

EA-007-1349
ATS-07-667

OCD-ARTESIA

Form 3160-3
(April 2004)

S

NOV 09 2007

OCD-ARTESIA

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: ☒ DRILL ☐ REENTER		5. Lease Serial No. NM-9987 BHL: NM 89878	
1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone		6. If Indian, Allottee or Tribe Name 10/29/07 CR	
2. Name of Operator Cimarex Energy Co. of Colorado		7. If Unit or CA Agreement, Name and No. Pending	
3a. Address PO Box 140907 Irving, TX 75014		8. Lease Name and Well No. Pavo Mesa 30 Federal Com No. 1	
3b. Phone No (include area code) 972-401-3111		9. API Well No. 30-015- 35918	
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At Surface 1780' FNL & 330' FWL At proposed prod Zone 1980' FNL & 330' FWL E C.L. 10/17/07		10. Field and Pool, or Exploratory Pavo Mesa; Abo	
14. Distance in miles and direction from nearest town or post office* 17 miles ESE of Lake Arthur		11. Sec., T. R. M. or Blk. and Survey or Area 30-16S-29E	
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig unit line if any) 330'		12. County or Parish Eddy	
16. No of acres in lease 51.24		13. State NM	
17. Spacing Unit dedicated to this well S2N2 145.62			
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft N/A		20. BLM/BIA Bond No on File NM-2575	
19. Proposed Depth 7046 +VD 11,064' +VD			
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3701' GR		22. Approximate date work will start* 1/1/2008	
		23. Estimated duration 30-35 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 Zeno Farris	Name (Printed/Typed) Zeno Farris	Date 09.17.07
Title Manager Operations Administration		
Approved By (Signature) James A. Amos	Name (Printed/Typed)	Date NOV 7 2007
Title FOR 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.

Roswell Controlled Water Basin

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

APPROVAL SUBJECT TO
GENERAL REQUIREMENTS
AND SPECIAL STIPULATIONS
ATTACHED

DISTRICT I
1425 N. French Dr., Hobbs, NM 88240

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

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

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

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-102
Revised October 12, 2005

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

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code 97575	Pool Name Pavo Mesa; Abo
Property Code 36841	Property Name PAVO MESA "30" FEDERAL COM	Well Number 1
OGRID No. 162683	Operator Name CIMAREX ENERGY CO. OF COLORADO	Elevation 3701'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
LOT 2	30	16 S	29 E		1780	NORTH	330	WEST	EDDY

Bottom Hole Location If Different From Surface

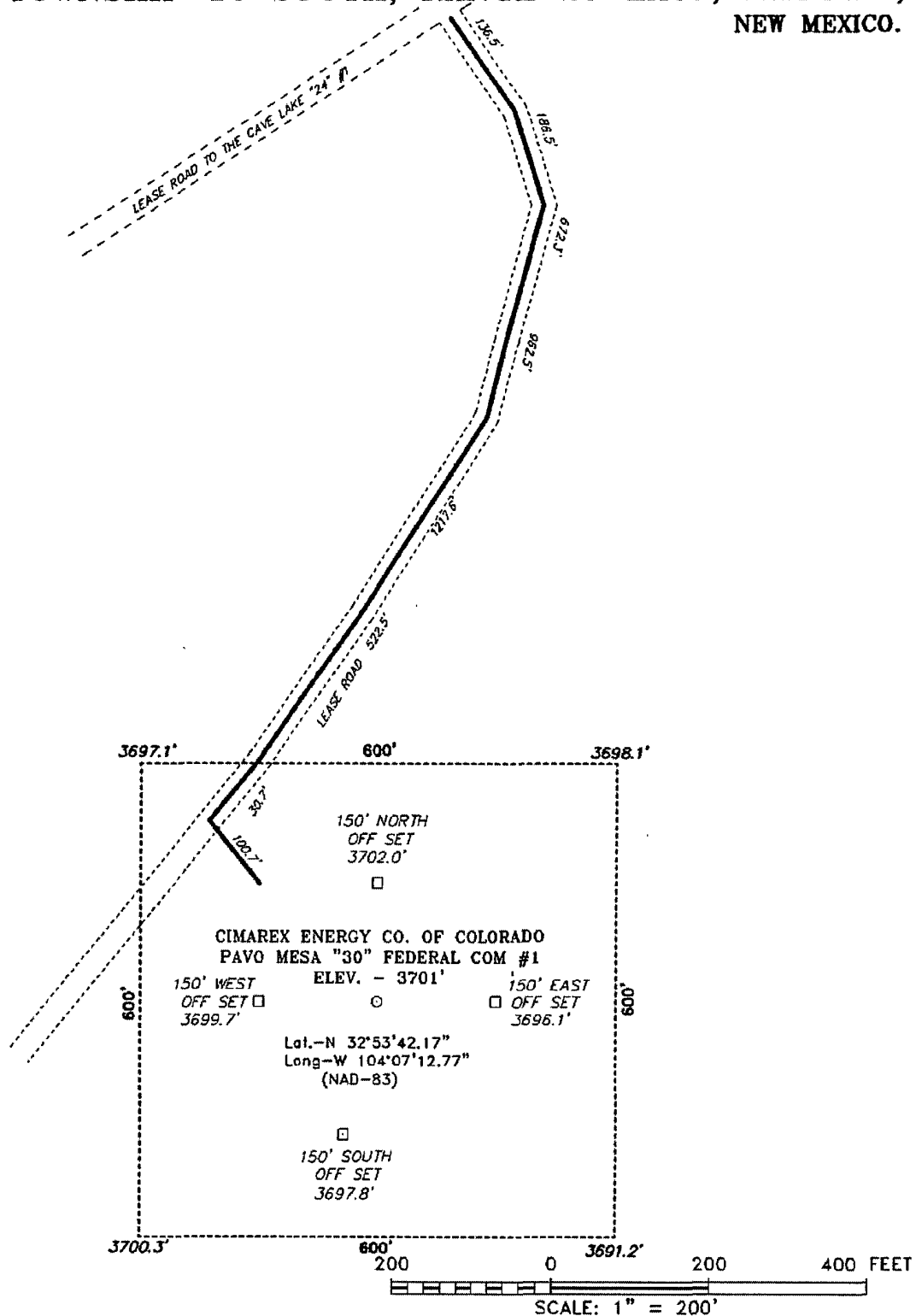
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
H	30	16 S	29 E		1980	NORTH	330	EAST	EDDY

Dedicated Acres 145.62	Joint or Infill	Consolidation Code P	Order No.
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NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

LOT 1	SURFACE LOCATION Lat - N32°53'42.17" Long - W104°07'12.77" NMSPC- N 689415.995 E 606754.937 (NAD-83)	BOTTOM HOLE LOCATION Lat - N32°53'41.0" Long - W104°06'24.2" NMSPC- N 689221.584 E 610895.996 (NAD-83)	OPERATOR CERTIFICATION I herby 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. <u>Zeno Farris</u> 09-17-07 Signature Date Zeno Farris Printed Name	
LOT 2	Pavo Mesa 30 Fed Com #1			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. SEPTEMBER 04, 2007 Date Surveyed Signature & Seal of Professional Surveyor  Certificate No. Gary L. Jones 7977 BASIN SURVEYS
LOT 3	NM-9987	NM-89878		
LOT 4				

SECTION 30, TOWNSHIP 16 SOUTH, RANGE 29 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO.



Directions to Location:

FROM JUNCTION OF US HWY 82 AND CO. RD. 214
(BARNIVAL DRAW), GO NORTH FOR 6.4 MILES TO "Y",
TAKE LEFT FORK AND GO NORTHWEST FOR 0.7
MILES TO PIPELINE ROW, THENCE SOUTHWEST ALONG
PIPELINE ROW FOR 1.1 MILES; THENCE SOUTHWEST
FOR 0.5 MILES, THENCE WEST FOR 0.3 MILES;
THENCE SOUTH 0.4 MILES; THENCE EAST TO LEASE
ROAD.

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

W.O. Number: 18509 Drawn By: J. SMALL

Date: 09-06-2007 Disk: JMS 18509W

CIMAREX ENERGY CO. OF COLORADO

REF: PAVO MESA "30" FEDERAL COM #1 / WELL PAD TOPO

THE PAVO MESA "30" FEDERAL COM #1 LOCATED 1780' FROM

THE NORTH LINE AND 330' FROM THE WEST LINE OF

SECTION 30, TOWNSHIP 16 SOUTH, RANGE 29 EAST,

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

Survey Date: 09-04-2007 Sheet 1 of 1 Sheets

Application to Drill
Cimarex Energy Co. of Colorado
Pavo Mesa 30 Federal Com No. 1
Unit E Section 30
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 1780' FNL & 330' FWL
 BHL 1980' FNL & 330' FEL

- 2 Elevation above sea level: 3701' 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: 11,064'

- 6 Estimated tops of geological markers:
San Andres 2,400'
Abo Shale 5,825'
Lower Abo Dolomite 7,000'
Wolfcamp 7,126'

- 7 Possible mineral bearing formation:
 Abo Oil Primary

8 Proposed Mud Circulating System:

Depth	Mud Wt	Visc	Fluid Loss	Type Mud
0' to 340'	8.4 - 8.6	28-29	May lose circ	Fresh water gel spud mud
340' to 2,500'	10.0	28-29	May lose circ	Brine Water
2,500' to 11,064'	8.4 - 9.5	29-32	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. Proposed drilling Plan

Drill pilot hole to 7200.' Set kick-off plug at 7010.' Kick off horizontal leg at 6810' and drill 7-7/8" hole to 11064' MD, 7040' TVD. Run 5-1/2" 17# N-80 LTC casing and cement as shown on page 2, production casing details.

Application to Drill
 Cimarex Energy Co. of Colorado
 Pavo Mesa 30 Federal Com No. 1
 Unit E Section 30
 T16S R29E Eddy County, NM

9 Casing & Cementing Program:

Hole Size	Depth		Casing OD		Weight	Thread	Collar	Grade
17-1/2	0	to 340'	New	13-3/8	48#	8-R	STC	H-40
11	0	to 2,500'	New	8-5/8	24#	8-R	STC	J-55
7-7/8	0	to 11,064'	New	5-1/2	17#	8-R	LTC	N-80

10 Cementing & Setting Depth:

13-3/8 **Surface** Set 340' of 13-3/8 48# H-40 STC
Lead: 300 sx Thixotropic/Premium Plus + 10# Gilsonite + 10# Cal-Seal + 1% CaCl +
 0.125# Poly-e-flake (wt 14.2, yld 1.64)
Tail: 220 sx Premium Plus + 2% CaCl (wt 14.8, yld 1.35)
 TOC Surface`

8-5/8 **Intermediate** Set 2,500' of 8-5/8 24# J-55 STC
Lead: 425 sx Interfill C + 0.125# flocele (wt 11.9, yld 2.45)
Tail: 200 sx Prem Plus + 1% CaCl (wt 14.8, yld 1.33)
 TOC Surface

5-1/2 **Production** Set 11,064' of 5-1/2 17# N-80 LTC
 1550 sx Super H + 0.5% Halad-344 + 0.4% CFR-3 + 1lbm/sk salt + 5 lb/sk Gilsonite +
 0.125 lb/sk PolyEflake + 0.35% HR-7 (wt 13.0 ppg, yld 1.67 cf/sk)
TOC 1300'

Fresh water will be protected by setting 13-3/8 casing at 340' 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 11,064' and cementing to 1300'

Cimarex uses the following minimum safety factors:

