ATS-09-187
RM

OCD-ARTESIA

JUN 17 2009

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

432

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of Work: [X] DRILL [ ] REENTER	5. Lease Serial No. NM-92160
	6. If Indian, Allotee or Tribe Name
	7. If Unit or CA Agreement, Name and No. 30-015-37181
1b. Type of Well: [X] Oil Well [ ] Gas Well [ ] Other [X] Single Zone [ ] Multiple Zone	8. Lease Name and Well No. Chosa Draw 27 Federal No. 4
2. Name of Operator Cimarex Energy Co. of Colorado	9. API Well No. 30-015-
3a. Address 5215 N. O'Connor Blvd., Ste. 1500; Irving, TX 75039	3b. Phone No. *(include area code)* 972-401-3111
	10. Field and Pool, or Exploratory Cottonwood Draw; Delaware, North
4. Location of Well *(Report location clearly and in accordance with any State requirements.*)* At Surface 330 FSL & 1750 FEL	11. Sec., T. R. M. or Blk. and Survey or Area
At proposed prod. Zone 2310 FSL & 1900 FEL *Horizontal Delaware Test*	27-25S-26E
14. Distance in miles and direction from nearest town or post office*	12. County or Parish Eddy / 13. State NM

15 Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line if any) 330	16. No of acres in lease 1320	17. Spacing Unit dedicated to this well W2SE 80 acres
18 Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. N/A	19. Proposed Depth **Vertical** 3800' **Lateral** MD 4914' TVD 3007'	20. BLM/BIA Bond No. on File NM-2575
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3320' GR	22. Approximate date work will start* 04.15.09	23. Estimated duration 20-25 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
2. A Drilling Plan
3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO shall be filed with the appropriate Forest Service Office).
4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5. Operator Certification
6. Such other site specific information and/or plans as may be required by the authorized officer.

25. Signature Zeno Farris	Name *(Printed/Typed)* Zeno Farris	Date 02.25.09
Title Manager Operations Administration		
Approved By *(Signature)* /s/ Don Peterson	Name (Printed/Typed) /s/ Don Peterson	Date JUL 10 2009
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.

* *(Instructions on page 2)*

SEE ATTACHED FOR CONDITIONS OF APPROVAL

CARLSBAD CONTROLLED WATER BASIN

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

OIL CONSERVATION DIVISION

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

Form C-102
Revised October 12, 2005

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
30-015-37181	96720	Cottonwood Draw; Delaware, North ✓

Property Code	Property Name	Well Number
32670	CHOSA DRAW "27" FEDERAL	4

OGRID No.	Operator Name	Elevation
162683	CIMAREX ENERGY CO. OF COLORADO	3320'

Surface Location

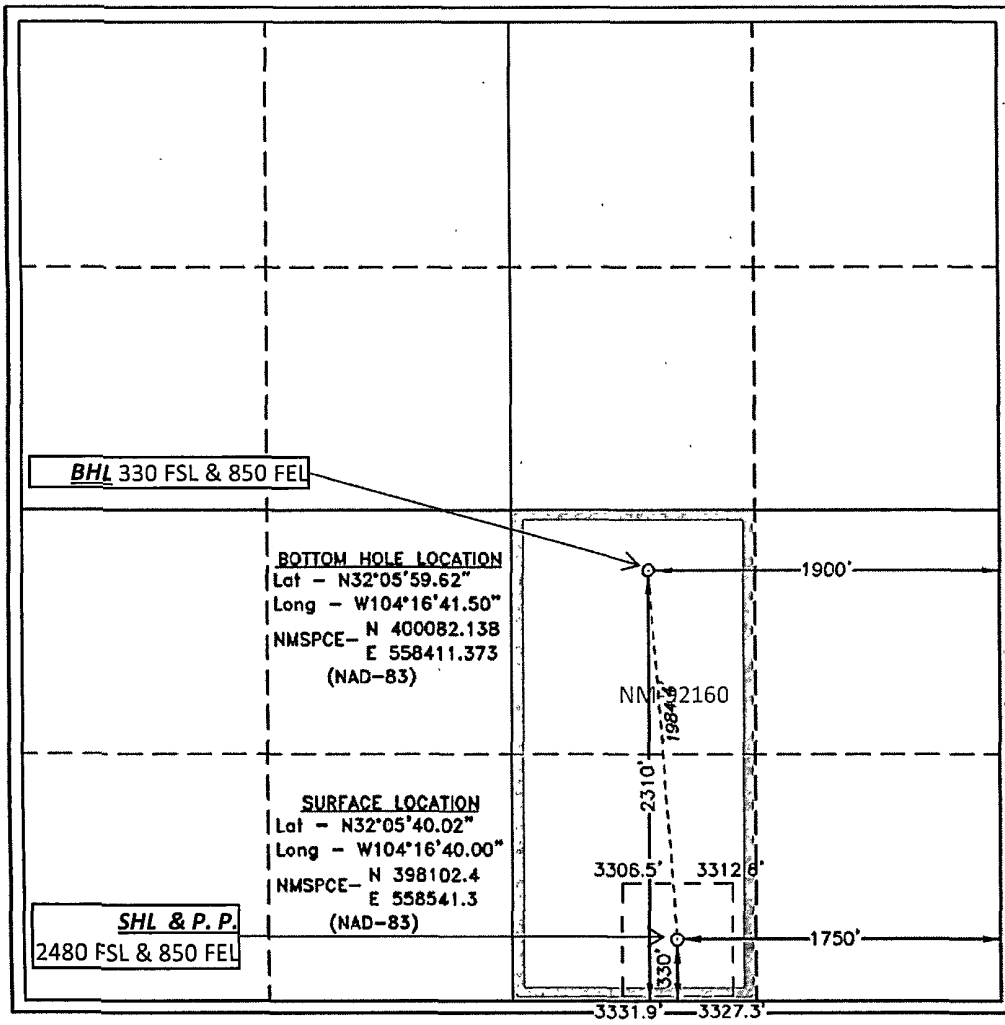
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
O	27	25 S	26 E		330	SOUTH	1750	EAST	EDDY

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
J	27	25 S	26 E		2310	SOUTH	1900	EAST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
80			

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 02-25-09
Signature Date

Zeno Farris
Printed Name

SURVEYOR CERTIFICATION

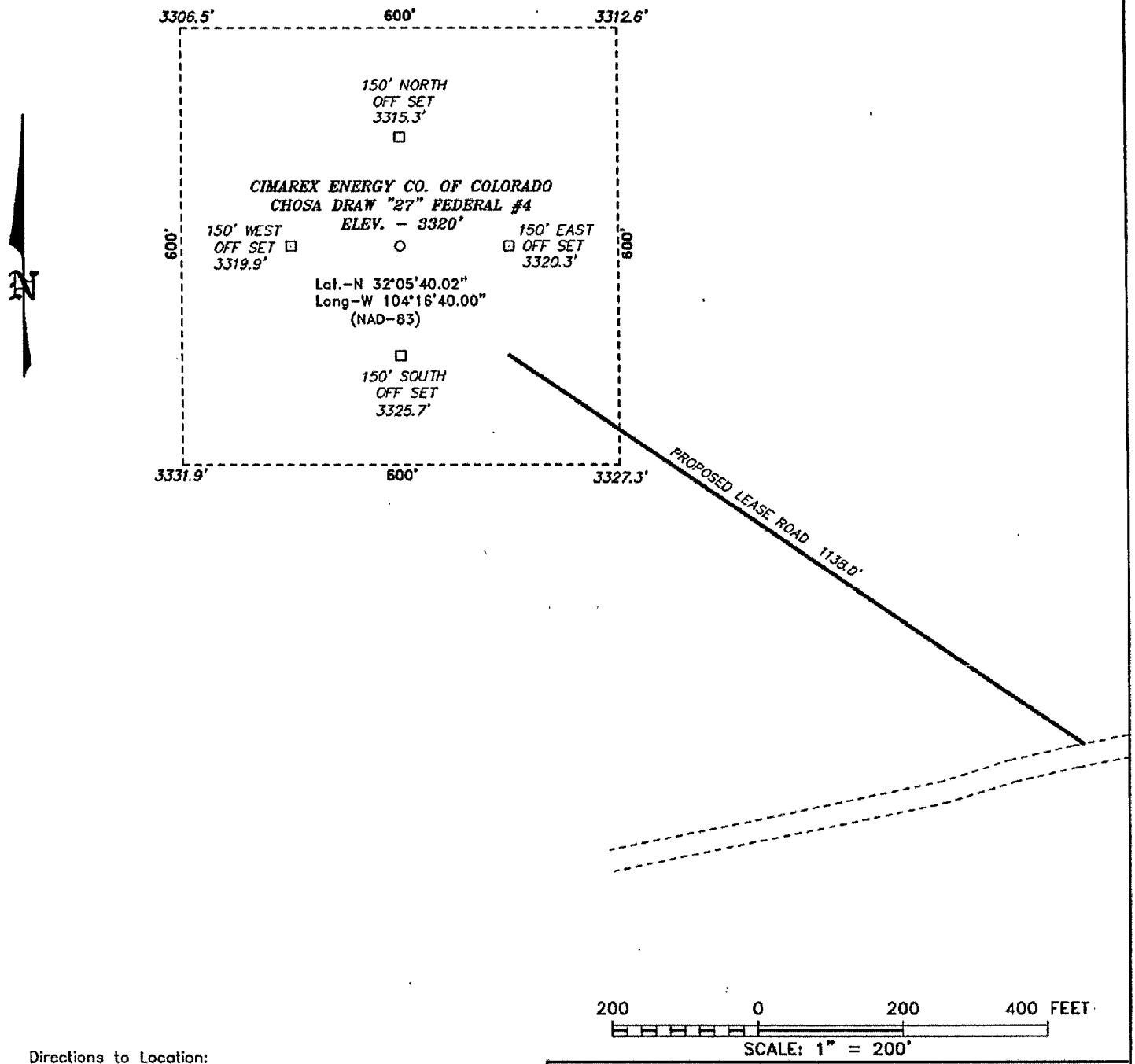
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervison, and that the same is true and correct to the best of my belief.

JANUARY 7, 2009
Date Surveyed
Signature & Seal of Professional Surveyor
Gary L. Jones
New Mexico
7977
Registered Professional Surveyor

Certificate No. Gary L. Jones 7977

BASIN SURVEYS

SECTION 27, TOWNSHIP 25 SOUTH, RANGE 26 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO.



