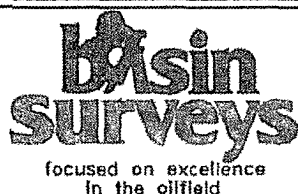
Date: 11-08-2007

CIMAREX
ENERGY CO.
OF COLORADO

Exhibit B



JUNO "27" FEDERAL COM #1
 Located 660' FNL and 330' FWL
 Section 27, Township 16 South, Range 29 East,
 N.M.P.M., Eddy County, New Mexico.



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 18749T

Survey Date: 11-03-2007

Scale: 1" = 2000'

Date: 11-08-2007

CIMAREX
 ENERGY CO.
 OF COLORADO

Exhibit C

PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Cimarex Energy Co. of Colorado
LEASE NO.:	NM-12128
WELL NAME & NO.:	1-Juno 27 Federal Com
SURFACE HOLE FOOTAGE:	660' FNL & 330' FWL
BOTTOM HOLE FOOTAGE:	660' FNL & 330' FEL
LOCATION:	Section 27, T. 16 S., R 29 E., NMPM
COUNTY:	Eddy County, New Mexico

TABLE OF CONTENTS

Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

- ☐ **General Provisions**
- ☐ **Permit Expiration**
- ☐ **Archaeology, Paleontology, and Historical Sites**
- ☐ **Noxious Weeds**
- ☐ **Special Requirements**
- ☒ **Construction**
 - Notification
 - Topsoil
 - Reserve Pit
 - Federal Mineral Material Pits
 - Well Pads
 - Roads
- ☐ **Road Section Diagram**
- ☒ **Drilling**
- ☐ **Production (Post Drilling)**
 - Well Structures & Facilities
 - Pipelines
 - Electric Lines
- ☐ **Reserve Pit Closure/Interim Reclamation**
- ☐ **Final Abandonment/Reclamation**

I. 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.

II. 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.)

III. 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.

IV. NOXIOUS WEEDS

The operator shall be held responsible if noxious weeds become established within the areas of operations. 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.

V. SPECIAL REQUIREMENT(S)

VI. CONSTRUCTION

A. NOTIFICATION

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (505) 234-5972 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 APD and Conditions of Approval (COA) on the well site and they shall be made available upon request by the Authorized Officer.

B. TOPSOIL

The topsoil shall not be used to backfill the reserve pit and will be used for interim and final reclamation.

C. RESERVE PITS

The reserve pit shall be constructed and closed in accordance with the NMOCD rules.

The reserve pit shall be constructed 70' X 15' on the East side of the well pad V-Door South.

The reserve pit shall be constructed, so that upon completion of drilling operations, the dried pit contents shall be buried a minimum depth of three feet below ground level. Should the pit content level not meet the three foot minimum depth requirement, the excess contents shall be removed until the required minimum depth of three feet below ground level has been met. The operator shall properly dispose of the excess contents at an authorized disposal site.

The reserve pit shall be constructed and maintained so that runoff water from outside the location is not allowed to enter the pit. The berms surrounding the entire perimeter of the pit shall extend a minimum of two (2) feet above ground level. At no time will standing fluids in the pit be allowed to rise above ground level.

The reserve pit shall be fenced on three (3) sides during drilling operations. The fourth side shall be fenced immediately upon rig release.

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 Carlsbad Field Office at (505) 234-5972.

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 needs.

F. ON LEASE ACCESS ROADS

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.

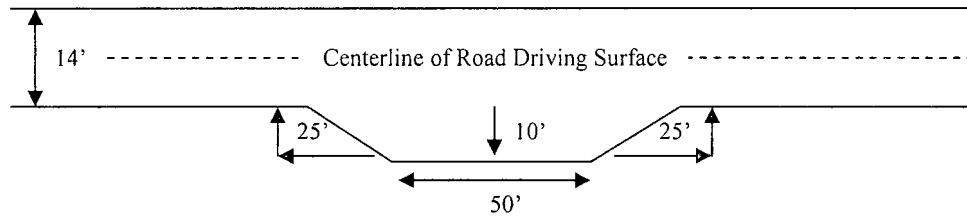
Ditching

Ditching shall be required on both sides of the road.

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

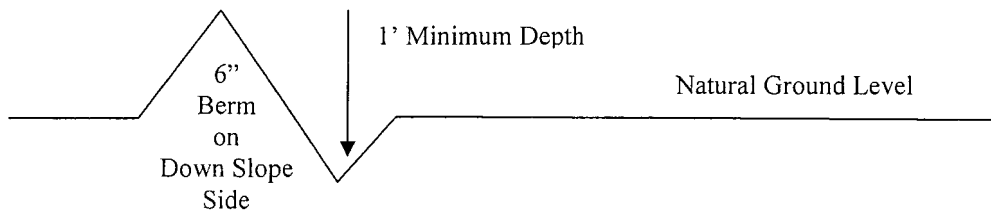


Drainage

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 a 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:

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

Culvert Installations

Appropriately sized culvert(s) shall be installed at the deep waterway channel flow crossing.