Burst	Collapse	Tension
1.125	1.0	1.80

Application to Drill
Cimarex Energy Co. of Colorado
Pavo Mesa 30 Federal Com No. 1
Unit E Section 30
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 on the 8-5/8" casing and will be 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 program: 2 man unit from 5000' 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 **175**

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

Drilling expected to take 30-35 days

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

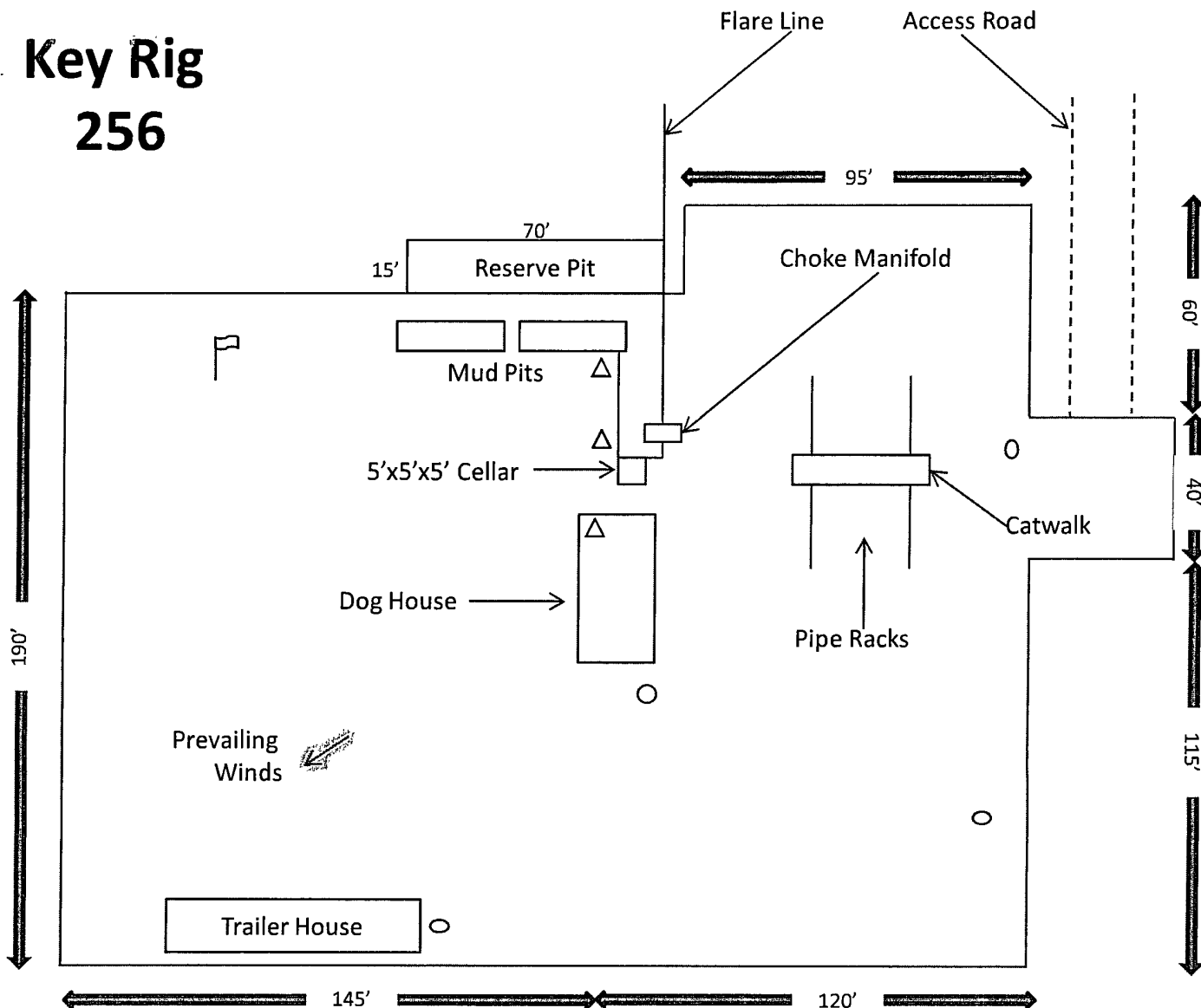
15 Other Facets of Operations:

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 potentialized as **an oil well**

Key Rig 256

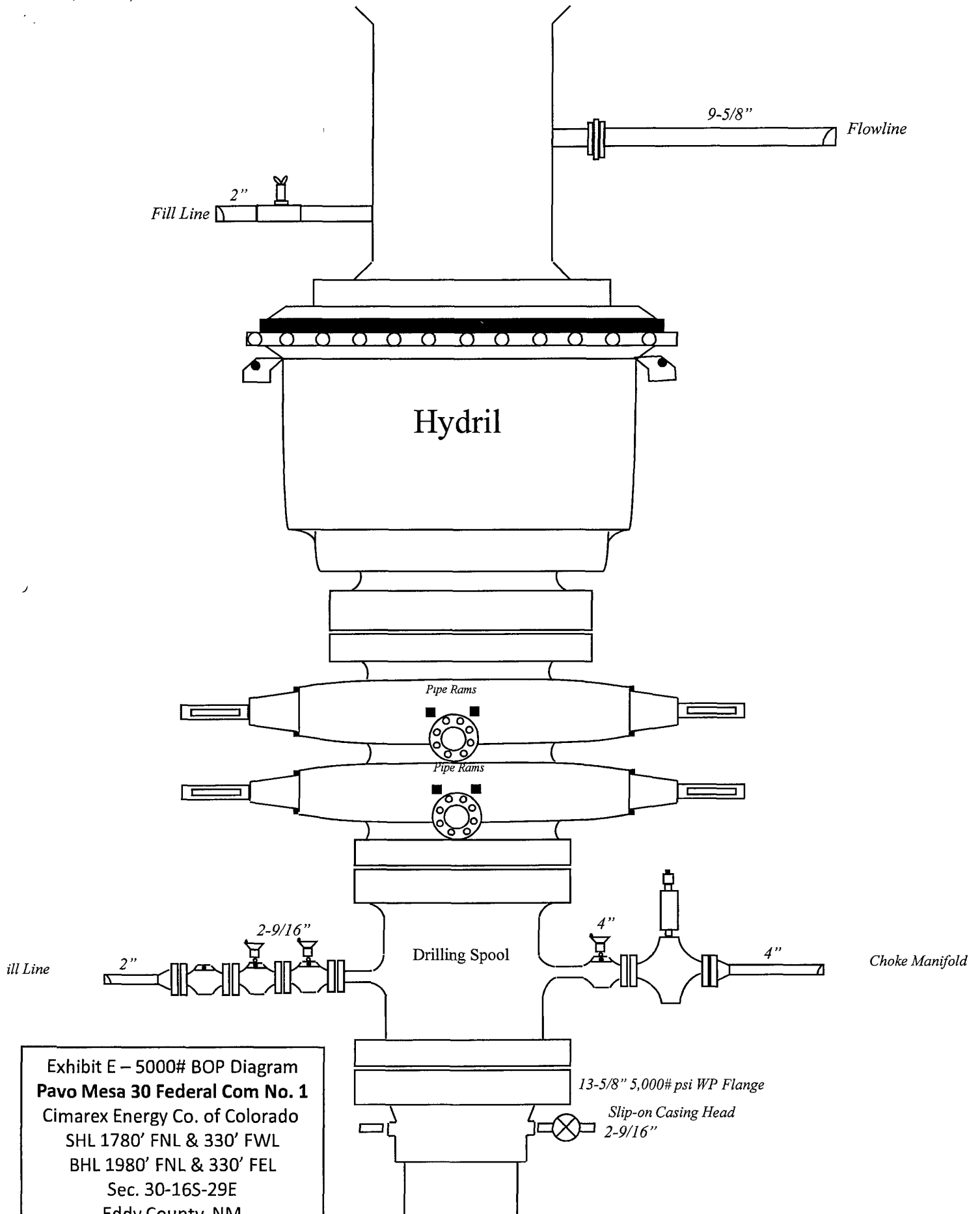


- Wind Direction Indicators
(wind sock or streamers)
- △ H2S Monitors
(alarms at bell nipple and shale shaker)
- Briefing Areas
- Remote BOP Closing Unit

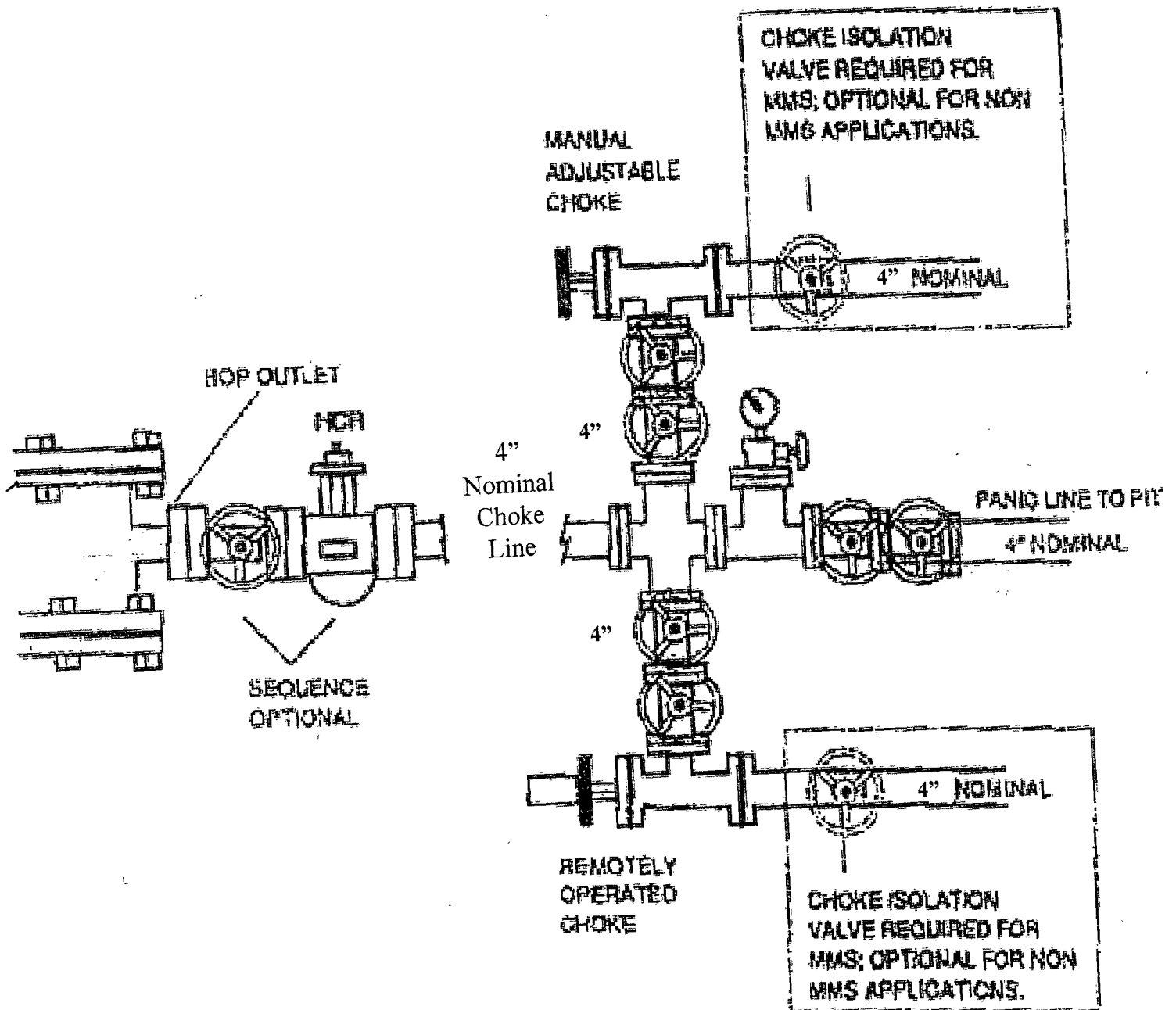
*See COAs
Pit North
V-Door East*

Exhibit D – Rig Diagram
Pavo Mesa 30 Federal Com No. 1
 Cimarex Energy Co. of Colorado
 SHL 1780' FNL & 330' FWL
 BHL 1980' FNL & 330' FEL
 Sec. 30-16S-29E
 Eddy County, NM

SR & A



DRILLING OPERATIONS
CHOKE MANIFOLD
5M SERVICE





Cimarex Energy Co., Inc.