Directions to Location:

FROM THE JUNCTION OF BLACK RIVER VILLAGE AND JOHN D FOREHAND, GO SOUTH ON JOHN D FOREHAND FOR 10.1 MILES TO PRICKLY PEAR, ON PRICKLY PEAR GO NORTHWEST 0.9 MILES TO LEASE ROAD, GO WESTERLY ON LEASE ROAD FOR 0.9 MILES TO PROPOSED LEASE ROAD.

CIMAREX ENERGY CO. OF COLORADO

REF: CHOSA DRAW "27" FEDERAL #4 / WELL PAD TOPO

THE CHOSA DRAW "27" FEDERAL #4 LOCATED 330' FROM THE SOUTH LINE AND 1750' FROM THE EAST LINE OF SECTION 27, TOWNSHIP 25 SOUTH, RANGE 26 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO.

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

W.O. Number: 20981	Drawn By: J. SMALL		
Date: 12-30-2008	Disk: JMS 20981	Survey Date: 12-29-2008	Sheet 1 of 1 Sheets

Application to Drill
Chosa Draw 27 Federal No. 4
Cimarex Energy Co. of Colorado
Unit O, Section 27
T25S-R26E, 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 330 FSL & 1750 FEL
   BHL 2310 FSL & 1900 FEL

2. Elevation above sea level: 3320' GR

3. Geologic name of surface formation: Quaternery 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: Vertical 3800' Lateral MD 4914' TVD 3007'

6. Estimated tops of geological markers:

Top Salt	1063'	Cherry Canyon M3	2972'
Base Salt	1658'	M3 TVD Target	3012'
Bell Canyon	1858'	Cherry Canyon L	3137'
Ramsey Ss	1905'	Cherry Canyon K	3199'
Cherry Canyon	2834'	Cherry Canyon H	3515'

7. Possible mineral bearing formations:

Bell Canyon	Oil
Ramsey Ss	Oil oils Sand ?
Cherry Canyon	Oil

8. Proposed drilling Plan

After drilling and setting surface casing, drill to vertical TD 3800' and log. Set 5½" casing to 2760' and cross over to 2⅞" 2000 psi IJ fiberglass tubing underneath and cement in place. Drill out of the bottom of the 5½" with a 4¾" bit and through cement and fiberglass tubing to KOP @ 2821' and kick off to drill the lateral. The fiberglass tubing effectively circulates cement to surface and plugs back the open hole.

Kick off 4¾" hole @ 2821.' Drill to TD 4914.' Run 2⅞" PEAK liner from RSB packer @ 2660' to TD @ 4914.' Fracture treat through iso-ports using iso-packers.

9. Mud Circulating System:

See COA

Depth			Mud Wt	Visc	Fluid Loss	Type Mud
0'	to	~~440'~~	8.4 - 8.6	30-32	NC	FW spud mud. Add FW to control weight & viscosity and paper to prevent seepage.
~~440'~~	to	2760'	9.9 - 10.0	28-29	NC	Saturated Brine. Sweep as needed to clean hole.
2,821'	to	4,914'	9.5 - 9.8	28-30	NC	Cut brine. Sweep as needed to clean hole.

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.

See COA

10. Casing Program: 375'

	Hole Size	Depth			Casing OD		Weight	Collar	Grade
Surface	12¼"	0'	to	~~440'~~	New	8⅝"	24#	STC	J-55
Production	7⅞"	0'	to	2760'	New	5½"	17#	J-55	LTC
Fiberglass tbg	7⅞"	2760'	to	3800'	New	2⅞"	2.18#	Fiberglass	IJ
Lateral	4¾"	2660'	to	4914'	New	2⅞"	6.5#	EUE	L-80

See COA

11. Cementing Program:

Surface Casing	Lead: 150 sx 10:2 RFC (Class A) + 4 pps D24 + 0.125 pps D130, 14.20 ppg, 1.62 cuft/sx, 7.5 gps. Tail: 150 sx Class C + 2% S1 + 0.125 pps D130, 14.80 ppg, 1.34 cuft/sx, 6.29 gps. **TOC Surface**
Production casing and Fiberglass tubing	Lead: 550 sx 50:50 Poz:Class H + 5% D44 (bwow) + 6% D20 + 0.2% D46 + 0.125 pps D130, 11.90 ppg, 2.38 cuft/sx, 13.68 gps. Tail: 400 sx TXI Lightweight + 1.33% D44 (bwow) + 0.1% D167 + 0.1% D65 + 0.1% D13, 13.00 ppg, 1.40 cuft/sx, 7.24 gps. **TOC Surface**
Lateral	PEAK completion assembly will be used, so no cement is required.

Fresh water zones will be protected by setting 8⅝" casing at ~~440'~~ and cementing to surface. Hydrocarbon zones will be protected by setting 5½" casing at 2760' and 2⅞" fiberglass tubing at 3800' and cementing to surface.

Collapse Factor	*Burst Factor*	*Tension Factor*
1.125	1.125	1.6

12. Pressure control Equipment:
Exhibit "E". A 12¼" 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 440.' 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 nippled 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 8⅝" 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 8⅝" casing to ~~1000 psi using rig pumps.~~ The BOP will be tested to 3000 psi by an independent service company. See COA

13. Testing, Logging and Coring Program:
    A. Mud logging program: No mud logging program.
    B. Electric logging program: CNL / LDT / CAL / GR, DLL / CAL / GR
    C. No DSTs or cores are planned at this time.

14. Potential Hazards:
No abnormal pressures or temperatures are expected. In accordance with Onshore Order 6, Cimarex has encountered H_2S in a one-time encounter in an Intra-salt Pocket and while drilling and completing wells in the Delaware Mountain Group. In this regard, attached is an H_2S Drilling Operations Plan. The ROEs encountered do not meet the BLM's minimum requirements for the submission of a "Public Protection Plan" for the drilling and completion of this well. Adequate flare lines will be installed off the mud / gas separator where gas may be flared safely. All personnel will be familiar with all aspects of safe operation of equipment being used.

Estimated BHP **2300 psi** Estimated BHT **110°**

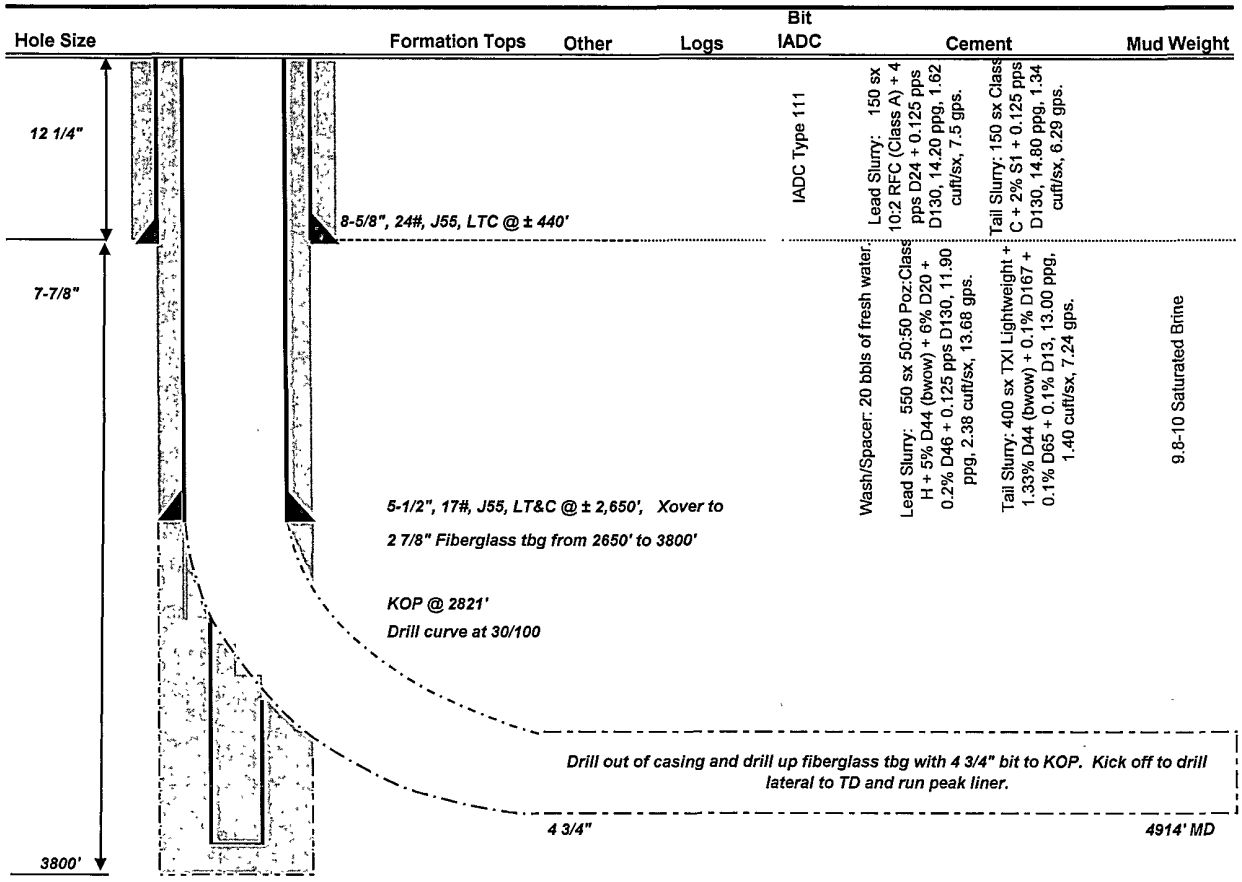
15. Road and location construction will begin after BLM approval of APD. Anticipated spud date as soon as approved.
Drilling expected to take 10-15 days
If production casing is run an additional 30 days will be required to complete and construct surface facilities.

16. Other Facets of Operations:
After running casing, cased hole gamma ray neutron collar logs will be run from total depth over possible pay intervals.
Delaware pay will be perforated and stimulated.
The proposed well will be tested and potentialed as **an oil well.**

DRILLING PROGNOSIS
Cimarex Energy Company

2/25/2009

Well: Chosa Draw 27 Federal No. 4
Location: Unit O, Section 27 — T25S-R26E, Eddy County, NM
Field: Cottonwood Draw; Delaware, North
Objective: Cherry Canyon



NOTES: Drill to 3800'. Run 2650' 5 1/2" casing with 2 7/8" fiberglass tubing below to 3800'. Pump cement job to cement fiberglass and casing inplace. With 4 3/4" bit, drill out float collar and drill up fiberglass tubing to KOP. Kickoff and drill lateral to TD. Will run openhole paker liner system.

