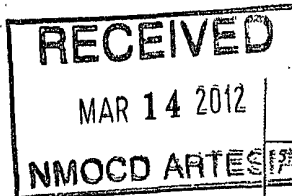
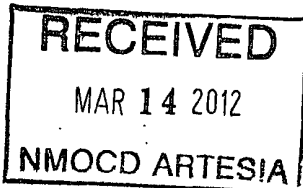


Form 3160-3
(April 2004)FORM APPROVED
OMB No. 1004-0137
Expires March 31, 2007UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of Work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. NM-94839	
1b. Type of Well: <input type="checkbox"/> Oil Well <input checked="" type="checkbox"/> Gas Well <input type="checkbox"/> Other <input checked="" type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		6. If Indian, Allottee or Tribe Name	
2. Name of Operator Cimarex Energy Co. of Colorado		7. If Unit or CA Agreement, Name and No.	
3a. Address 600 N. Marienfeld St., Ste. 600; Midland, TX 79701		8. Lease Name and Well No. Cottonwood Draw 22 Federal No. 6 [37487]	
3b. Phone No. (include area code) 432-571-7800		9. API Well No. 30-015- 40052	
4. Location of Well (Report location clearly and in accordance with any State requirements.) At Surface 2475 FSL & 255 FEL At proposed prod. Zone 230 4980 FSL & 660 FWL Horizontal Wolfcamp Test		10. Field and Pool, or Exploratory Sage Draw; Wolfcamp, East [96890]	
11. Sec., T. R. M. or Blk. and Survey or Area 22-25S-26E		12. County or Parish Eddy	
13. State NM		14. Distance in miles and direction from nearest town or post office*	
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line if any) 150	16. No of acres in lease NM-94839 - 1480 acres	17. Spacing Unit dedicated to this well S2 320 acres	
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 652	19. Proposed Depth Pilot Hole 10250 MD 14026, TVD 9523	20. BLM/BIA Bond No. on File NM-2575	
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3294' GR	22. Approximate date work will start* 06.15.11	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 <i>Zeno Farris</i>	Name (Printed/Typed) Zeno Farris	Date 4.1.11
-------------------------------------	-------------------------------------	----------------

Title Manager Operations Administration		
Approved By (Signature)	Name (Printed/Typed) <i>/s/ James Stovall</i>	Date MAR 09 2012
Title FIELD MANAGER	Office CARLSBAD FIELD OFFICE	

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon

Conditions of approval, if any, are attached.

APPROVAL FOR TWO YEARS

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

* (Instructions on page 2)

CARLSBAD CONTROLLED WATER BASIN

SEE ATTACHED FOR
CONDITIONS OF APPROVALAPPROVAL SUBJECT TO
GENERAL REQUIREMENTS AND
SPECIAL STIPULATIONS
ATTACHED

Operator Certification Statement
Cottonwood Draw 22 Federal No. 6
Cimarex Energy Co. of Colorado
Unit L, Section 22
T25S-R26E, Eddy County, NM

Operator's Representative

Cimarex Energy Co. of Colorado
600 N. Marienfeld St., Ste. 600
Midland, TX 79701
Office Phone: (432) 571-7800
Zeno Farris

CERTIFICATION: I hereby certify that I, or someone under my direct supervision, have inspected the drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I have full knowledge of state and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.

Executed this 4th day of April, 2011

NAME: Zeno Farris
Zeno Farris

TITLE: Manager Operations Administration

ADDRESS: 600 N. Marienfeld St., Ste. 600
Midland, TX 79701

TELEPHONE: (432) 620-1938

EMAIL: zfarris@cimarex.com

Field Representative: Same as above

DISTRICT I
1625 N. French Dr., Hobbs, NM 88240

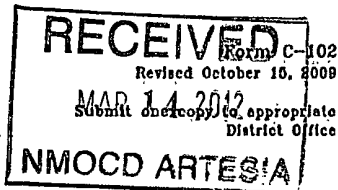
DISTRICT II
1301 W. Grand Avenue, Artesia, NM 88210

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



WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number 30-015-40052	Pool Code 96890	Pool Name Sage Draw; Wolfcamp E
Property Code 37481	Property Name COTTONWOOD DRAW "22" FEDERAL	Well Number 6
GRID No. 162683	Operator Name CIMAREX ENERGY CO. OF COLORADO	Elevation 3311'