Eddy Co., New Mexico

Pavo Mesa 30 Federal #1H

Pavo Mesa 30 Federal #1H

Lateral #1

Plan: Plan #1

Standard Survey Report

13 September, 2007





Black Viper Energy Survey Report



Company: Cimarex Energy Co., Inc.
Project: Eddy Co., New Mexico
Site: Pavo Mesa 30 Federal #1H
Well: Pavo Mesa 30 Federal #1H
Wellbore: Lateral #1
Design: Plan #1

Local Co-ordinate Reference: Well Pavo Mesa 30 Federal #1H
TVD Reference: WELL @ 3761.00ft (Original Well Elev)
MD Reference: WELL @ 3761.00ft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 2003.14.1 0 Server DB

Project Eddy Co., New Mexico

Map System: US State Plane 1983
Geo Datum: North American Datum 1983
Map Zone: New Mexico Eastern Zone

System Datum: Ground Level

Site Pavo Mesa 30 Federal #1H

Site Position: Northing: 689,415.99 ft Latitude: 32° 53' 42.133 N
From: Map Easting: 606,754.94 ft Longitude: 104° 7' 12.753 W
Position Uncertainty: 0.00 ft Slot Radius: " Grid Convergence: 0.12 °

Well Pavo Mesa 30 Federal #1H

Well Position +N/-S 0.00 ft Northing: 689,415.99 ft Latitude: 32° 53' 42.133 N
+E/-W 0.00 ft Easting: 606,754.94 ft Longitude: 104° 7' 12.753 W
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	9/11/2007	8.33	60.81	49,328

Design Plan #1

Audit Notes:

Version: Phase: PROTOTYPE Tie On Depth: 6,808.00

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	92.69

Survey Tool Program Date 9/13/2007

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
6,808.00	11,063.81	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)
6,808.00	0.00	0.00	6,808.00	0.00	0.00	0.00	0.00	0.00	0.00
6,808.97	0.00	0.00	6,808.97	0.00	0.00	0.00	0.00	0.00	0.00
KOP - Build 30.0° / 100									
6,810.00	0.31	92.69	6,810.00	0.00	0.00	0.00	30.00	30.00	0.00
6,820.00	3.31	92.69	6,819.99	-0.01	0.32	0.32	30.00	30.00	0.00
6,830.00	6.31	92.69	6,829.96	-0.05	1.16	1.16	30.00	30.00	0.00
6,840.00	9.31	92.69	6,839.86	-0.12	2.51	2.52	30.00	30.00	0.00
6,850.00	12.31	92.69	6,849.69	-0.21	4.39	4.39	30.00	30.00	0.00
6,860.00	15.31	92.69	6,859.39	-0.32	6.77	6.78	30.00	30.00	0.00
6,870.00	18.31	92.69	6,868.97	-0.45	9.66	9.67	30.00	30.00	0.00
6,880.00	21.31	92.69	6,878.37	-0.61	13.04	13.06	30.00	30.00	0.00
6,890.00	24.31	92.69	6,887.59	-0.79	16.91	16.93	30.00	30.00	0.00
6,900.00	27.31	92.69	6,896.59	-1.00	21.26	21.29	30.00	30.00	0.00



Black Viper Energy
Survey Report



Company:	Cimarex Energy Co., Inc.	Local Co-ordinate Reference:	Well Pavo Mesa 30 Federal #1H
Project:	Eddy Co., New Mexico	TVD Reference:	WELL @ 3761.00ft (Original Well Elev)
Site:	Pavo Mesa 30 Federal #1H	MD Reference:	WELL @ 3761.00ft (Original Well Elev)
Well:	Pavo Mesa 30 Federal #1H	North Reference:	Gnd
Wellbore:	Lateral #1	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	EDM 2003.14.1.0 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)
6,910.00	30.31	92.69	6,905.35	-1.22	26.08	26.10	30.00	30.00	0.00
6,920.00	33.31	92.69	6,913.85	-1.47	31.34	31.37	30.00	30.00	0.00
6,930.00	36.31	92.69	6,922.06	-1.74	37.04	37.08	30.00	30.00	0.00
6,940.00	39.31	92.69	6,929.96	-2.03	43.16	43.21	30.00	30.00	0.00
6,950.00	42.31	92.69	6,937.53	-2.33	49.69	49.75	30.00	30.00	0.00
6,960.00	45.31	92.69	6,944.74	-2.66	56.61	56.67	30.00	30.00	0.00
6,970.00	48.31	92.69	6,951.59	-3.00	63.89	63.96	30.00	30.00	0.00
6,980.00	51.31	92.69	6,958.04	-3.36	71.52	71.60	30.00	30.00	0.00
6,990.00	54.31	92.69	6,964.08	-3.73	79.47	79.56	30.00	30.00	0.00
7,000.00	57.31	92.69	6,969.70	-4.12	87.74	87.83	30.00	30.00	0.00
7,010.00	60.31	92.69	6,974.88	-4.52	96.28	96.39	30.00	30.00	0.00
7,020.00	63.31	92.69	6,979.61	-4.93	105.08	105.20	30.00	30.00	0.00
7,030.00	66.31	92.69	6,983.86	-5.36	114.12	114.25	30.00	30.00	0.00
7,040.00	69.31	92.69	6,987.64	-5.79	123.37	123.50	30.00	30.00	0.00
7,050.00	72.31	92.69	6,990.92	-6.23	132.80	132.95	30.00	30.00	0.00
7,060.00	75.31	92.69	6,993.71	-6.68	142.39	142.55	30.00	30.00	0.00
7,070.00	78.31	92.69	6,995.99	-7.14	152.12	152.29	30.00	30.00	0.00
7,080.00	81.31	92.69	6,997.76	-7.60	161.95	162.13	30.00	30.00	0.00
7,090.00	84.31	92.69	6,999.02	-8.07	171.86	172.05	30.00	30.00	0.00
7,100.00	87.31	92.69	6,999.75	-8.54	181.82	182.02	30.00	30.00	0.00
7,107.04	89.42	92.69	6,999.95	-8.87	188.85	189.06	29.99	29.99	0.00
EOC - Hold 89.42° Inc. :: 92.69° Azi.									
7,112.31	89.42	92.69	7,000.00	-9.11	194.11	194.32	0.00	0.00	0.00
Lower Abo Dolomite									
7,200.00	89.42	92.69	7,000.89	-13.23	281.70	282.01	0.00	0.00	0.00
7,300.00	89.42	92.69	7,001.90	-17.91	381.59	382.01	0.00	0.00	0.00
7,400.00	89.42	92.69	7,002.91	-22.60	481.47	482.00	0.00	0.00	0.00
7,500.00	89.42	92.69	7,003.92	-27.29	581.36	582.00	0.00	0.00	0.00
7,600.00	89.42	92.69	7,004.94	-31.98	681.24	681.99	0.00	0.00	0.00
7,700.00	89.42	92.69	7,005.95	-36.67	781.12	781.99	0.00	0.00	0.00
7,800.00	89.42	92.69	7,006.96	-41.36	881.01	881.98	0.00	0.00	0.00
7,900.00	89.42	92.69	7,007.97	-46.05	980.89	981.97	0.00	0.00	0.00
8,000.00	89.42	92.69	7,008.99	-50.74	1,080.78	1,081.97	0.00	0.00	0.00
8,100.00	89.42	92.69	7,010.00	-55.43	1,180.66	1,181.96	0.00	0.00	0.00
8,200.00	89.42	92.69	7,011.01	-60.12	1,280.55	1,281.96	0.00	0.00	0.00
8,300.00	89.42	92.69	7,012.02	-64.81	1,380.43	1,381.95	0.00	0.00	0.00
8,400.00	89.42	92.69	7,013.03	-69.50	1,480.32	1,481.95	0.00	0.00	0.00
8,500.00	89.42	92.69	7,014.05	-74.19	1,580.20	1,581.94	0.00	0.00	0.00
8,600.00	89.42	92.69	7,015.06	-78.88	1,680.09	1,681.94	0.00	0.00	0.00
8,700.00	89.42	92.69	7,016.07	-83.56	1,779.97	1,781.93	0.00	0.00	0.00
8,800.00	89.42	92.69	7,017.08	-88.25	1,879.86	1,881.93	0.00	0.00	0.00
8,900.00	89.42	92.69	7,018.10	-92.94	1,979.74	1,981.92	0.00	0.00	0.00
9,000.00	89.42	92.69	7,019.11	-97.63	2,079.63	2,081.92	0.00	0.00	0.00
9,100.00	89.42	92.69	7,020.12	-102.32	2,179.51	2,181.91	0.00	0.00	0.00
9,200.00	89.42	92.69	7,021.13	-107.01	2,279.40	2,281.91	0.00	0.00	0.00
9,300.00	89.42	92.69	7,022.15	-111.70	2,379.28	2,381.90	0.00	0.00	0.00
9,400.00	89.42	92.69	7,023.16	-116.39	2,479.17	2,481.90	0.00	0.00	0.00
9,500.00	89.42	92.69	7,024.17	-121.08	2,579.05	2,581.89	0.00	0.00	0.00
9,600.00	89.42	92.69	7,025.18	-125.77	2,678.94	2,681.89	0.00	0.00	0.00
9,700.00	89.42	92.69	7,026.19	-130.46	2,778.82	2,781.88	0.00	0.00	0.00
9,800.00	89.42	92.69	7,027.21	-135.15	2,878.71	2,881.88	0.00	0.00	0.00
9,900.00	89.42	92.69	7,028.22	-139.84	2,978.59	2,981.87	0.00	0.00	0.00
10,000.00	89.42	92.69	7,029.23	-144.53	3,078.48	3,081.87	0.00	0.00	0.00
10,100.00	89.42	92.69	7,030.24	-149.22	3,178.36	3,181.86	0.00	0.00	0.00



Black Viper Energy Survey Report



Company: Cimarex Energy Co., Inc.
Project: Eddy Co., New Mexico
Site: Pavo Mesa 30 Federal #1H
Well: Pavo Mesa 30 Federal #1H
Wellbore: Lateral #1
Design: Plan #1