Cimarex Energy Co.

Eddy County (NM83E)
Sec 27-T25S-R26E
Chosa Draw 27 Fed #4
Wellbore #1

Plan: 02-20-09

Standard Planning Report

20 February, 2009

Quantum
Planning Report

Database:	EDM 2003.16 Single User Db	**Local Co-ordinate Reference:**	Well Chosa Draw 27 Fed #4
Company:	Cimarex Energy Co.	**TVD Reference:**	WELL @ 0.0ft (Original Well Elev)
Project:	Eddy County (NM83E)	**MD Reference:**	WELL @ 0.0ft (Original Well Elev)
Site:	Sec 27-T25S-R26E	**North Reference:**	Grid
Well:	Chosa Draw 27 Fed #4	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	02-20-09		

Project Eddy County (NM83E)

Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site Sec 27-T25S-R26E

Site Position:		**Northing:**	398,100.70 ft	**Latitude:**	32° 5' 40.000 N
From:	Map	**Easting:**	559,691.10 ft	**Longitude:**	104° 16' 26.634 W
Position Uncertainty:	0.0 ft	**Slot Radius:**	"	**Grid Convergence:**	0.03 °

Well Chosa Draw 27 Fed #4

Well Position	**+N/-S**	0.0 ft	**Northing:**	398,102.40 ft	**Latitude:**	32° 5' 40.023 N
	+E/-W	0.0 ft	**Easting:**	558,541.30 ft	**Longitude:**	104° 16' 40.001 W
Position Uncertainty		0.0 ft	**Wellhead Elevation:**	ft	**Ground Level:**	0.0 ft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	2009/02/20	8.16	60.01	48,742

Design 02-20-09

Audit Notes:

Version:	Phase:	PLAN	Tie On Depth:	0.0

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	356.25

Plan Sections

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
2,821.0	0.00	0.00	2,821.0	0.0	0.0	0.00	0.00	0.00	0.00	
3,121.5	90.16	356.25	3,012.0	191.1	-12.5	30.00	30.00	0.00	356.25	
4,914.0	90.16	356.24	3,007.0	1,979.7	-129.9	0.00	0.00	0.00	-96.80	Chosa Draw Fed #4

Database:	EDM 2003.16 Single User Db	**Local Co-ordinate Reference:**	Well Chosa Draw 27 Fed #4
Company:	Cimarex Energy Co.	**TVD Reference:**	WELL @ 0.0ft (Original Well Elev)
Project:	Eddy County (NM83E)	**MD Reference:**	WELL @ 0.0ft (Original Well Elev)
Site:	Sec 27-T25S-R26E	**North Reference:**	Grid
Well:	Chosa Draw 27 Fed #4	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	02-20-09		

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)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
1,063.0	0.00	0.00	1,063.0	0.0	0.0	0.0	0.00	0.00	0.00
Top Salt									
1,658.0	0.00	0.00	1,658.0	0.0	0.0	0.0	0.00	0.00	0.00
Base Salt									
1,858.0	0.00	0.00	1,858.0	0.0	0.0	0.0	0.00	0.00	0.00
Bell Canyon									
1,905.0	0.00	0.00	1,905.0	0.0	0.0	0.0	0.00	0.00	0.00
Ramsey Ss									
2,821.0	0.00	0.00	2,821.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP - 30/100 @ 356.25 AZI.									
2,834.0	3.90	356.25	2,834.0	0.4	0.0	0.4	30.00	30.00	0.00
Cherry Canyon									
2,900.0	23.70	356.25	2,897.8	16.1	-1.1	16.1	30.00	30.00	0.00
2,994.8	52.14	356.25	2,971.8	73.6	-4.8	73.8	30.00	30.00	0.00
Cherry Canyon M3									
3,000.0	53.70	356.25	2,974.9	77.8	-5.1	77.9	30.00	30.00	0.00
3,100.0	83.70	356.25	3,010.8	169.7	-11.1	170.0	30.00	30.00	0.00
3,112.8	87.53	356.25	3,011.8	182.4	-12.0	182.8	30.00	30.00	0.00
M3 TVD Target									
3,121.5	90.16	356.25	3,012.0	191.1	-12.5	191.5	30.00	30.00	0.00
EOC - Hold to TD									
3,200.0	90.16	356.25	3,011.8	269.4	-17.7	270.0	0.00	0.00	0.00
3,300.0	90.16	356.25	3,011.5	369.2	-24.2	370.0	0.00	0.00	0.00
3,400.0	90.16	356.25	3,011.2	469.0	-30.7	470.0	0.00	0.00	0.00
3,500.0	90.16	356.25	3,010.9	568.8	-37.3	570.0	0.00	0.00	0.00
3,600.0	90.16	356.25	3,010.7	668.5	-43.8	670.0	0.00	0.00	0.00
3,700.0	90.16	356.25	3,010.4	768.3	-50.4	770.0	0.00	0.00	0.00
3,800.0	90.16	356.25	3,010.1	868.1	-56.9	870.0	0.00	0.00	0.00
3,900.0	90.16	356.25	3,009.8	967.9	-63.5	970.0	0.00	0.00	0.00
4,000.0	90.16	356.24	3,009.5	1,067.7	-70.0	1,070.0	0.00	0.00	0.00
4,100.0	90.16	356.24	3,009.3	1,167.5	-76.6	1,170.0	0.00	0.00	0.00
4,200.0	90.16	356.24	3,009.0	1,267.3	-83.1	1,270.0	0.00	0.00	0.00
4,300.0	90.16	356.24	3,008.7	1,367.0	-89.7	1,370.0	0.00	0.00	0.00
4,400.0	90.16	356.24	3,008.4	1,466.8	-96.2	1,470.0	0.00	0.00	0.00
4,500.0	90.16	356.24	3,008.1	1,566.6	-102.8	1,570.0	0.00	0.00	0.00
4,600.0	90.16	356.24	3,007.9	1,666.4	-109.3	1,670.0	0.00	0.00	0.00
4,700.0	90.16	356.24	3,007.6	1,766.2	-115.9	1,770.0	0.00	0.00	0.00
4,800.0	90.16	356.24	3,007.3	1,866.0	-122.5	1,870.0	0.00	0.00	0.00
4,900.0	90.16	356.24	3,007.0	1,965.8	-129.0	1,970.0	0.00	0.00	0.00
4,914.0	90.16	356.24	3,007.0	1,979.7	-129.9	1,984.0	0.00	0.00	0.00
TD at 4914.0 - Chosa Draw Fed #4 PBHL									

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
Chosa Draw Fed #4 F - plan hits target - Point	0.00	0.00	3,007.0	1,979.7	-129.9	400,082.14	558,411.37	32° 5' 59.615 N	104° 16' 41.500 W

Database:	EDM 2003.16 Single User Db	**Local Co-ordinate Reference:**	Well Chosa Draw 27 Fed #4
Company:	Cimarex Energy Co.	**TVD Reference:**	WELL @ 0.0ft (Original Well Elev)
Project:	Eddy County (NM83E)	**MD Reference:**	WELL @ 0.0ft (Original Well Elev)
Site:	Sec 27-T25S-R26E	**North Reference:**	Grid
Well:	Chosa Draw 27 Fed #4	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	02-20-09		

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,658.0	1,658.0	Base Salt		0.00	
3,112.8	3,012.0	M3 TVD Target		-0.06	356.25
	3,137.0	Cherry Canyon L		0.00	
2,994.8	2,972.0	Cherry Canyon M3		-0.16	356.25
2,834.0	2,834.0	Cherry Canyon		-0.16	356.25
1,063.0	1,063.0	Top Salt		0.00	
1,905.0	1,905.0	Ramsey Ss		0.00	
	3,800.0	TD (Pilot Hole)		0.00	
1,858.0	1,858.0	Bell Canyon		0.00	
	3,515.0	Cherry Canyon H		0.00	
	3,199.0	Cherry Canyon K		0.00	

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
2,821.0	2,821.0	0.0	0.0	KOP - 30/100 @ 356.25 AZI
3,121.5	3,012.0	191.1	-12.5	EOC - Hold to TD
4,914.0	3,007.0	1,979.7	-129.9	TD at 4914.0

Cimarex Energy Co.

Project: Eddy County (NM83E)
Site: Sec 27-T25S-R26E
Well: Chosa Draw 27 Fed #4
Wellbore: Wellbore #1
Design: 02-20-09
Plan Version:

WELL DETAILS: Chosa Draw 27 Fed #4

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	398102.40	558541.30	32° 5' 40.023 N	104° 16' 40.001 W

QUANTUM DRILLING MOTORS & DIRECTIONAL SERVICES

G T M

Azimuths to Grid North
Total Correction 8.13°
Magnetic Field
Strength 48741.6snT
Dip Angle: 60.01°
Date: 2009/02/20
Model: IGRF200510

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
Chosa Draw Fed #4 PBHL	3007.0	1979.7	-129.9	400082.14	558411.37	Point

PLAN DETAILS

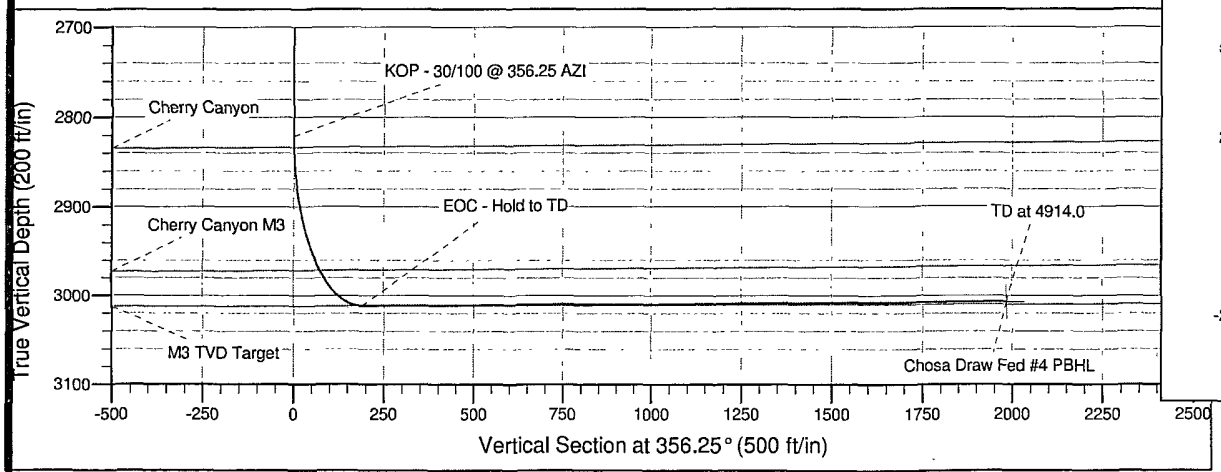
MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
0.0	*0.00*	*0.00*	*0.0*	*0.0*	*0.0*	*0.00*	*0.00*	*0.0*	
2821.0	0.00	0.00	2821.0	0.0	0.0	0.00	0.00	0.0	
3121.5	90.16	356.25	3012.0	191.1	-12.5	30.00	356.25	191.5	
4914.0	90.16	356.24	3007.0	1979.7	-129.9	0.00	-96.80	1984.0	Chosa Draw Fed #4 PBHL