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.

SHOULDER **TURNOUT 10'** **TRANSITION 25'** **50'** **25'** **TRANSITION** **E OF ROADWAY**

TYPICAL TURNOUT PLAN

TURNOUTS SHALL BE CONSTRUCTED ON ALL SINGLE LANE ROADS ON ALL BLIND CURVES WITH ADDITIONAL TURNOUTS AS NEEDED TO KEEP SPACING BELOW 1000 FEET.

HEIGHT OF FILL AT SHOULDER **EMBAKMENT SLOPE**

8' - 6"	2:1
ABOVE 8'	2:1

TOP WIDTH **(2' CROWN)** **NATURAL GROUND**

EMBAKMENT SECTION

ROAD TYPE **CROWN**

EARTH SURFACE	22 - 24 FT / FT
AGGREGATE SURFACE	22 - 24 FT / FT
PAVED SURFACE	22 - 24 FT / FT

THE DEPTH OF MEASURED FROM THE BOTTOM OF THE DITCH

SIDE HILL SECTION

NATURAL GROUND **TOP WIDTH** **2' CROWN** **NATURAL GROUND**

CUT SLOPE ROUNDING

NATURAL GROUND LINE **BACK SLOPE** **FILL SLOPE** **TRAVEL SURFACE** **ISLOPE 2 - 4%**

TYPICAL OUTSLOPE SECTION

NATURAL GROUND LINE **BACK SLOPE** **FILL SLOPE** **TRAVEL SURFACE** **ISLOPE 2 - 4%**

TYPICAL INSLOPE SECTION

VII. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

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

- a. Spudding well
- b. Setting and/or Cementing of all casing strings
- c. BOPE tests

☒ **Chaves and Roosevelt Counties, T16S Eddy County**

Call the Roswell Field Office, 2909 West Second St., Roswell NM 88201.
(575) 627-0205 and (575) 361-2822.

1. **Although Hydrogen Sulfide has not been reported in this section, it is always a possible hazard. If Hydrogen Sulfide is encountered, please report measured amounts to the BLM.**
2. 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.
3. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.

B. CASING

1. The 13-3/8 inch surface casing shall be set **a minimum of 25 feet into the Rustler Anhydrite and above the salt at approximately 325 feet** and cemented to the surface.
 - a. If cement does not circulate to the surface, the appropriate BLM 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, 24 hours in the potash area, or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement). **Please provide WOC times to inspector for cement slurries.**

- 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 compressive strength, whichever is greater.
- d. If cement falls back, remedial action will be done prior to drilling out that string.

Possible lost circulation in the Grayburg and San Andres formations.

- 2. The minimum required fill of cement behind the 8-5/8 inch intermediate casing is:

- ☒ Cement to surface. If cement does not circulate see B.1.a-d above.
Please provide WOC times to inspector for cement slurries.

Formation below the 8-5/8" shoe to be tested according to Onshore Order 2.III.B.1.i.

- 3. The minimum required fill of cement behind the 5-1/2 inch production casing is:

- ☒ Cement should tie-back at least 200 feet into previous casing string. Operator shall provide method of verification.
Please provide WOC times to inspector for cement slurries.

- 4. 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. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.
- 2. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
 - a. The tests shall be done by an independent service company.
 - b. The results of the test shall be reported to the appropriate BLM office.
 - c. 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 appropriate BLM office.

- d. 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.
- e. A variance to test only the surface casing to the reduced pressure of 1000 psi with the rig pumps is approved. **The BOP will be tested to 5000 psi by an independent service company.**

Engineer on call phone (after hours): Carlsbad: (575) 706-2779

WWI 011508

VIII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

Placement of Production Facilities

Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation 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
Shale Green, Munsell Soil Color Chart # 5Y 4/2

B. PIPELINES

C. ELECTRIC LINES

IX. INTERIM RECLAMATION & RESERVE PIT CLOSURE

A. 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.

At the time reserve pits are to be reclaimed, operators should work with BLM surface management specialists to devise the best strategies to reduce the size of the location. Any reductions should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

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

B. RESERVE PIT CLOSURE

The reserve pit, when dried and closed, shall be recontoured, all trash removed, and reseeded as follows:

Seed Mixture 2, for Sandy Sites

The holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law (s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

<u>Species</u>	<u>lb/acre</u>
Sand dropseed (<i>Sporobolus cryptandrus</i>)	1.0
Sand love grass (<i>Eragrostis trichodes</i>)	1.0
Plains bristlegrass (<i>Setaria macrostachya</i>)	2.0

*Pounds of pure live seed:

Pounds of seed x percent purity x percent germination = pounds pure live seed
(Insert Seed Mixture Here)

X. FINAL ABANDONMENT & REHABILITATION REQUIREMENTS

Upon abandonment of the well and/or when the access road is no longer in service the Authorized Officer shall issue instructions and/or orders for surface reclamation and restoration of all disturbed areas.

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 agreement.