Local Co-ordinate Reference: Well Pavó Mesa 30 Federal #1H
TVD Reference: WELL @ 3761.00ft (Original Well Elev)
MD Reference: WELL @ 3761.00ft (Original Well Elev)
North Reference: Grd
Survey Calculation Method: Minimum Curvature
Database: EDM 2003.14.1.0 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)
10,200.00	89.42	92.69	7,031.26	-153.90	3,278.25	3,281.86	0.00	0.00	0.00
10,300.00	89.42	92.69	7,032.27	-158.59	3,378.13	3,381.85	0.00	0.00	0.00
10,400.00	89.42	92.69	7,033.28	-163.28	3,478.02	3,481.85	0.00	0.00	0.00
10,500.00	89.42	92.69	7,034.29	-167.97	3,577.90	3,581.84	0.00	0.00	0.00
10,600.00	89.42	92.69	7,035.31	-172.66	3,677.79	3,681.84	0.00	0.00	0.00
10,700.00	89.42	92.69	7,036.32	-177.35	3,777.67	3,781.83	0.00	0.00	0.00
10,800.00	89.42	92.69	7,037.33	-182.04	3,877.56	3,881.83	0.00	0.00	0.00
10,900.00	89.42	92.69	7,038.34	-186.73	3,977.44	3,981.82	0.00	0.00	0.00
11,000.00	89.42	92.69	7,039.35	-191.42	4,077.33	4,081.82	0.00	0.00	0.00
11,063.81	89.42	92.69	7,040.00	-194.41	4,141.06	4,145.62	0.00	0.00	0.00

PBHL#1[PM30Fed#1H]

Targets

Target Name	hit/miss target	Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
PBHL#1[PM30Fed#1H]	- plan hits target	- Point	0.00	0.00	7,040.00	-194.41	4,141.06	689,221.58	610,896.00	32° 53' 40.124 N	104° 6' 24.189 W

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
	5,825.00	Abo Shale		0.00	
7,112.31	7,000.00	Lower Abo Dolomite		0.00	
	7,126.00	Wolfcamp		0.00	

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates	+N/-S (ft)	+E/-W (ft)	Comment
6,808.97	6,808.97		0.00	0.00	KOP - Build 30.0° / 100
7,107.04	6,999.95		-8.87	188.85	EOC - Hold 89.42° Inc. ... 92.69° Azi.

Checked By: _____ Approved By: _____ Date: _____

Pavo Mesa 30 Federal #1H Lateral Plan #1 Report 9-13-07

Cimarex Energy Co., Inc.

Pavo Mesa 30 Federal #1H - Plan #1

Eddy Co., New Mexico

Pavo Mesa 30 Federal #1H

Measured Depth (ft)	Incl.	Azim.	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
6810.00	0.309	92.688	6810.00	0.00 S	0.00 E	0.00	0.00
6820.00	3.309	92.688	6819.99	0.01 S	0.32 E	0.32	30.00
6830.00	6.309	92.688	6829.96	0.05 S	1.16 E	1.16	30.00
6840.00	9.309	92.688	6839.86	0.12 S	2.51 E	2.52	30.00
6850.00	12.309	92.688	6849.69	0.21 S	4.39 E	4.39	30.00
6860.00	15.309	92.688	6859.39	0.32 S	6.77 E	6.78	30.00
6870.00	18.309	92.688	6868.97	0.45 S	9.66 E	9.67	30.00
6880.00	21.309	92.688	6878.37	0.61 S	13.04 E	13.06	30.00
6890.00	24.309	92.688	6887.59	0.79 S	16.91 E	16.93	30.00
6900.00	27.309	92.688	6896.59	1.00 S	21.26 E	21.29	30.00
6910.00	30.309	92.688	6905.35	1.22 S	26.08 E	26.10	30.00
6920.00	33.309	92.688	6913.85	1.47 S	31.34 E	31.37	30.00
6930.00	36.309	92.688	6922.06	1.74 S	37.04 E	37.08	30.00
6940.00	39.309	92.688	6929.96	2.03 S	43.16 E	43.21	30.00
6950.00	42.309	92.688	6937.53	2.33 S	49.69 E	49.75	30.00
6960.00	45.309	92.688	6944.74	2.66 S	56.61 E	56.67	30.00
6970.00	48.309	92.688	6951.59	3.00 S	63.89 E	63.96	30.00
6980.00	51.309	92.688	6958.04	3.36 S	71.52 E	71.60	30.00
6990.00	54.309	92.688	6964.08	3.73 S	79.47 E	79.56	30.00
7000.00	57.309	92.688	6969.70	4.12 S	87.74 E	87.83	30.00
7010.00	60.309	92.688	6974.88	4.52 S	96.28 E	96.39	30.00
7020.00	63.309	92.688	6979.61	4.93 S	105.08 E	105.20	30.00
7030.00	66.309	92.688	6983.86	5.36 S	114.12 E	114.25	30.00
7040.00	69.309	92.688	6987.64	5.79 S	123.37 E	123.50	30.00
7050.00	72.309	92.688	6990.92	6.23 S	132.80 E	132.95	30.00
7060.00	75.309	92.688	6993.71	6.68 S	142.39 E	142.55	30.00
7070.00	78.309	92.688	6995.99	7.14 S	152.12 E	152.29	30.00
7080.00	81.309	92.688	6997.76	7.60 S	161.95 E	162.13	30.00
7090.00	84.309	92.688	6999.02	8.07 S	171.86 E	172.05	30.00
7100.00	87.309	92.688	6999.75	8.54 S	181.82 E	182.02	30.00
7110.00	89.420	92.688	6999.98	9.00 S	191.80 E	192.02	21.11
7120.00	89.420	92.688	7000.08	9.47 S	201.79 E	202.01	0.00
7130.00	89.420	92.688	7000.18	9.94 S	211.78 E	212.01	0.00
7140.00	89.420	92.688	7000.28	10.41 S	221.77 E	222.01	0.00

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7150.00	89.420	92.688	7000.38	10.88 S	231.76 E	232.01	0.00
7160.00	89.420	92.688	7000.48	11.35 S	241.75 E	242.01	0.00
7170.00	89.420	92.688	7000.58	11.82 S	251.74 E	252.01	0.00
7180.00	89.420	92.688	7000.69	12.29 S	261.72 E	262.01	0.00
7190.00	89.420	92.688	7000.79	12.76 S	271.71 E	272.01	0.00
7200.00	89.420	92.688	7000.89	13.23 S	281.70 E	282.01	0.00
7210.00	89.420	92.688	7000.99	13.69 S	291.69 E	292.01	0.00
7220.00	89.420	92.688	7001.09	14.16 S	301.68 E	302.01	0.00
7230.00	89.420	92.688	7001.19	14.63 S	311.67 E	312.01	0.00
7240.00	89.420	92.688	7001.29	15.10 S	321.65 E	322.01	0.00
7250.00	89.420	92.688	7001.39	15.57 S	331.64 E	332.01	0.00
7260.00	89.420	92.688	7001.50	16.04 S	341.63 E	342.01	0.00
7270.00	89.420	92.688	7001.60	16.51 S	351.62 E	352.01	0.00
7280.00	89.420	92.688	7001.70	16.98 S	361.61 E	362.01	0.00
7290.00	89.420	92.688	7001.80	17.45 S	371.60 E	372.01	0.00
7300.00	89.420	92.688	7001.90	17.91 S	381.59 E	382.01	0.00
7310.00	89.420	92.688	7002.00	18.38 S	391.57 E	392.01	0.00
7320.00	89.420	92.688	7002.10	18.85 S	401.56 E	402.00	0.00
7330.00	89.420	92.688	7002.20	19.32 S	411.55 E	412.00	0.00
7340.00	89.420	92.688	7002.30	19.79 S	421.54 E	422.00	0.00
7350.00	89.420	92.688	7002.41	20.26 S	431.53 E	432.00	0.00
7360.00	89.420	92.688	7002.51	20.73 S	441.52 E	442.00	0.00
7370.00	89.420	92.688	7002.61	21.20 S	451.50 E	452.00	0.00
7380.00	89.420	92.688	7002.71	21.67 S	461.49 E	462.00	0.00
7390.00	89.420	92.688	7002.81	22.13 S	471.48 E	472.00	0.00
7400.00	89.420	92.688	7002.91	22.60 S	481.47 E	482.00	0.00
7410.00	89.420	92.688	7003.01	23.07 S	491.46 E	492.00	0.00
7420.00	89.420	92.688	7003.11	23.54 S	501.45 E	502.00	0.00
7430.00	89.420	92.688	7003.22	24.01 S	511.44 E	512.00	0.00
7440.00	89.420	92.688	7003.32	24.48 S	521.42 E	522.00	0.00
7450.00	89.420	92.688	7003.42	24.95 S	531.41 E	532.00	0.00
7460.00	89.420	92.688	7003.52	25.42 S	541.40 E	542.00	0.00
7470.00	89.420	92.688	7003.62	25.89 S	551.39 E	552.00	0.00
7480.00	89.420	92.688	7003.72	26.36 S	561.38 E	562.00	0.00
7490.00	89.420	92.688	7003.82	26.82 S	571.37 E	572.00	0.00
7500.00	89.420	92.688	7003.92	27.29 S	581.36 E	582.00	0.00
7510.00	89.420	92.688	7004.03	27.76 S	591.34 E	591.99	0.00
7520.00	89.420	92.688	7004.13	28.23 S	601.33 E	601.99	0.00
7530.00	89.420	92.688	7004.23	28.70 S	611.32 E	611.99	0.00
7540.00	89.420	92.688	7004.33	29.17 S	621.31 E	621.99	0.00
7550.00	89.420	92.688	7004.43	29.64 S	631.30 E	631.99	0.00
7560.00	89.420	92.688	7004.53	30.11 S	641.29 E	641.99	0.00
7570.00	89.420	92.688	7004.63	30.58 S	651.27 E	651.99	0.00
7580.00	89.420	92.688	7004.73	31.04 S	661.26 E	661.99	0.00