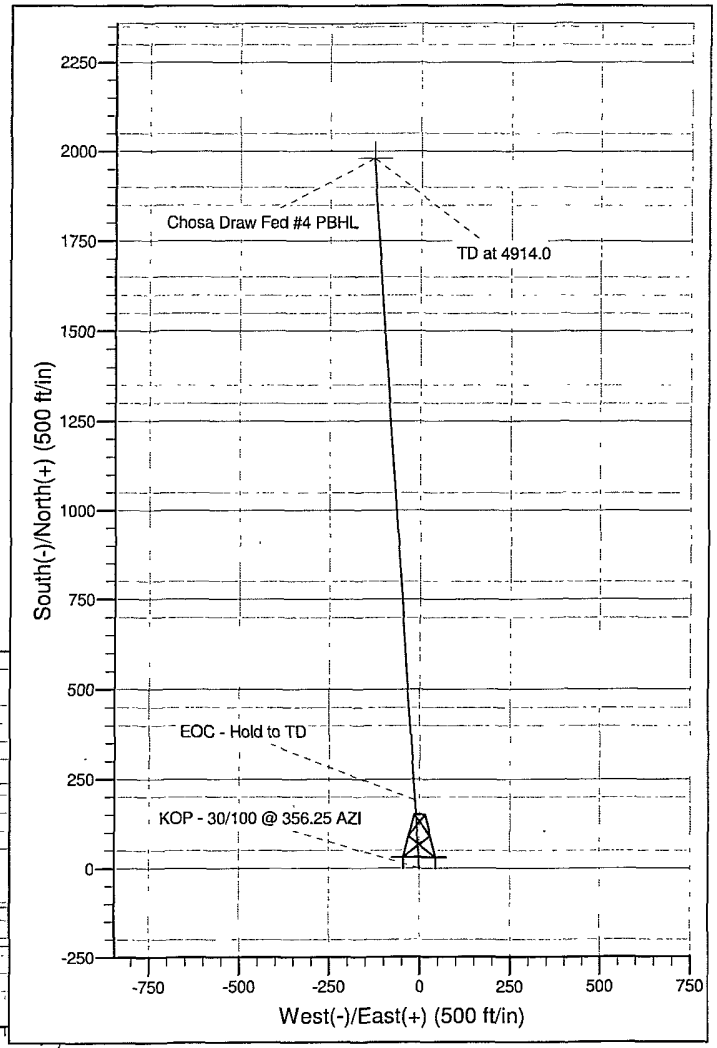
ANNOTATIONS

TVD	MD	Annotation
2821.0	2821.0	KOP - 30/100 @ 356.25 AZI
3012.0	3121.5	EOC - Hold to TD
3007.0	4914.0	TD at 4914.0

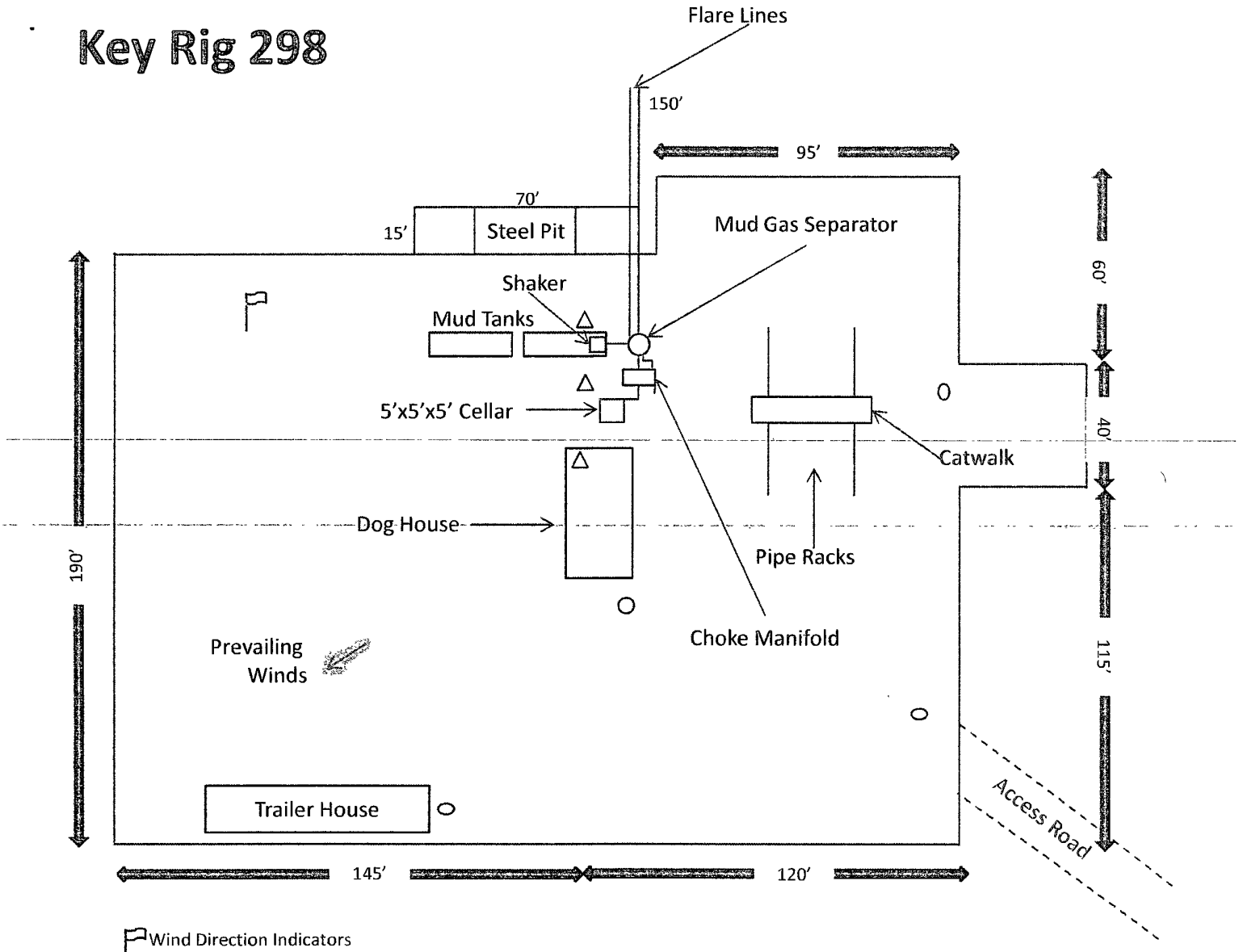
FORMATION TOP DETAILS

TVDPath	MDPath	Formation
		Cherry Canyon H
		Cherry Canyon K
		Cherry Canyon L
		TD (Pilot Hole)
1063.0	1063.0	Top Salt
1658.0	1658.0	Base Salt
1858.0	1858.0	Bell Canyon
1905.0	1905.0	Ramsey Ss
2834.0	2834.0	Cherry Canyon
2971.8	2994.8	Cherry Canyon M3
3011.8	3112.8	M3 TVD Target





Key Rig 298



Wind Direction Indicators
(wind sock or streamers)

△ H2S Monitors
(alarms at bell nipple and shale shaker)

O Briefing Areas

O Remote BOP Closing Unit

Exhibit D – Rig Diagram
Chosa Draw 27 Federal No. 4
Cimarex Energy Co. of Colorado
27-25S-26E
SHL 330 FSL & 1750 FEL
BHL 2310 FSL & 1900 FEL
Eddy County, NM