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7590.00	89.420	92.688	7004.84	31.51 S	671.25 E	671.99	0.00
7600.00	89.420	92.688	7004.94	31.98 S	681.24 E	681.99	0.00
7610.00	89.420	92.688	7005.04	32.45 S	691.23 E	691.99	0.00
7620.00	89.420	92.688	7005.14	32.92 S	701.22 E	701.99	0.00
7630.00	89.420	92.688	7005.24	33.39 S	711.21 E	711.99	0.00
7640.00	89.420	92.688	7005.34	33.86 S	721.19 E	721.99	0.00
7650.00	89.420	92.688	7005.44	34.33 S	731.18 E	731.99	0.00
7660.00	89.420	92.688	7005.54	34.80 S	741.17 E	741.99	0.00
7670.00	89.420	92.688	7005.65	35.26 S	751.16 E	751.99	0.00
7680.00	89.420	92.688	7005.75	35.73 S	761.15 E	761.99	0.00
7690.00	89.420	92.688	7005.85	36.20 S	771.14 E	771.99	0.00
7700.00	89.420	92.688	7005.95	36.67 S	781.12 E	781.99	0.00
7710.00	89.420	92.688	7006.05	37.14 S	791.11 E	791.98	0.00
7720.00	89.420	92.688	7006.15	37.61 S	801.10 E	801.98	0.00
7730.00	89.420	92.688	7006.25	38.08 S	811.09 E	811.98	0.00
7740.00	89.420	92.688	7006.35	38.55 S	821.08 E	821.98	0.00
7750.00	89.420	92.688	7006.46	39.02 S	831.07 E	831.98	0.00
7760.00	89.420	92.688	7006.56	39.49 S	841.06 E	841.98	0.00
7770.00	89.420	92.688	7006.66	39.95 S	851.04 E	851.98	0.00
7780.00	89.420	92.688	7006.76	40.42 S	861.03 E	861.98	0.00
7790.00	89.420	92.688	7006.86	40.89 S	871.02 E	871.98	0.00
7800.00	89.420	92.688	7006.96	41.36 S	881.01 E	881.98	0.00
7810.00	89.420	92.688	7007.06	41.83 S	891.00 E	891.98	0.00
7820.00	89.420	92.688	7007.16	42.30 S	900.99 E	901.98	0.00
7830.00	89.420	92.688	7007.27	42.77 S	910.98 E	911.98	0.00
7840.00	89.420	92.688	7007.37	43.24 S	920.96 E	921.98	0.00
7850.00	89.420	92.688	7007.47	43.71 S	930.95 E	931.98	0.00
7860.00	89.420	92.688	7007.57	44.17 S	940.94 E	941.98	0.00
7870.00	89.420	92.688	7007.67	44.64 S	950.93 E	951.98	0.00
7880.00	89.420	92.688	7007.77	45.11 S	960.92 E	961.98	0.00
7890.00	89.420	92.688	7007.87	45.58 S	970.91 E	971.98	0.00
7900.00	89.420	92.688	7007.97	46.05 S	980.89 E	981.97	0.00
7910.00	89.420	92.688	7008.07	46.52 S	990.88 E	991.97	0.00
7920.00	89.420	92.688	7008.18	46.99 S	1000.87 E	1001.97	0.00
7930.00	89.420	92.688	7008.28	47.46 S	1010.86 E	1011.97	0.00
7940.00	89.420	92.688	7008.38	47.93 S	1020.85 E	1021.97	0.00
7950.00	89.420	92.688	7008.48	48.39 S	1030.84 E	1031.97	0.00
7960.00	89.420	92.688	7008.58	48.86 S	1040.83 E	1041.97	0.00
7970.00	89.420	92.688	7008.68	49.33 S	1050.81 E	1051.97	0.00
7980.00	89.420	92.688	7008.78	49.80 S	1060.80 E	1061.97	0.00
7990.00	89.420	92.688	7008.88	50.27 S	1070.79 E	1071.97	0.00
8000.00	89.420	92.688	7008.99	50.74 S	1080.78 E	1081.97	0.00
8010.00	89.420	92.688	7009.09	51.21 S	1090.77 E	1091.97	0.00
8020.00	89.420	92.688	7009.19	51.68 S	1100.76 E	1101.97	0.00

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8030.00	89.420	92.688	7009.29	52.15 S	1110.74 E	1111.97	0.00
8040.00	89.420	92.688	7009.39	52.62 S	1120.73 E	1121.97	0.00
8050.00	89.420	92.688	7009.49	53.08 S	1130.72 E	1131.97	0.00
8060.00	89.420	92.688	7009.59	53.55 S	1140.71 E	1141.97	0.00
8070.00	89.420	92.688	7009.69	54.02 S	1150.70 E	1151.97	0.00
8080.00	89.420	92.688	7009.80	54.49 S	1160.69 E	1161.97	0.00
8090.00	89.420	92.688	7009.90	54.96 S	1170.68 E	1171.97	0.00
8100.00	89.420	92.688	7010.00	55.43 S	1180.66 E	1181.96	0.00
8110.00	89.420	92.688	7010.10	55.90 S	1190.65 E	1191.96	0.00
8120.00	89.420	92.688	7010.20	56.37 S	1200.64 E	1201.96	0.00
8130.00	89.420	92.688	7010.30	56.84 S	1210.63 E	1211.96	0.00
8140.00	89.420	92.688	7010.40	57.30 S	1220.62 E	1221.96	0.00
8150.00	89.420	92.688	7010.50	57.77 S	1230.61 E	1231.96	0.00
8160.00	89.420	92.688	7010.61	58.24 S	1240.60 E	1241.96	0.00
8170.00	89.420	92.688	7010.71	58.71 S	1250.58 E	1251.96	0.00
8180.00	89.420	92.688	7010.81	59.18 S	1260.57 E	1261.96	0.00
8190.00	89.420	92.688	7010.91	59.65 S	1270.56 E	1271.96	0.00
8200.00	89.420	92.688	7011.01	60.12 S	1280.55 E	1281.96	0.00
8210.00	89.420	92.688	7011.11	60.59 S	1290.54 E	1291.96	0.00
8220.00	89.420	92.688	7011.21	61.06 S	1300.53 E	1301.96	0.00
8230.00	89.420	92.688	7011.31	61.52 S	1310.51 E	1311.96	0.00
8240.00	89.420	92.688	7011.42	61.99 S	1320.50 E	1321.96	0.00
8250.00	89.420	92.688	7011.52	62.46 S	1330.49 E	1331.96	0.00
8260.00	89.420	92.688	7011.62	62.93 S	1340.48 E	1341.96	0.00
8270.00	89.420	92.688	7011.72	63.40 S	1350.47 E	1351.96	0.00
8280.00	89.420	92.688	7011.82	63.87 S	1360.46 E	1361.96	0.00
8290.00	89.420	92.688	7011.92	64.34 S	1370.45 E	1371.96	0.00
8300.00	89.420	92.688	7012.02	64.81 S	1380.43 E	1381.95	0.00
8310.00	89.420	92.688	7012.12	65.28 S	1390.42 E	1391.95	0.00
8320.00	89.420	92.688	7012.23	65.75 S	1400.41 E	1401.95	0.00
8330.00	89.420	92.688	7012.33	66.21 S	1410.40 E	1411.95	0.00
8340.00	89.420	92.688	7012.43	66.68 S	1420.39 E	1421.95	0.00
8350.00	89.420	92.688	7012.53	67.15 S	1430.38 E	1431.95	0.00
8360.00	89.420	92.688	7012.63	67.62 S	1440.36 E	1441.95	0.00
8370.00	89.420	92.688	7012.73	68.09 S	1450.35 E	1451.95	0.00
8380.00	89.420	92.688	7012.83	68.56 S	1460.34 E	1461.95	0.00
8390.00	89.420	92.688	7012.93	69.03 S	1470.33 E	1471.95	0.00
8400.00	89.420	92.688	7013.03	69.50 S	1480.32 E	1481.95	0.00
8410.00	89.420	92.688	7013.14	69.97 S	1490.31 E	1491.95	0.00
8420.00	89.420	92.688	7013.24	70.43 S	1500.30 E	1501.95	0.00
8430.00	89.420	92.688	7013.34	70.90 S	1510.28 E	1511.95	0.00
8440.00	89.420	92.688	7013.44	71.37 S	1520.27 E	1521.95	0.00
8450.00	89.420	92.688	7013.54	71.84 S	1530.26 E	1531.95	0.00
8460.00	89.420	92.688	7013.64	72.31 S	1540.25 E	1541.95	0.00

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8470.00	89.420	92.688	7013.74	72.78 S	1550.24 E	1551.95	0.00
8480.00	89.420	92.688	7013.84	73.25 S	1560.23 E	1561.95	0.00
8490.00	89.420	92.688	7013.95	73.72 S	1570.22 E	1571.94	0.00
8500.00	89.420	92.688	7014.05	74.19 S	1580.20 E	1581.94	0.00
8510.00	89.420	92.688	7014.15	74.66 S	1590.19 E	1591.94	0.00
8520.00	89.420	92.688	7014.25	75.12 S	1600.18 E	1601.94	0.00
8530.00	89.420	92.688	7014.35	75.59 S	1610.17 E	1611.94	0.00
8540.00	89.420	92.688	7014.45	76.06 S	1620.16 E	1621.94	0.00
8550.00	89.420	92.688	7014.55	76.53 S	1630.15 E	1631.94	0.00
8560.00	89.420	92.688	7014.65	77.00 S	1640.13 E	1641.94	0.00
8570.00	89.420	92.688	7014.76	77.47 S	1650.12 E	1651.94	0.00
8580.00	89.420	92.688	7014.86	77.94 S	1660.11 E	1661.94	0.00
8590.00	89.420	92.688	7014.96	78.41 S	1670.10 E	1671.94	0.00
8600.00	89.420	92.688	7015.06	78.88 S	1680.09 E	1681.94	0.00
8610.00	89.420	92.688	7015.16	79.34 S	1690.08 E	1691.94	0.00
8620.00	89.420	92.688	7015.26	79.81 S	1700.07 E	1701.94	0.00
8630.00	89.420	92.688	7015.36	80.28 S	1710.05 E	1711.94	0.00
8640.00	89.420	92.688	7015.46	80.75 S	1720.04 E	1721.94	0.00
8650.00	89.420	92.688	7015.57	81.22 S	1730.03 E	1731.94	0.00
8660.00	89.420	92.688	7015.67	81.69 S	1740.02 E	1741.94	0.00
8670.00	89.420	92.688	7015.77	82.16 S	1750.01 E	1751.94	0.00
8680.00	89.420	92.688	7015.87	82.63 S	1760.00 E	1761.94	0.00
8690.00	89.420	92.688	7015.97	83.10 S	1769.99 E	1771.93	0.00
8700.00	89.420	92.688	7016.07	83.56 S	1779.97 E	1781.93	0.00
8710.00	89.420	92.688	7016.17	84.03 S	1789.96 E	1791.93	0.00
8720.00	89.420	92.688	7016.27	84.50 S	1799.95 E	1801.93	0.00
8730.00	89.420	92.688	7016.38	84.97 S	1809.94 E	1811.93	0.00
8740.00	89.420	92.688	7016.48	85.44 S	1819.93 E	1821.93	0.00
8750.00	89.420	92.688	7016.58	85.91 S	1829.92 E	1831.93	0.00
8760.00	89.420	92.688	7016.68	86.38 S	1839.90 E	1841.93	0.00
8770.00	89.420	92.688	7016.78	86.85 S	1849.89 E	1851.93	0.00
8780.00	89.420	92.688	7016.88	87.32 S	1859.88 E	1861.93	0.00
8790.00	89.420	92.688	7016.98	87.79 S	1869.87 E	1871.93	0.00
8800.00	89.420	92.688	7017.08	88.25 S	1879.86 E	1881.93	0.00
8810.00	89.420	92.688	7017.19	88.72 S	1889.85 E	1891.93	0.00
8820.00	89.420	92.688	7017.29	89.19 S	1899.84 E	1901.93	0.00
8830.00	89.420	92.688	7017.39	89.66 S	1909.82 E	1911.93	0.00
8840.00	89.420	92.688	7017.49	90.13 S	1919.81 E	1921.93	0.00
8850.00	89.420	92.688	7017.59	90.60 S	1929.80 E	1931.93	0.00
8860.00	89.420	92.688	7017.69	91.07 S	1939.79 E	1941.93	0.00
8870.00	89.420	92.688	7017.79	91.54 S	1949.78 E	1951.93	0.00
8880.00	89.420	92.688	7017.89	92.01 S	1959.77 E	1961.92	0.00
8890.00	89.420	92.688	7018.00	92.47 S	1969.75 E	1971.92	0.00
8900.00	89.420	92.688	7018.10	92.94 S	1979.74 E	1981.92	0.00