SR & A

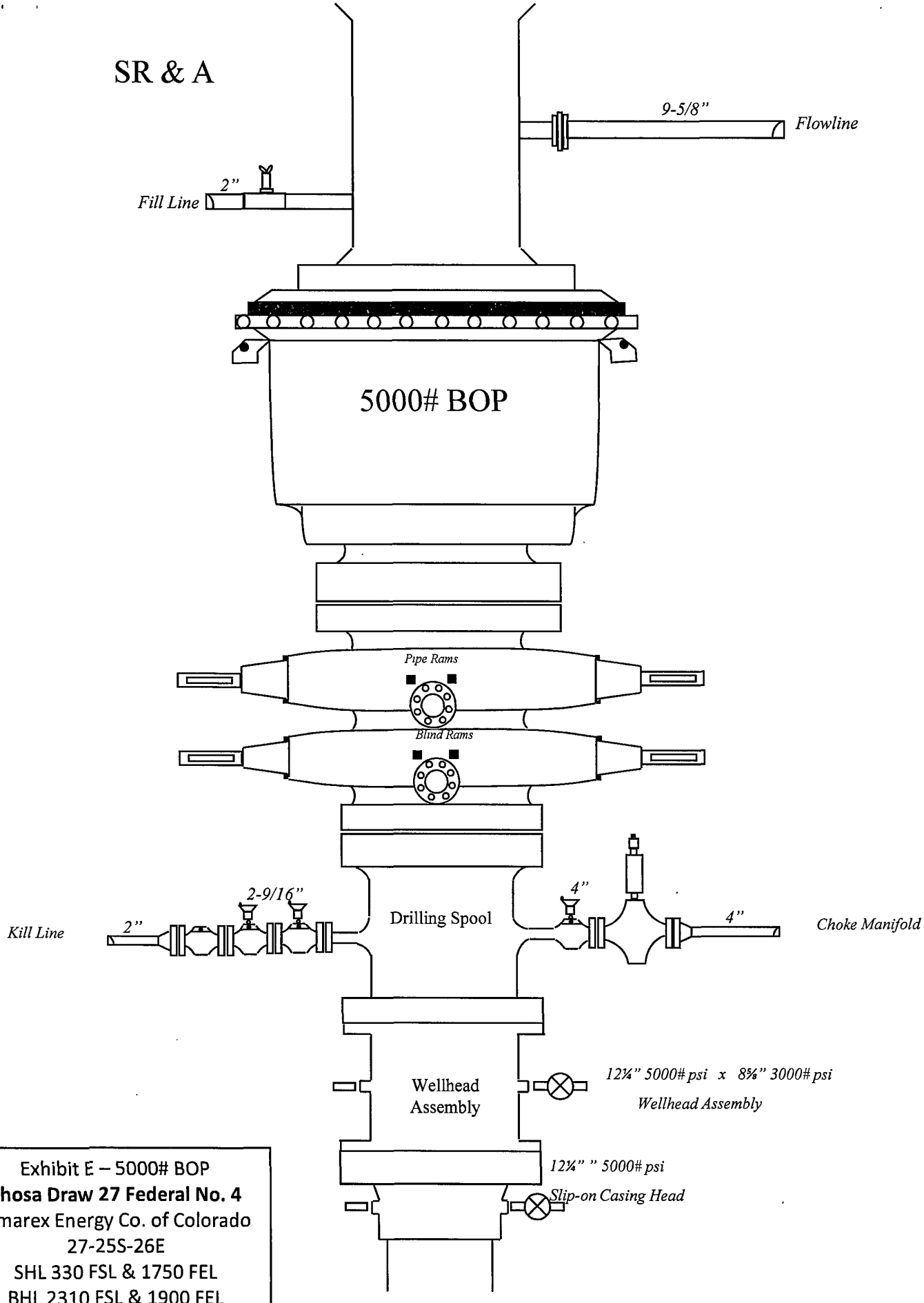
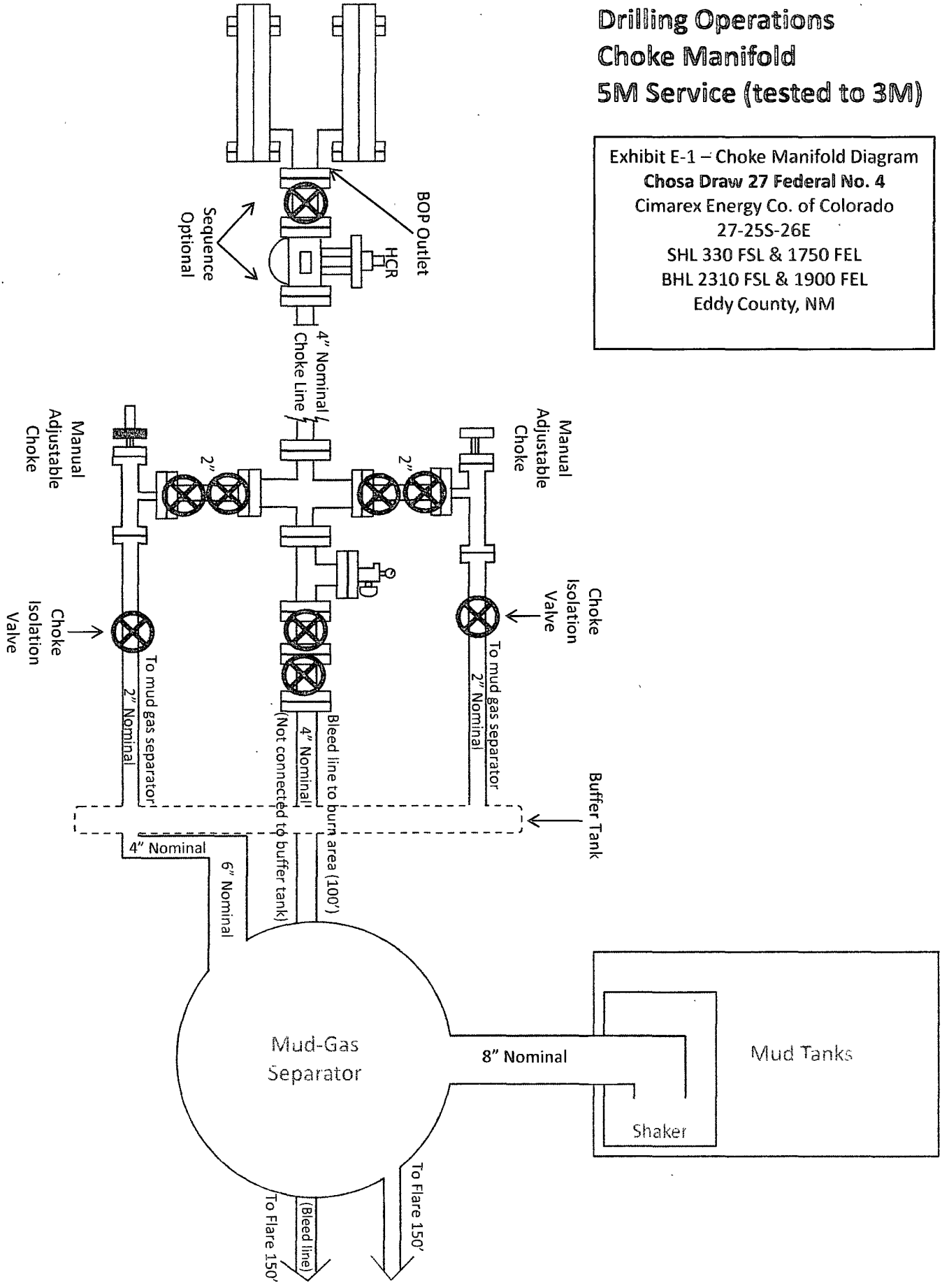


Exhibit E – 5000# BOP
Chosa Draw 27 Federal No. 4
Cimarex Energy Co. of Colorado
27-25S-26E
SHL 330 FSL & 1750 FEL
BHL 2310 FSL & 1900 FEL
Eddy County, NM

Drilling Operations
Choke Manifold
5M Service (tested to 3M)

Exhibit E-1 – Choke Manifold Diagram
Chosa Draw 27 Federal No. 4
Cimarex Energy Co. of Colorado
27-25S-26E
SHL 330 FSL & 1750 FEL
BHL 2310 FSL & 1900 FEL
Eddy County, NM



Hydrogen Sulfide Drilling Operations Plan
Chosa Draw 27 Federal No. 4
Cimarex Energy Co. of Colorado
Unit O, Section 27
T25S-R26E, Eddy County, NM

H_2S equipment will be rigged up at Surface. The plan should be implemented before drilling out from the surface.

1. Due to a one-time encounter on a previous well, an Intra-salt Pocket was charged with H_2S and a burnable amount of hydrocarbons.

First Potential Problem Zone:

Initial suspected problem zone	Salt Zone @ 1,333'
Potential Open Flow Capacity	1 mcf
Expected H_2S Concentration	11,000 ppm
100' ROE	6'
500' ROE	3'

Cimarex will have 24-hour H_2S Safety Supervisors on location while drilling the first 2,000' on this well.

2. Second Potential Problem Zone:

Initial suspected problem zone	Delaware Mountain Group @ 1,800'
Potential Open Flow Capacity	100 mcf
Expected H_2S Concentration	1,000 ppm
100' ROE	24'
500' ROE	11'

3. All Company and Contract personnel admitted on location must be trained by a qualified H_2S safety instructor to the following:
   A. Characteristics of H_2S
   B. Physical effects and hazards
   C. Proper use of safety equipment and life support systems.
   D. Principle and operation of H_2S detectors, warning system and briefing areas.
   E. Evacuation procedure, routes and first aid.
   F. Proper use of 30 minute pressure demand air pack.

4. H_2S Detection and Alarm Systems:
   A. H_2S detectors and audio alarm system to be located at bell nipple, end of flow line (mud pit) and on derrick floor or doghouse.

5. 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.

6. Condition Flags and Signs:
   A. Warning sign on access road to location.
   B. Flags to be displayed on sign at entrance to location. Green flag indicates normal safe condition. Yellow flag indicates potential pressure and danger. Red flag indicates danger (H_2S present in dangerous concentration). Only emergency personnel admitted to location.

7. Well control equipment:
   A. See exhibit "E"

8. 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.

9. Drillstem Testing:
   No DSTs or cores are planned at this time.

10. Drilling contractor supervisor will be required to be familiar with the effects H_2S has on tubular goods and other mechanical equipment.

11. If H_2S is encountered, mud system will be altered if necessary to maintain control of formation. A mud gas seperator will be brought into service along with H_2S scavengers if necessary.

Emergency Procedures

In the event of a release of gas containing H_2S, the first responder(s) must:

- ★ Isolate the area and prevent entry by other persons into the 100 ppm ROE.
- ★ Evacuate any public places encompassed by the 100 ppm ROE.
- ★ Be equipped with H_2S monitors and air packs in order to control the release.
- ★ Use the "buddy system" to ensure no injuries occur during the response.
- ★ Take precautions to avoid personal injury during this operation.
- ★ Contact operator and/or local officials to aid in operation. See list of phone numbers attached.
- ★ Have received training in the:
  - ♦ Detection of H_2S, and
  - ♦ Measures for protection against the gas,
  - ♦ Equipment used for protection and emergency response.

Ignition of Gas Source

Should control of the well be considered lost and ignition considered, take care to protect against exposure to Sulfur Dioxide (SO_2). Intentional ignition must be coordinated with the NMOCD and local officials. Additionally, the NM State Police may become involved. NM State Police shall be the Incident Command on scene of any major release. Take care to protect downwind whenever there is an ignition of the gas.

Characteristics of H_2S and SO_2

Common Name	Chemical Formula	Specific Gravity	Threshold Limit	Hazardous Limit	Lethal Concentration
Hydrogen Sulfide	H_2S	1.189 Air=1	10 ppm	100 ppm/hr	600 ppm
Sulfur Dioxide	SO_2	2.21 Air=1	2 ppm	N/A	1000 ppm

Contacting Authorities

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

H_2S Contingency Plan Emergency Contacts
Chosa Draw 27 Federal No. 4
Cimarex Energy Co. of Colorado
Unit O, Section 27
T25S-R26E, Eddy County, NM

Company Office		
Cimarex Energy Co. of Colorado Co. Office and After-Hours Menu	800-969-4789	

Key Personnel

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

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

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

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

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

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

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

Surface Use Plan
Chosa Draw 27 Federal No. 4
Cimarex Energy Co. of Colorado
Unit O, Section 27
T25S-R26E, 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 Black River Village and John D Forehand, go South on John D Forehand for 10.1 miles to Prickly Pear. On Prickly Pear, go Northwest 0.9 miles to lease road. Go westerly on lease road for 0.9 miles to proposed lease road.