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8910.00	89.420	92.688	7018.20	93.41 S	1989.73 E	1991.92	0.00
8920.00	89.420	92.688	7018.30	93.88 S	1999.72 E	2001.92	0.00
8930.00	89.420	92.688	7018.40	94.35 S	2009.71 E	2011.92	0.00
8940.00	89.420	92.688	7018.50	94.82 S	2019.70 E	2021.92	0.00
8950.00	89.420	92.688	7018.60	95.29 S	2029.69 E	2031.92	0.00
8960.00	89.420	92.688	7018.70	95.76 S	2039.67 E	2041.92	0.00
8970.00	89.420	92.688	7018.80	96.23 S	2049.66 E	2051.92	0.00
8980.00	89.420	92.688	7018.91	96.69 S	2059.65 E	2061.92	0.00
8990.00	89.420	92.688	7019.01	97.16 S	2069.64 E	2071.92	0.00
9000.00	89.420	92.688	7019.11	97.63 S	2079.63 E	2081.92	0.00
9010.00	89.420	92.688	7019.21	98.10 S	2089.62 E	2091.92	0.00
9020.00	89.420	92.688	7019.31	98.57 S	2099.61 E	2101.92	0.00
9030.00	89.420	92.688	7019.41	99.04 S	2109.59 E	2111.92	0.00
9040.00	89.420	92.688	7019.51	99.51 S	2119.58 E	2121.92	0.00
9050.00	89.420	92.688	7019.61	99.98 S	2129.57 E	2131.92	0.00
9060.00	89.420	92.688	7019.72	100.45 S	2139.56 E	2141.92	0.00
9070.00	89.420	92.688	7019.82	100.92 S	2149.55 E	2151.92	0.00
9080.00	89.420	92.688	7019.92	101.38 S	2159.54 E	2161.91	0.00
9090.00	89.420	92.688	7020.02	101.85 S	2169.52 E	2171.91	0.00
9100.00	89.420	92.688	7020.12	102.32 S	2179.51 E	2181.91	0.00
9110.00	89.420	92.688	7020.22	102.79 S	2189.50 E	2191.91	0.00
9120.00	89.420	92.688	7020.32	103.26 S	2199.49 E	2201.91	0.00
9130.00	89.420	92.688	7020.42	103.73 S	2209.48 E	2211.91	0.00
9140.00	89.420	92.688	7020.53	104.20 S	2219.47 E	2221.91	0.00
9150.00	89.420	92.688	7020.63	104.67 S	2229.46 E	2231.91	0.00
9160.00	89.420	92.688	7020.73	105.14 S	2239.44 E	2241.91	0.00
9170.00	89.420	92.688	7020.83	105.60 S	2249.43 E	2251.91	0.00
9180.00	89.420	92.688	7020.93	106.07 S	2259.42 E	2261.91	0.00
9190.00	89.420	92.688	7021.03	106.54 S	2269.41 E	2271.91	0.00
9200.00	89.420	92.688	7021.13	107.01 S	2279.40 E	2281.91	0.00
9210.00	89.420	92.688	7021.23	107.48 S	2289.39 E	2291.91	0.00
9220.00	89.420	92.688	7021.34	107.95 S	2299.37 E	2301.91	0.00
9230.00	89.420	92.688	7021.44	108.42 S	2309.36 E	2311.91	0.00
9240.00	89.420	92.688	7021.54	108.89 S	2319.35 E	2321.91	0.00
9250.00	89.420	92.688	7021.64	109.36 S	2329.34 E	2331.91	0.00
9260.00	89.420	92.688	7021.74	109.82 S	2339.33 E	2341.91	0.00
9270.00	89.420	92.688	7021.84	110.29 S	2349.32 E	2351.90	0.00
9280.00	89.420	92.688	7021.94	110.76 S	2359.31 E	2361.90	0.00
9290.00	89.420	92.688	7022.04	111.23 S	2369.29 E	2371.90	0.00
9300.00	89.420	92.688	7022.15	111.70 S	2379.28 E	2381.90	0.00
9310.00	89.420	92.688	7022.25	112.17 S	2389.27 E	2391.90	0.00
9320.00	89.420	92.688	7022.35	112.64 S	2399.26 E	2401.90	0.00
9330.00	89.420	92.688	7022.45	113.11 S	2409.25 E	2411.90	0.00
9340.00	89.420	92.688	7022.55	113.58 S	2419.24 E	2421.90	0.00

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9350.00	89.420	92.688	7022.65	114.05 S	2429.23 E	2431.90	0.00
9360.00	89.420	92.688	7022.75	114.51 S	2439.21 E	2441.90	0.00
9370.00	89.420	92.688	7022.85	114.98 S	2449.20 E	2451.90	0.00
9380.00	89.420	92.688	7022.96	115.45 S	2459.19 E	2461.90	0.00
9390.00	89.420	92.688	7023.06	115.92 S	2469.18 E	2471.90	0.00
9400.00	89.420	92.688	7023.16	116.39 S	2479.17 E	2481.90	0.00
9410.00	89.420	92.688	7023.26	116.86 S	2489.16 E	2491.90	0.00
9420.00	89.420	92.688	7023.36	117.33 S	2499.14 E	2501.90	0.00
9430.00	89.420	92.688	7023.46	117.80 S	2509.13 E	2511.90	0.00
9440.00	89.420	92.688	7023.56	118.27 S	2519.12 E	2521.90	0.00
9450.00	89.420	92.688	7023.66	118.73 S	2529.11 E	2531.90	0.00
9460.00	89.420	92.688	7023.77	119.20 S	2539.10 E	2541.90	0.00
9470.00	89.420	92.688	7023.87	119.67 S	2549.09 E	2551.89	0.00
9480.00	89.420	92.688	7023.97	120.14 S	2559.08 E	2561.89	0.00
9490.00	89.420	92.688	7024.07	120.61 S	2569.06 E	2571.89	0.00
9500.00	89.420	92.688	7024.17	121.08 S	2579.05 E	2581.89	0.00
9510.00	89.420	92.688	7024.27	121.55 S	2589.04 E	2591.89	0.00
9520.00	89.420	92.688	7024.37	122.02 S	2599.03 E	2601.89	0.00
9530.00	89.420	92.688	7024.47	122.49 S	2609.02 E	2611.89	0.00
9540.00	89.420	92.688	7024.57	122.95 S	2619.01 E	2621.89	0.00
9550.00	89.420	92.688	7024.68	123.42 S	2628.99 E	2631.89	0.00
9560.00	89.420	92.688	7024.78	123.89 S	2638.98 E	2641.89	0.00
9570.00	89.420	92.688	7024.88	124.36 S	2648.97 E	2651.89	0.00
9580.00	89.420	92.688	7024.98	124.83 S	2658.96 E	2661.89	0.00
9590.00	89.420	92.688	7025.08	125.30 S	2668.95 E	2671.89	0.00
9600.00	89.420	92.688	7025.18	125.77 S	2678.94 E	2681.89	0.00
9610.00	89.420	92.688	7025.28	126.24 S	2688.93 E	2691.89	0.00
9620.00	89.420	92.688	7025.38	126.71 S	2698.91 E	2701.89	0.00
9630.00	89.420	92.688	7025.49	127.18 S	2708.90 E	2711.89	0.00
9640.00	89.420	92.688	7025.59	127.64 S	2718.89 E	2721.89	0.00
9650.00	89.420	92.688	7025.69	128.11 S	2728.88 E	2731.89	0.00
9660.00	89.420	92.688	7025.79	128.58 S	2738.87 E	2741.88	0.00
9670.00	89.420	92.688	7025.89	129.05 S	2748.86 E	2751.88	0.00
9680.00	89.420	92.688	7025.99	129.52 S	2758.85 E	2761.88	0.00
9690.00	89.420	92.688	7026.09	129.99 S	2768.83 E	2771.88	0.00
9700.00	89.420	92.688	7026.19	130.46 S	2778.82 E	2781.88	0.00
9710.00	89.420	92.688	7026.30	130.93 S	2788.81 E	2791.88	0.00
9720.00	89.420	92.688	7026.40	131.40 S	2798.80 E	2801.88	0.00
9730.00	89.420	92.688	7026.50	131.86 S	2808.79 E	2811.88	0.00
9740.00	89.420	92.688	7026.60	132.33 S	2818.78 E	2821.88	0.00
9750.00	89.420	92.688	7026.70	132.80 S	2828.76 E	2831.88	0.00
9760.00	89.420	92.688	7026.80	133.27 S	2838.75 E	2841.88	0.00
9770.00	89.420	92.688	7026.90	133.74 S	2848.74 E	2851.88	0.00
9780.00	89.420	92.688	7027.00	134.21 S	2858.73 E	2861.88	0.00

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9790.00	89.420	92.688	7027.11	134.68 S	2868.72 E	2871.88	0.00
9800.00	89.420	92.688	7027.21	135.15 S	2878.71 E	2881.88	0.00
9810.00	89.420	92.688	7027.31	135.62 S	2888.70 E	2891.88	0.00
9820.00	89.420	92.688	7027.41	136.09 S	2898.68 E	2901.88	0.00
9830.00	89.420	92.688	7027.51	136.55 S	2908.67 E	2911.88	0.00
9840.00	89.420	92.688	7027.61	137.02 S	2918.66 E	2921.88	0.00
9850.00	89.420	92.688	7027.71	137.49 S	2928.65 E	2931.88	0.00
9860.00	89.420	92.688	7027.81	137.96 S	2938.64 E	2941.87	0.00
9870.00	89.420	92.688	7027.92	138.43 S	2948.63 E	2951.87	0.00
9880.00	89.420	92.688	7028.02	138.90 S	2958.61 E	2961.87	0.00
9890.00	89.420	92.688	7028.12	139.37 S	2968.60 E	2971.87	0.00
9900.00	89.420	92.688	7028.22	139.84 S	2978.59 E	2981.87	0.00
9910.00	89.420	92.688	7028.32	140.31 S	2988.58 E	2991.87	0.00
9920.00	89.420	92.688	7028.42	140.77 S	2998.57 E	3001.87	0.00
9930.00	89.420	92.688	7028.52	141.24 S	3008.56 E	3011.87	0.00
9940.00	89.420	92.688	7028.62	141.71 S	3018.55 E	3021.87	0.00
9950.00	89.420	92.688	7028.73	142.18 S	3028.53 E	3031.87	0.00
9960.00	89.420	92.688	7028.83	142.65 S	3038.52 E	3041.87	0.00
9970.00	89.420	92.688	7028.93	143.12 S	3048.51 E	3051.87	0.00
9980.00	89.420	92.688	7029.03	143.59 S	3058.50 E	3061.87	0.00
9990.00	89.420	92.688	7029.13	144.06 S	3068.49 E	3071.87	0.00
10000.00	89.420	92.688	7029.23	144.53 S	3078.48 E	3081.87	0.00
10010.00	89.420	92.688	7029.33	144.99 S	3088.47 E	3091.87	0.00
10020.00	89.420	92.688	7029.43	145.46 S	3098.45 E	3101.87	0.00
10030.00	89.420	92.688	7029.54	145.93 S	3108.44 E	3111.87	0.00
10040.00	89.420	92.688	7029.64	146.40 S	3118.43 E	3121.87	0.00
10050.00	89.420	92.688	7029.74	146.87 S	3128.42 E	3131.86	0.00
10060.00	89.420	92.688	7029.84	147.34 S	3138.41 E	3141.86	0.00
10070.00	89.420	92.688	7029.94	147.81 S	3148.40 E	3151.86	0.00
10080.00	89.420	92.688	7030.04	148.28 S	3158.38 E	3161.86	0.00
10090.00	89.420	92.688	7030.14	148.75 S	3168.37 E	3171.86	0.00
10100.00	89.420	92.688	7030.24	149.22 S	3178.36 E	3181.86	0.00
10110.00	89.420	92.688	7030.34	149.68 S	3188.35 E	3191.86	0.00
10120.00	89.420	92.688	7030.45	150.15 S	3198.34 E	3201.86	0.00
10130.00	89.420	92.688	7030.55	150.62 S	3208.33 E	3211.86	0.00
10140.00	89.420	92.688	7030.65	151.09 S	3218.32 E	3221.86	0.00
10150.00	89.420	92.688	7030.75	151.56 S	3228.30 E	3231.86	0.00
10160.00	89.420	92.688	7030.85	152.03 S	3238.29 E	3241.86	0.00
10170.00	89.420	92.688	7030.95	152.50 S	3248.28 E	3251.86	0.00
10180.00	89.420	92.688	7031.05	152.97 S	3258.27 E	3261.86	0.00
10190.00	89.420	92.688	7031.15	153.44 S	3268.26 E	3271.86	0.00
10200.00	89.420	92.688	7031.26	153.90 S	3278.25 E	3281.86	0.00
10210.00	89.420	92.688	7031.36	154.37 S	3288.23 E	3291.86	0.00
10220.00	89.420	92.688	7031.46	154.84 S	3298.22 E	3301.86	0.00

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10230.00	89.420	92.688	7031.56	155.31 S	3308.21 E	3311.86	0.00
10240.00	89.420	92.688	7031.66	155.78 S	3318.20 E	3321.86	0.00
10250.00	89.420	92.688	7031.76	156.25 S	3328.19 E	3331.85	0.00
10260.00	89.420	92.688	7031.86	156.72 S	3338.18 E	3341.85	0.00
10270.00	89.420	92.688	7031.96	157.19 S	3348.17 E	3351.85	0.00
10280.00	89.420	92.688	7032.07	157.66 S	3358.15 E	3361.85	0.00
10290.00	89.420	92.688	7032.17	158.12 S	3368.14 E	3371.85	0.00
10300.00	89.420	92.688	7032.27	158.59 S	3378.13 E	3381.85	0.00
10310.00	89.420	92.688	7032.37	159.06 S	3388.12 E	3391.85	0.00
10320.00	89.420	92.688	7032.47	159.53 S	3398.11 E	3401.85	0.00
10330.00	89.420	92.688	7032.57	160.00 S	3408.10 E	3411.85	0.00
10340.00	89.420	92.688	7032.67	160.47 S	3418.09 E	3421.85	0.00
10350.00	89.420	92.688	7032.77	160.94 S	3428.07 E	3431.85	0.00
10360.00	89.420	92.688	7032.88	161.41 S	3438.06 E	3441.85	0.00
10370.00	89.420	92.688	7032.98	161.88 S	3448.05 E	3451.85	0.00
10380.00	89.420	92.688	7033.08	162.35 S	3458.04 E	3461.85	0.00
10390.00	89.420	92.688	7033.18	162.81 S	3468.03 E	3471.85	0.00
10400.00	89.420	92.688	7033.28	163.28 S	3478.02 E	3481.85	0.00
10410.00	89.420	92.688	7033.38	163.75 S	3488.00 E	3491.85	0.00
10420.00	89.420	92.688	7033.48	164.22 S	3497.99 E	3501.85	0.00
10430.00	89.420	92.688	7033.58	164.69 S	3507.98 E	3511.85	0.00
10440.00	89.420	92.688	7033.69	165.16 S	3517.97 E	3521.84	0.00
10450.00	89.420	92.688	7033.79	165.63 S	3527.96 E	3531.84	0.00
10460.00	89.420	92.688	7033.89	166.10 S	3537.95 E	3541.84	0.00
10470.00	89.420	92.688	7033.99	166.57 S	3547.94 E	3551.84	0.00
10480.00	89.420	92.688	7034.09	167.03 S	3557.92 E	3561.84	0.00
10490.00	89.420	92.688	7034.19	167.50 S	3567.91 E	3571.84	0.00
10500.00	89.420	92.688	7034.29	167.97 S	3577.90 E	3581.84	0.00
10510.00	89.420	92.688	7034.39	168.44 S	3587.89 E	3591.84	0.00
10520.00	89.420	92.688	7034.50	168.91 S	3597.88 E	3601.84	0.00
10530.00	89.420	92.688	7034.60	169.38 S	3607.87 E	3611.84	0.00
10540.00	89.420	92.688	7034.70	169.85 S	3617.85 E	3621.84	0.00
10550.00	89.420	92.688	7034.80	170.32 S	3627.84 E	3631.84	0.00
10560.00	89.420	92.688	7034.90	170.79 S	3637.83 E	3641.84	0.00
10570.00	89.420	92.688	7035.00	171.25 S	3647.82 E	3651.84	0.00
10580.00	89.420	92.688	7035.10	171.72 S	3657.81 E	3661.84	0.00
10590.00	89.420	92.688	7035.20	172.19 S	3667.80 E	3671.84	0.00
10600.00	89.420	92.688	7035.31	172.66 S	3677.79 E	3681.84	0.00
10610.00	89.420	92.688	7035.41	173.13 S	3687.77 E	3691.84	0.00
10620.00	89.420	92.688	7035.51	173.60 S	3697.76 E	3701.84	0.00
10630.00	89.420	92.688	7035.61	174.07 S	3707.75 E	3711.84	0.00
10640.00	89.420	92.688	7035.71	174.54 S	3717.74 E	3721.83	0.00
10650.00	89.420	92.688	7035.81	175.01 S	3727.73 E	3731.83	0.00
10660.00	89.420	92.688	7035.91	175.48 S	3737.72 E	3741.83	0.00

Pavo Mesa 30 Federal #1H Lateral Plan #1 Report 9-13-07

10670.00	89.420	92.688	7036.01	175.94 S	3747.71 E	3751.83	0.00
10680.00	89.420	92.688	7036.11	176.41 S	3757.69 E	3761.83	0.00
10690.00	89.420	92.688	7036.22	176.88 S	3767.68 E	3771.83	0.00
10700.00	89.420	92.688	7036.32	177.35 S	3777.67 E	3781.83	0.00
10710.00	89.420	92.688	7036.42	177.82 S	3787.66 E	3791.83	0.00
10720.00	89.420	92.688	7036.52	178.29 S	3797.65 E	3801.83	0.00
10730.00	89.420	92.688	7036.62	178.76 S	3807.64 E	3811.83	0.00
10740.00	89.420	92.688	7036.72	179.23 S	3817.62 E	3821.83	0.00
10750.00	89.420	92.688	7036.82	179.70 S	3827.61 E	3831.83	0.00
10760.00	89.420	92.688	7036.92	180.16 S	3837.60 E	3841.83	0.00
10770.00	89.420	92.688	7037.03	180.63 S	3847.59 E	3851.83	0.00
10780.00	89.420	92.688	7037.13	181.10 S	3857.58 E	3861.83	0.00
10790.00	89.420	92.688	7037.23	181.57 S	3867.57 E	3871.83	0.00
10800.00	89.420	92.688	7037.33	182.04 S	3877.56 E	3881.83	0.00
10810.00	89.420	92.688	7037.43	182.51 S	3887.54 E	3891.83	0.00
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10870.00	89.420	92.688	7038.04	185.32 S	3947.48 E	3951.82	0.00
10880.00	89.420	92.688	7038.14	185.79 S	3957.46 E	3961.82	0.00
10890.00	89.420	92.688	7038.24	186.26 S	3967.45 E	3971.82	0.00
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10940.00	89.420	92.688	7038.75	188.61 S	4017.39 E	4021.82	0.00
10950.00	89.420	92.688	7038.85	189.07 S	4027.38 E	4031.82	0.00
10960.00	89.420	92.688	7038.95	189.54 S	4037.37 E	4041.82	0.00
10970.00	89.420	92.688	7039.05	190.01 S	4047.36 E	4051.82	0.00
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11050.00	89.420	92.688	7039.86	193.76 S	4127.27 E	4131.81	0.00
11060.00	89.420	92.688	7039.96	194.23 S	4137.26 E	4141.81	0.00
11063.81	89.420	92.688	7040.00	194.41 S	4141.06 E	4145.62	0.00

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 92.688° (Grid).

Coordinate System is North American Datum 1983 US State Plane 1983, New Mexico Eastern Zone.

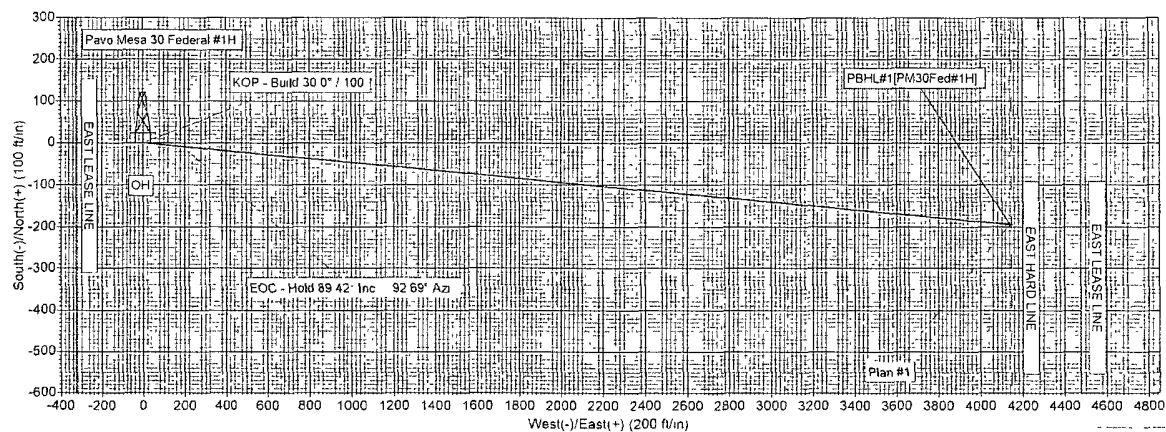
Central meridian is -104.333°.

Grid Convergence at Surface is 0.116°.

Based upon Minimum Curvature type calculations, at a Measured Depth of 11063.81ft., the Bottom Hole Displacement is 4145.62ft., in the Direction of 92.688° (Grid).



Project: Eddy Co. New Mexico
 Site: Pavo Mesa 30 Federal #1H
 Well: Pavo Mesa 30 Federal #1H
 Wellbore: Lateral #1
 Plan: Plan #1 (Pavo Mesa 30 Federal #1H/Lateral #1)



ANNOTATIONS

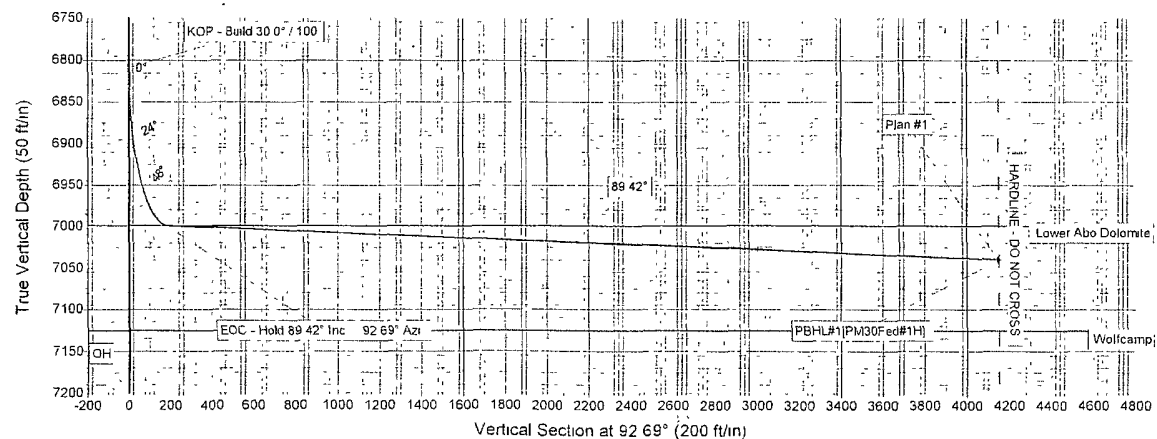
TVD	MD	Annotation
6808 97	6808 97	KOP - Build 30 0° / 100'
6999 95	7107 04	EOC - Hold 89 42° Inc 92 69° Azi