2. Planned Access Roads: 1138' of proposed newly constructed access road and 4596' upgraded access road to Prickpear. A federal ROW will be obtained.

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"

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 seperated by a series of solids removal equipment and stored in steel containment pits and then 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. Drilling fluids will be contained in steel pits in a closed circulating system. Fluids will be cleaned and reused. Water produced during testing will be contained in the steel pits and disposed of at a state approved disposal facility. 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.

9. Well Site Layout:
   A. Exhibit "D" shows location and rig layout.
   C. Mud pits in the closed circulating system will be steel pits and the cuttings will be stored in steel containment pits.
   D. Cuttings will be stored in steel pits until they are hauled to a state-approved disposal facility.
   E. If the well is a producer, 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 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.

    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 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 1½ miles of this location.

Operator Certification Statement
Chosa Draw 27 Federal No. 4
Cimarex Energy Co. of Colorado
Unit O, Section 27
T25S-R26E, Eddy County, NM

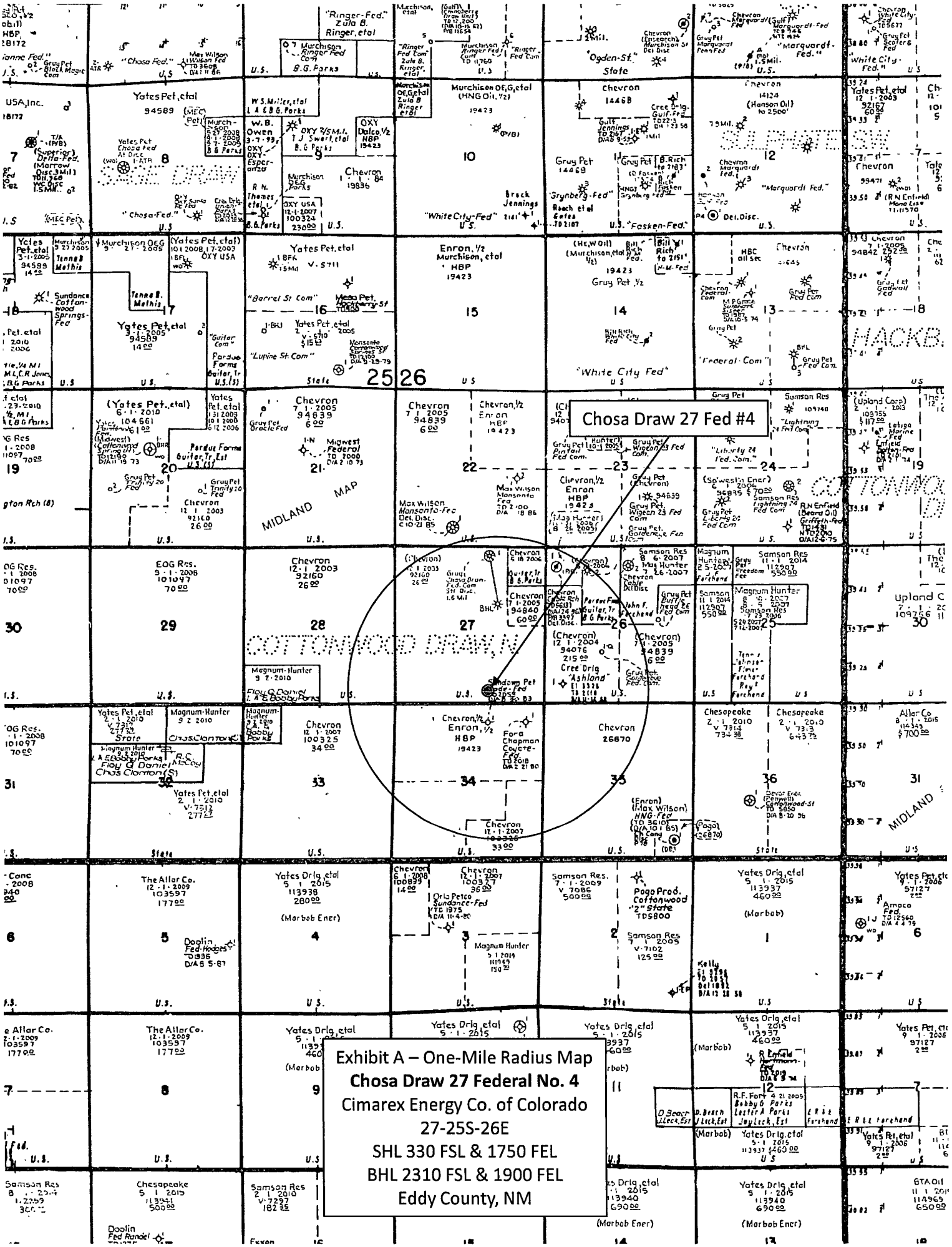
Operator's Representative
Cimarex Energy Co. of Colorado
5215 N. O'Connor blvd ste 1500
Irving, TX 75039
Office Phone: (972) 443-6489
Zeno Farris

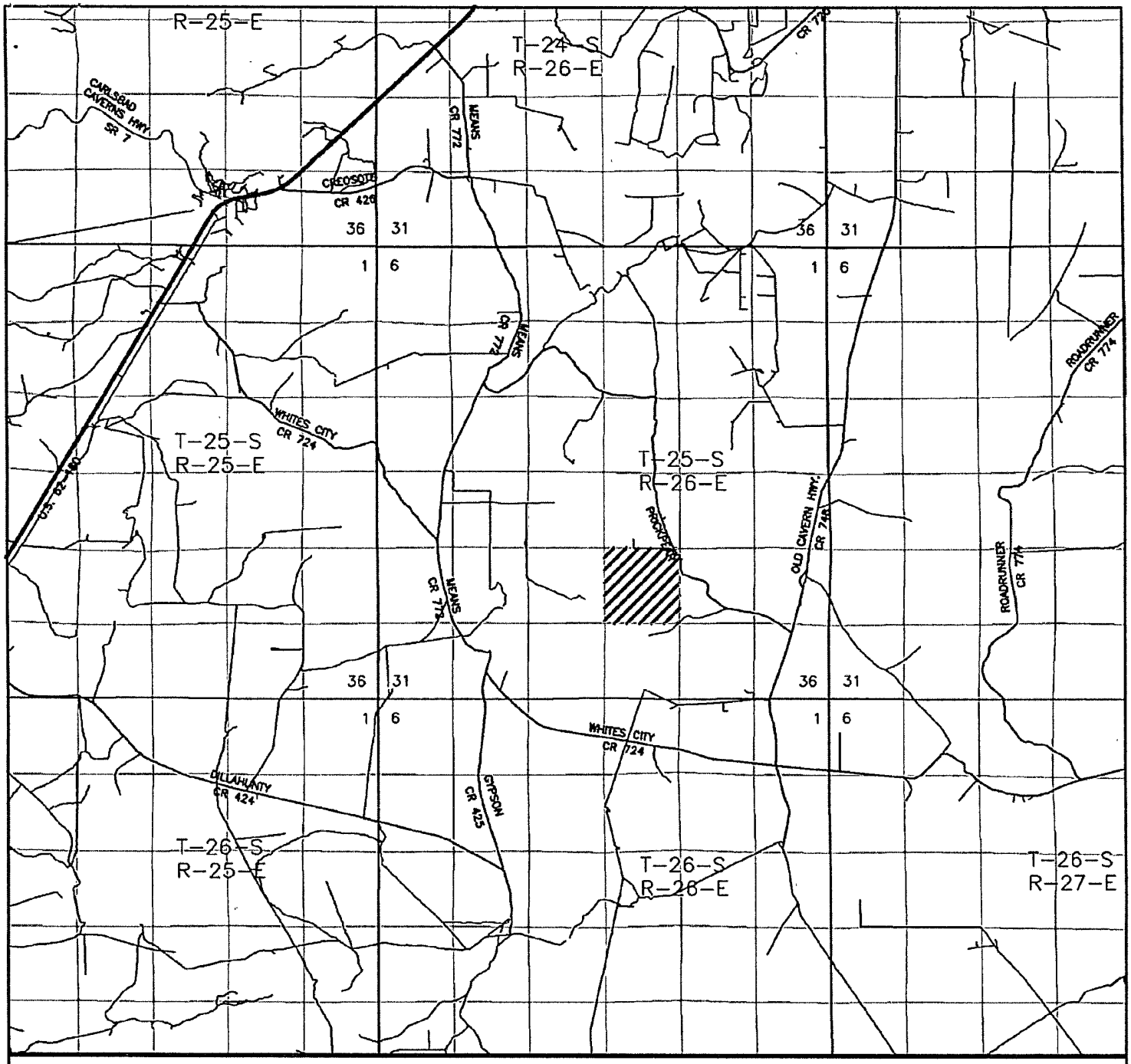
CERTIFICATION: I hereby certify that the statements and plans made in this APD are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed by Cimarex Energy Co. of Colorado and/or its contractors/subcontractors and is in conformity 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: February 25, 2009

TITLE: Manager Operations Administration


Chosa Draw 27 Fed #4
MIDLAND MAP
COTTONWOOD DRAW N
Exhibit A – One-Mile Radius Map
Chosa Draw 27 Federal No. 4
Cimarex Energy Co. of Colorado
27-25S-26E
SHL 330 FSL & 1750 FEL
BHL 2310 FSL & 1900 FEL
Eddy County, NM



CHOSA DRAW "27" FEDERAL #4
Located 330' FSL and 1750' FEL
Section 27, Township 25 South, Range 26 East,
N.M.P.M., Eddy County, New Mexico.