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N-S	+E-W	DLeg	TFace	VSec	Target
1	6808 00	0 00	0 00	6808 00	0 00	0 00	0 00	0 00	0 00	
2	6808 97	0 00	0 00	6808 97	0 00	0 00	0 00	0 00	0 00	
3	7107 04	89 42	92 69	6999 95	-8 87	188 85	30 00	92 69	189 05	
4	11063 81	89 42	92 69	7040 00	-194 41	4141 06	0 00	0 00	4145 62	PBHL#1(PM30Fed#1H)



Azimuths to Grid North
 True North -0 12
 Magnetic North 8 21
 Magnetic Field
 Strength 49327 6nT
 Dip Angle -60 81°
 Date 9/11/2007
 Model IGRF2005.0



Hydrogen Sulfide Drilling Operations Plan

Cimarex Energy Co. of Colorado

Pavo Mesa 30 Federal Com No. 1

Unit E Section 30

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
Pavo Mesa 30 Federal Com No. 1
Unit E Section 30
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 Co Rd 214 (Barnival Draw), go North for 6.4 miles to "Y." Take left fork and go Northwest for 0.7 miles to Pipeline ROW. Thence go Southwest along Pipeline ROW for 1.1 miles, thence Southwest for 0.5 miles, thence West for 0.3 miles, thence South for 0.4 miles, thence East to Lease Road.

- 2 Planned Access Roads: No new lease roads will be constructed.

- 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
Pavo Mesa 30 Federal Com No. 1
Unit E Section 30
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.
 - 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 allowed to dry in the reserve pit until the pit is dry enough for breaking out. In the event that drillings fluids do not dry out in a reasonable time they 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
Pavo Mesa 30 Federal Com No. 1
Unit E Section 30
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 cuttings burial cell 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, the reserve pit will be allowed to dry properly, and fluid 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.

Surface Use Plan
Cimarex Energy Co. of Colorado
Pavo Mesa 30 Federal Com No. 1
Unit E Section 30
T16S R29E Eddy County, NM

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 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
Pavo Mesa 30 Federal Com No. 1
Unit E Section 30
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: September 17, 2007

TITLE: Manager Operations Administration

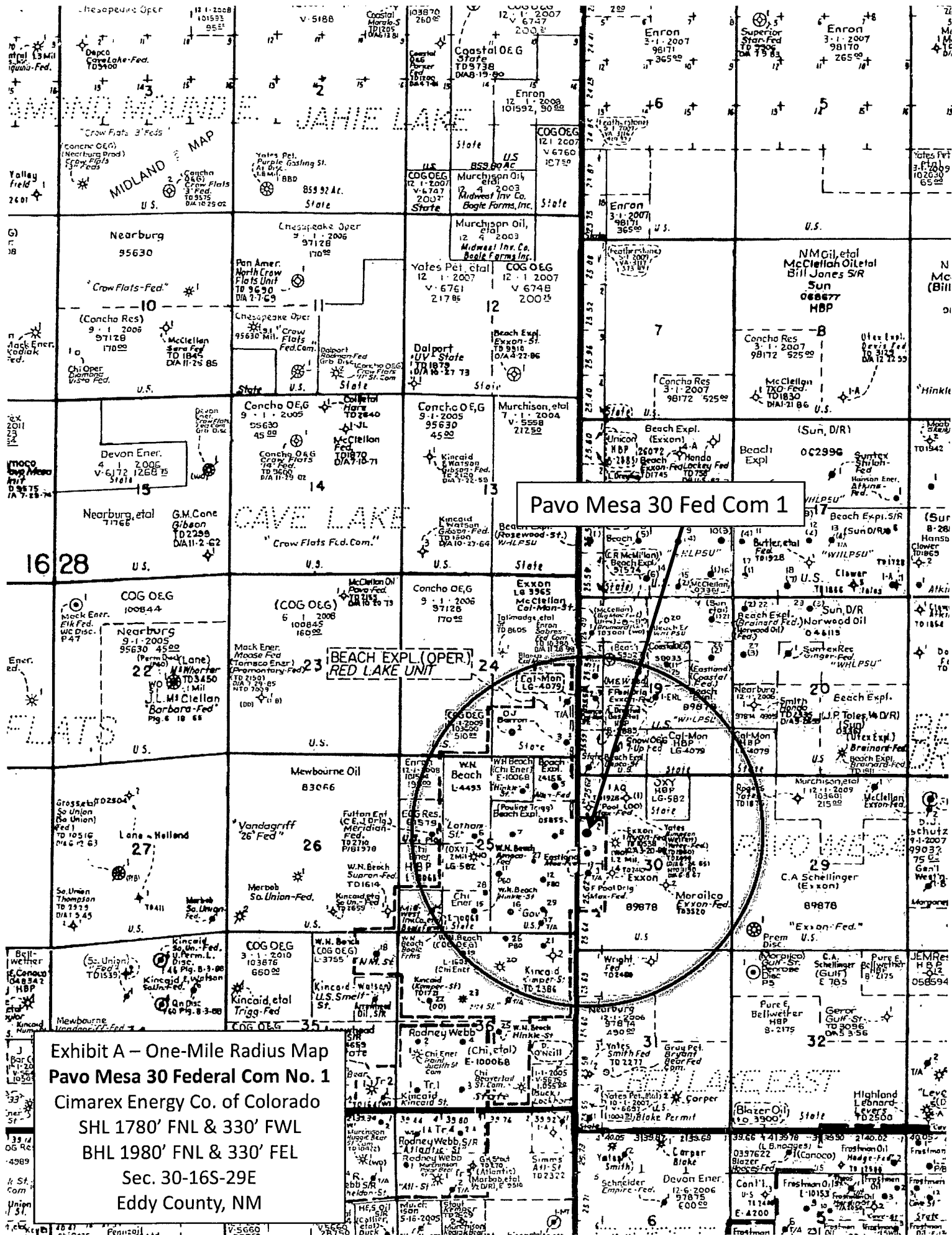
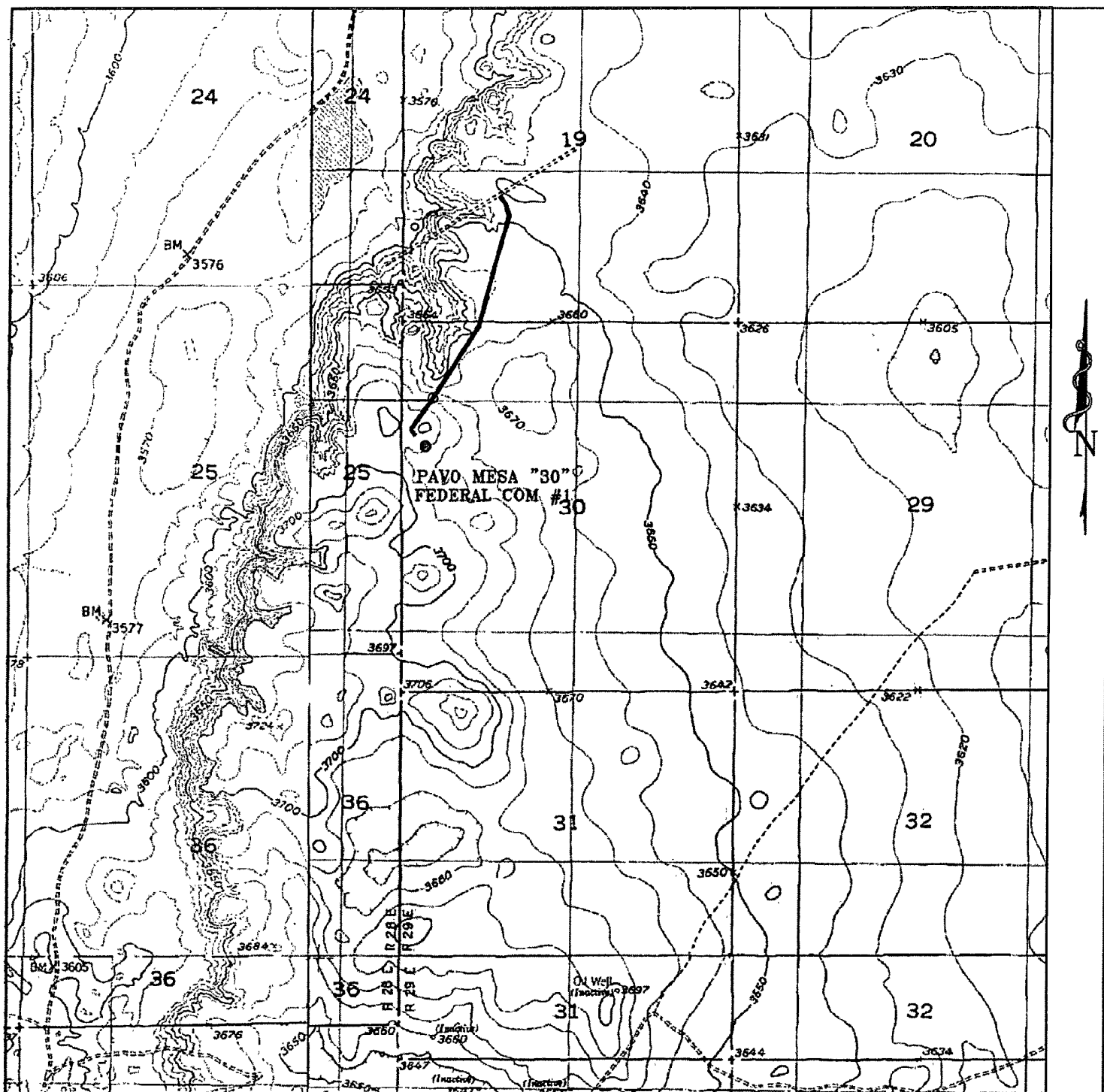


Exhibit A - One-Mile Radius Map
Pavo Mesa 30 Federal Com No. 1
Cimarex Energy Co. of Colorado
SHL 1780' FNL & 330' FWL
BHL 1980' FNL & 330' FEL
Sec. 30-16S-29E
Eddy County, NM



PAVO MESA "30" FEDERAL COM #1
 Located 1780' FNL and 330' FWL
 Section 30, 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 18509T

Survey Date: 09-04-2007

Scale: 1" = 2000'

Date: 09-06-2007

CIMAREX
ENERGY CO.
OF COLORADO

Exhibit C

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 operator shall stockpile the topsoil of the well pad. 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.

Pit North V-Door East

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.

VII. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

The BLM is to be notified a minimum of 2 hours in advance for a representative to witness:

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

☒ **Eddy County**

Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220,
(505) 361-2822

1. **Although Hydrogen Sulfide has not been reported in measured amounts, it is always a potential hazard.**
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. When floor controls are required, (3M or Greater) 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 **25 feet above the salt at approximately 340 feet** and cemented to the surface. **BLM geologist expects the salt to occur as shallow as 245 feet and the casing is to be set 25 feet above the salt.**
 - 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).

- 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.

Possible high pressure gas bursts from the Wolfcamp.

- 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.

- 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. **Operator estimating TOC 1300'.**

- 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 2 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: (505) 706-2779

WWI 100507