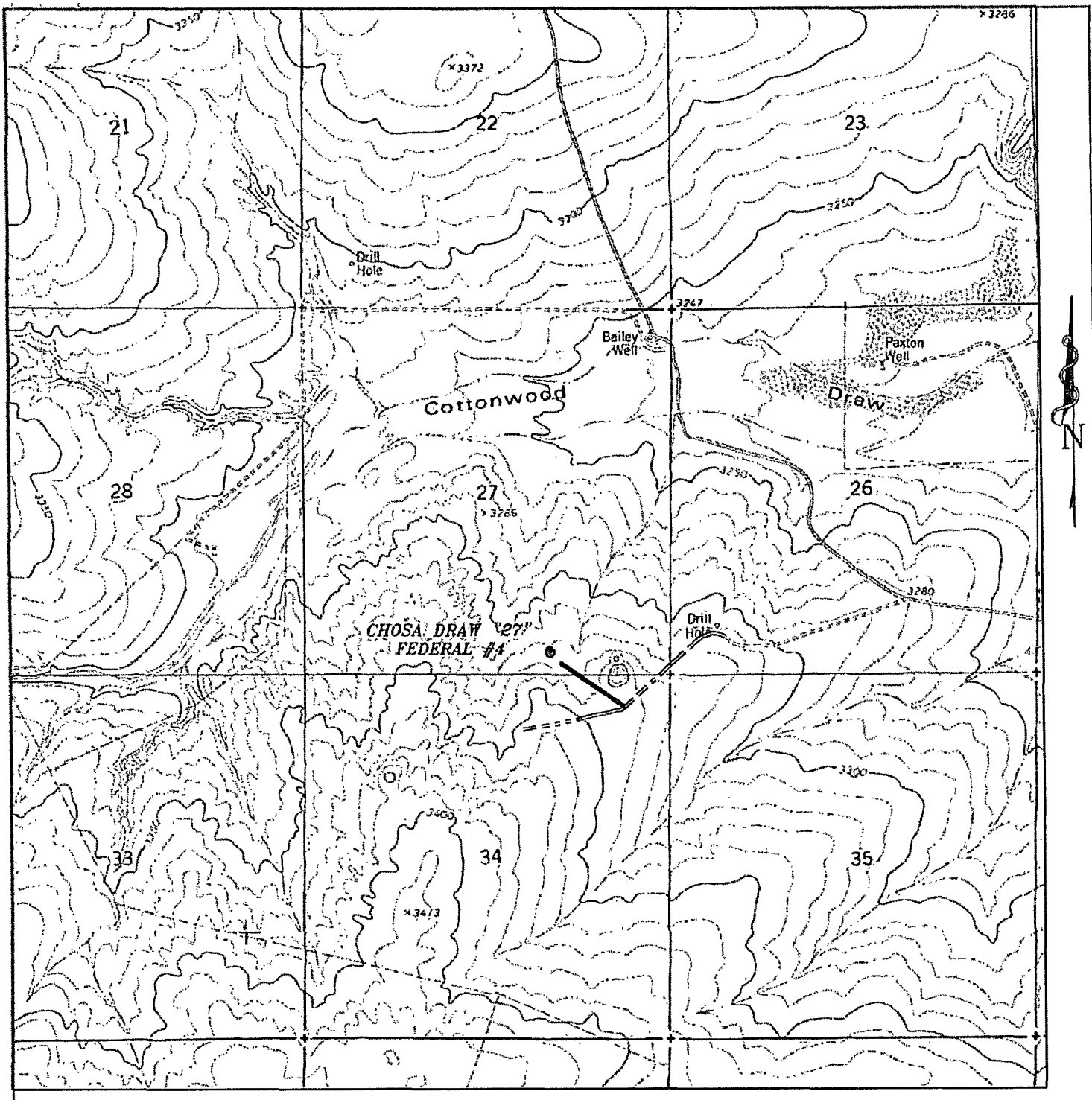
Basin Surveys
focused on excellence in the oilfield

P.O. Box 1786
1120 N. West County Rd.
Hobbs, New Mexico 88241
(575) 393-7316 - Office
(575) 392-2206 - Fax
basinsurveys.com

W.O. Number:	JMS 21017
Survey Date:	01-07-2008
Scale:	1" = 2000'
Date:	01-09-2008

CIMAREX ENERGY CO. OF COLORADO

Exhibit B



CHOSA DRAW "27" FEDERAL #4
Located 330' FSL and 1750' FEL
Section 27, Township 25 South, Range 26 East,
N.M.P.M., Eddy County, New Mexico.

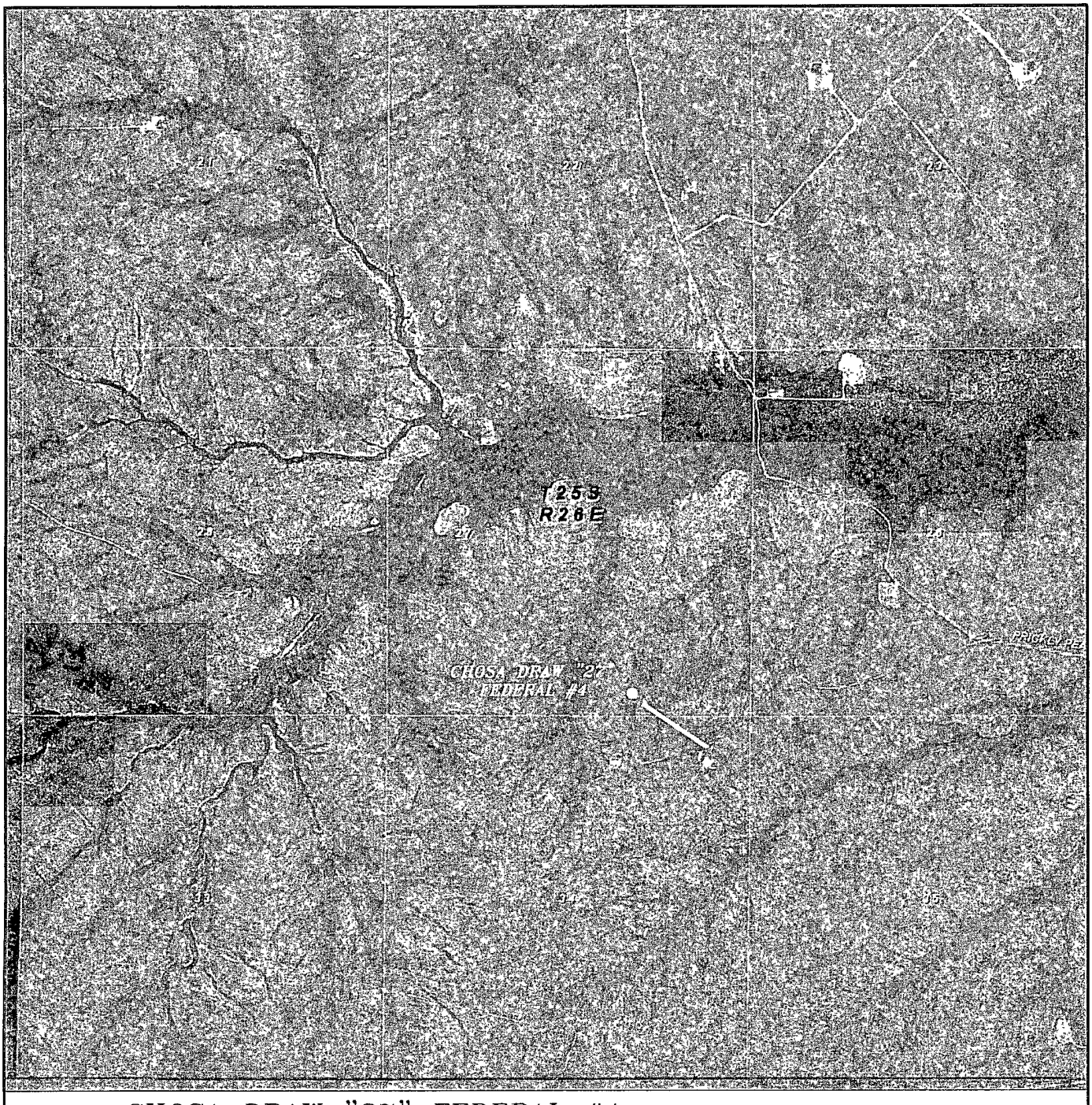
Basin Surveys
focused on excellence in the oilfield

P.O. Box 1786
1120 N. West County Rd.
Hobbs, New Mexico 88241
(575) 393-7316 - Office
(575) 392-2206 - Fax
basinsurveys.com

W.O. Number:	JMS 21017
Survey Date:	01-07-2008
Scale:	1" = 2000'
Date:	01-09-2008

CIMAREX ENERGY CO. OF COLORADO

Exhibit C



CHOSA DRAW "27" FEDERAL #4
Located 330' FSL and 1750' FEL
Section 27, Township 25 South, Range 26 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
(575) 393-7316 - Office
(575) 392-2206 - Fax
basinsurveys.com

W.O. Number: JMS 21017

Scale: 1" = 2000'

YELLOW TINT - BLM LAND
BLUE TINT - STATE LAND
NATURAL COLOR - FEE LAND

CIMAREX ENERGY CO. OF COLORADO

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Cimarex Energy Co of Colorado
LEASE NO.:	NM92160
WELL NAME & NO.:	4 Chosa Draw 27 Fed
SURFACE HOLE FOOTAGE:	330' FSL & 1750' FEL
BOTTOM HOLE FOOTAGE	2310' FSL & 1900' FEL
LOCATION:	Section 27, T. 25 S., R 26 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.

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)

Cave/Karst Surface Mitigation

The following stipulations will be applied to minimize impacts during construction, drilling and production.

Construction:
In the advent that any underground voids are opened up during construction activities, construction activities will be halted and the BLM will be notified immediately.

No Blasting:
No blasting will be utilized for pad construction. The pad will be constructed and leveled by adding the necessary fill and caliche.

Pad Berming:
The pad will be bermed to prevent oil, salt, and other chemical contaminants from leaving the pad. All sides of the pad will be bermed.

Tank Battery Liners and Berms:
Tank battery locations will be lined and bermed. A 20 mil permanent liner will be installed with a 4 oz. felt backing to prevent tears or punctures. Tank battery berms must be large enough to contain 1 ½ times the content of the largest tank.

Leak Detection System:
A method of detecting leaks is required. The method could incorporate gauges to measure loss, situating values and lines so they can be visually inspected, or installing electronic sensors to alarm when a leak is present. Leak detection plan will be submitted to BLM for approval.

Automatic Shut-off Systems:
Automatic shut off, check values, or similar systems will be installed for pipelines and tanks to minimize the effects of catastrophic line failures used in production or drilling.

Cave/Karst Subsurface Mitigation

The following stipulations will be applied to protect cave/karst and ground water concerns:

Rotary Drilling with Fresh Water:
Fresh water will be used as a circulating medium in zones where caves or karst features are expected. SEE ALSO: Drilling COAs for this well.

Directional Drilling:
Kick off for directional drilling will occur at least 100 feet below the bottom of the cave occurrence zone. SEE ALSO: Drilling COAs for this well.

Fluorescent Dyes:
Nontoxic Fluorescent dyes will be added to the drilling fluid when the hole is spudded and will be circulated to the bottom of the karst layers. BLM must witness the dye being injected.

Florescene Dye (Acid Yellow 73):

Thirty-two (32) ounces dry powder Florescene (Acid Yellow 73) dye will be added to the drilling fluid before the well is spudded AND to the pre-flush fluids of the surface interval of casing.

These dyes will track the fluids if lost circulation occurs.

Arrangements will be made to have BLM witness the dye being injected prior to spudding the hole and before the pre-flush of the surface casing. Contact the BLM drilling on call phone at (575) 361-2822 to make arrangements.

Lost Circulation:
ALL lost circulation zones from the surface to the base of the cave occurrence zone will be logged and reported in the drilling report.

Regardless of the type of drilling machinery used, if a void of four feet or more and circulation losses greater than 70 percent occur simultaneously while drilling in any cave-bearing zone, the BLM will be notified immediately by the operator. The BLM will assess the situation and work with the operator on corrective actions to resolve the problem.

Abandonment Cementing:
Upon well abandonment in high cave karst areas additional plugging conditions of approval may be required. The BLM will assess the situation and work with the operator to ensure proper plugging of the wellbore.

Pressure Testing:
Annual pressure monitoring will be performed by the operator on all casing annuli and reported in a sundry notice. If the test results indicated a casing failure has occurred, remedial action will be undertaken to correct the problem to the BLM's approval.

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 (575) 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 to be stripped is approximately 6 inches in depth. The topsoil shall not be used to backfill the reserve pit and will be used for interim and final reclamation.

C. CLOSED LOOP SYSTEM

Although this is a closed loop system and no reserve pit will be utilized, due to the orientation of the road, the v-door will be on the West side of the location.

Tanks are required for drilling operations: No Pits.

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

D. FEDERAL MINERAL MATERIALS PIT

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

Payment shall be made to the BLM prior to removal of any additional federal mineral materials from any site other than the reserve pit. Call the
Carlsbad Field Office at (575) 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.

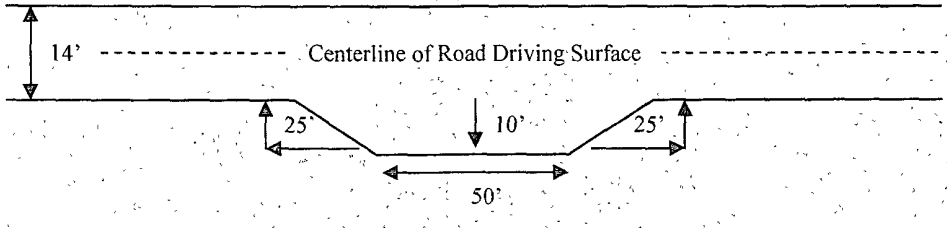
The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing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

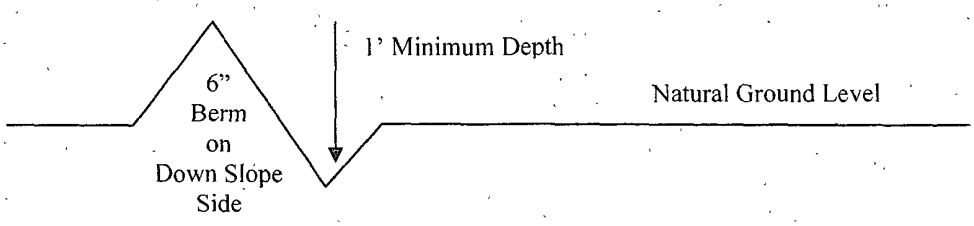
Standard Turnout – Plan View



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:

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

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.

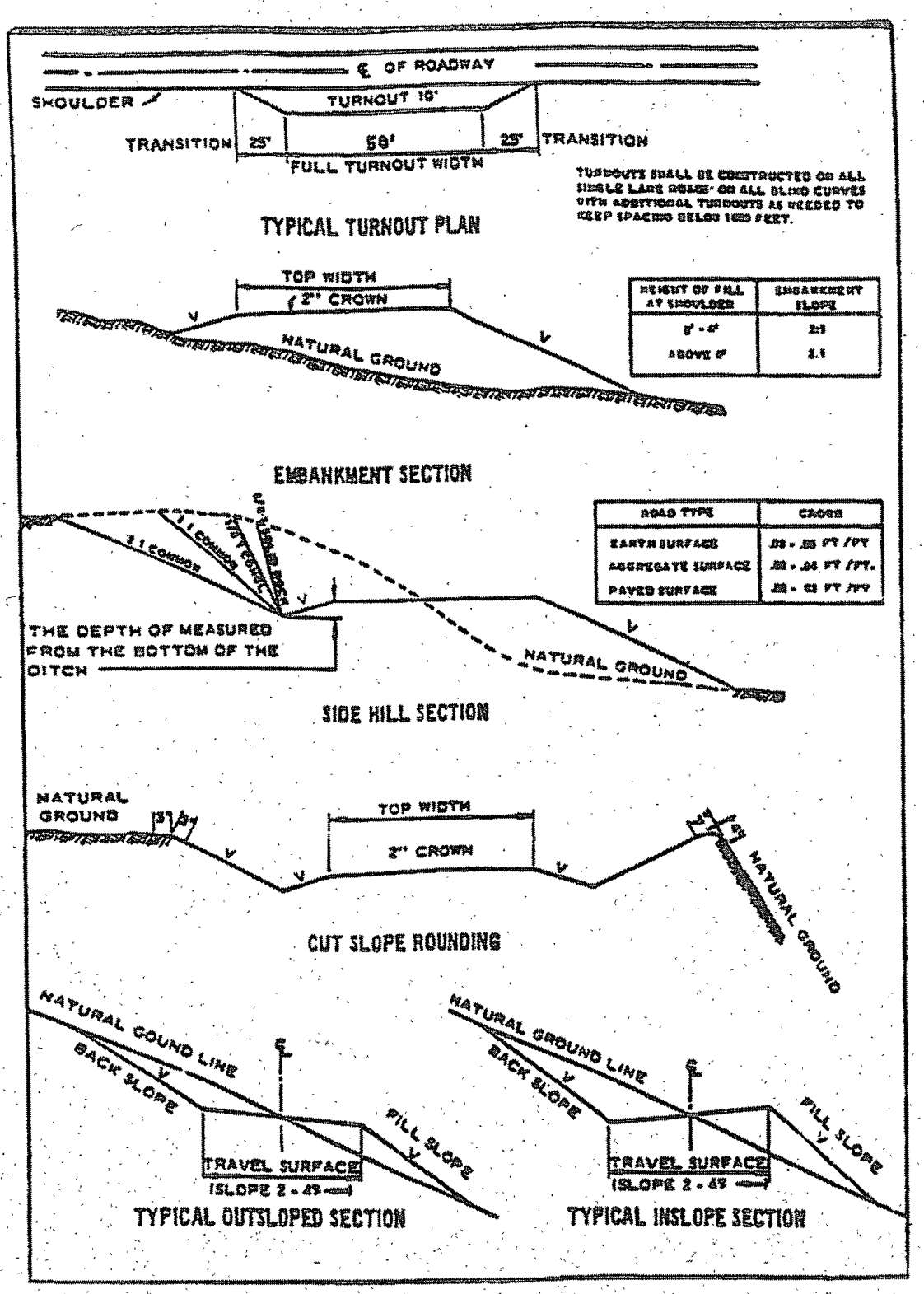
A gate shall be constructed and fastened securely to H-braces.

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.

Figure 1 – Cross Sections and Plans For Typical Road Sections



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

☒ **Eddy County**
Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220, (575) 361-2822

1. A Hydrogen Sulfide (H2S) Drilling Plan should be activated 500 feet prior to drilling into the **Delaware** formation. **As a result, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please report measured amounts and formations 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 is located, this does not include the dog house or stairway area.

B. CASING

Changes to the approved APD casing and cement program require submitting a sundry and receiving approval prior to work. Failure to obtain approval prior to work will result in an Incident of Non-Compliance being issued.

Centralizers required on surface casing per Onshore Order 2.III.B.1.f.

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 for all casing strings. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. See individual casing strings for details regarding lead cement slurry requirements.

No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.

CRITICAL CAVE/KARST – CONTINGENCY CASING WILL BE REQUIRED IF LOST CIRCULATION OCCURS WHILE DRILLING THE SURFACE HOLE. THE SURFACE HOLE WILL HAVE TO BE REAMED AND A LARGER CASING INSTALLED. IF LOST CIRCULATION OCCURS WHILE DRILLING THE 7-7/8" HOLE, THE CEMENT PROGRAM FOR THE 5-1/2" CASING WILL NEED TO BE MODIFIED AND THE BLM IS TO BE CONTACTED PRIOR TO RUNNING THE CASING. A MINIMUM OF TWO CASING STRINGS CEMENTED TO SURFACE IS REQUIRED IN HIGH CAVE/KARST AREAS. THE CEMENT MUST BE IN A SOLID SHEATH THEREFORE, ONE INCH OPERATIONS WILL NOT BE PERMITTED. A DV TOOL WILL BE REQUIRED.

Possible lost circulation in the Delaware.

1. The **8-5/8** inch surface casing shall be set at **approximately 375** 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 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 is to include the lead cement slurry.

    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.

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

    ☒ Cement to surface. If cement does not circulate see B.1.a, c-d above. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst concerns.**

3. The minimum required fill of cement behind the **2-7/8** inch production-liner is:

    ☒ Cement not required – using Peak System completion assembly. **Completion assembly to be set a minimum of 100' inside 5-1/2" casing.**

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. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **3000 (3M)** psi. **Operator installing 5M system and testing as 3M.**

3. 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. **Effective November 1, 2008, no variances will be granted on reduced pressure tests on the surface casing and BOP/BOPE. Onshore Order 2 requirements will be in effect.**

D. DRILL STEM TEST

If drill stem tests are performed, Onshore Order 2.III.D shall be followed.

RGH 063009

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

IX. INTERIM RECLAMATION & RESEEDING PROCEDURE

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.

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. RESEEDING PROCEDURE

Once the well has been drilled, all completion procedures have been accomplished, and all trash removed, reseed the location and all surrounding disturbed areas as follows:

Seed Mixture 4, for Gypsum 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:

Species	lb/acre
Alkali Sacaton (Sporobolus airoides)	1.0
DWS Four-wing saltbush (Atriplex canescens)	5.0

DWS: DeWinged Seed

*Pounds of pure live seed:

Pounds of seed x percent purity x percent germination = pounds pure live seed

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.