Surface Location

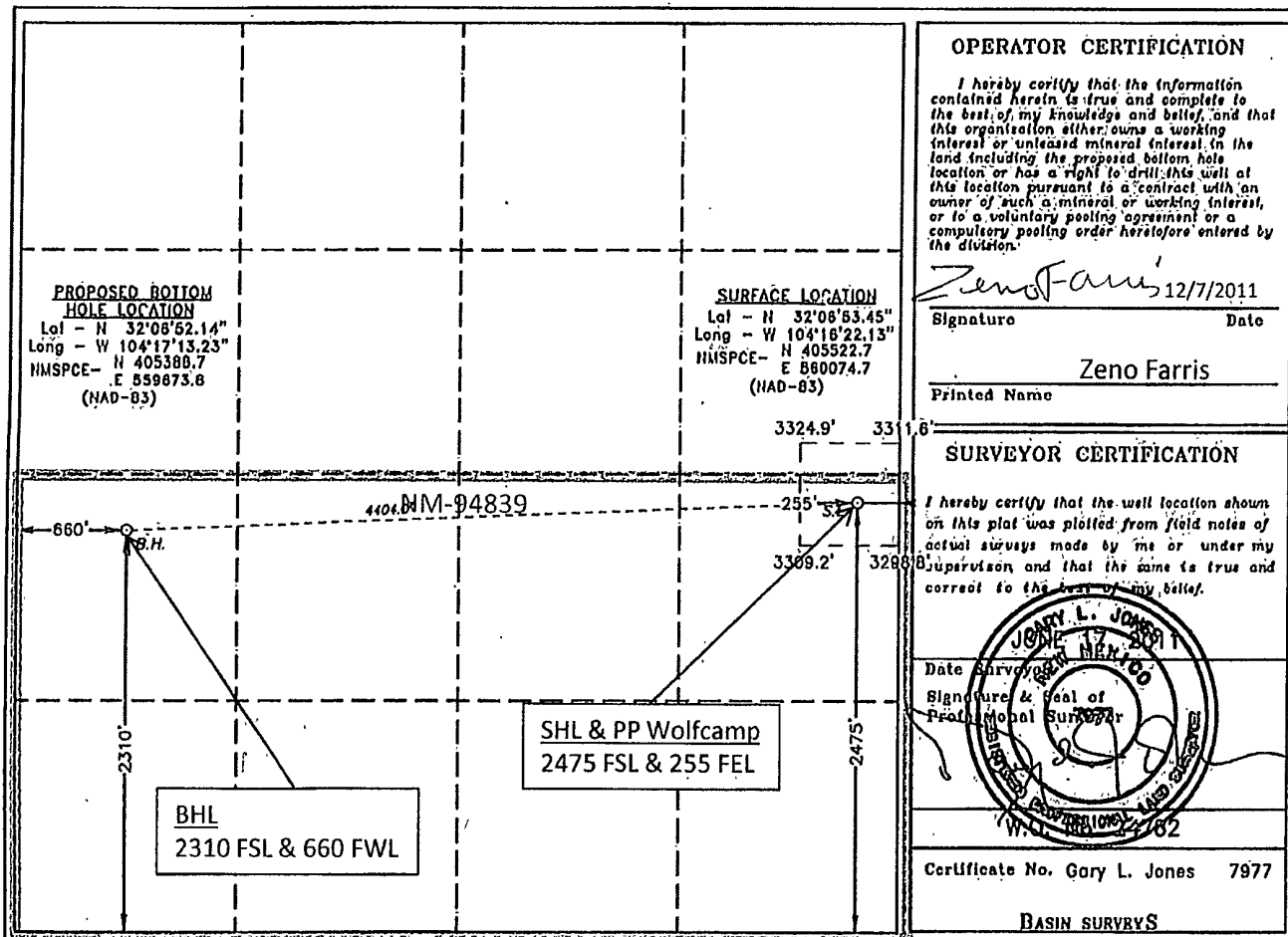
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
I	22	25 S	26 E		2475	SOUTH	255	EAST	EDDY

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
L	22	25 S	26 E		2310	SOUTH	660	WEST	EDDY

Dedicated Acres 320	Joint or Infill	Consolidation Code	Order No.
			NSL Pending

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



Application to Drill
Cottonwood Draw 22 Federal No. 6
Cimarèx Energy Co. of Colorado
Unit L, Section 22
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 1700 FSL & 150 FEL
BHL 1980 FSL & 660 FWL
2. Elevation above sea level: 3294' 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: MD 14026, TVD 9523 Pilot Hole 10250
6. Estimated tops of geological markers:

Rustler	Spotty, N/A	Bone Spring "A" Shale	5634
Top Salt	1059	Bone Spring "C" Shale	5888
Base Salt	1688	1st Bone Spring Ss	6390
Delaware	1887	2nd Bone Spring Ss	6945
Cherry Canyon	2873	2nd BS Ss Lower	7668
Brushy Canyon	3887	3rd Bone Spring Ss	8265
Bone Spring	5153	Wolfcamp	8617
7. Possible mineral bearing formations:

Wolfcamp	Gas
Bone Spring	Gas
Delaware	Oil

8. Proposed drilling Plan

Drill 8 $\frac{3}{4}$ " hole to 9240 and set 7" casing from 0-9240 and cement. Then drill out of 7" shoe with 6 $\frac{1}{8}$ " bit to pilot hole TD @ 10250 and log. Cement pilot hole with 275 Sks 16.5 ppg Yield 1.06 PlugCem H + 0.6% CFR-3 +0.2% HR-601. Dress off cement and kick off of cement plug with 6 $\frac{1}{8}$ " bit @ 9340 to drill lateral. Drill to TD 14026 MD, ~~9523~~ TVD and run 4 $\frac{1}{2}$ " liner from liner hanger at 9040 to TD and cement liner. 9626

Application to Drill
Cottonwood Draw 22 Federal No. 6
 Cimarex Energy Co. of Colorado
 Unit L, Section 22
 T25S-R26E, Eddy County, NM

9. Mud Circulating System:

Depth	Mud Wt	Visc	Fluid Loss	Type Mud
0' to 450	8.4 - 8.8	30-32	NC	FW spud mud. Add FW to control weight & viscosity and paper to prevent seepage.
450 to 1872 1840	10	28-29	NC	Saturated Brine. Sweep as needed to clean hole.
1872 to 9240	9.0	28-30	NC	Cut brine. Sweep as needed to clean hole.
9240 to 14026	12.0	28-32	NC	OBM

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.

10. Casing Program:

	Hole Size	Depth	Casing OD	Weight	Collar	Grade
Surface	17½"	0 to 450	New 13½"	48#	STC	H-40
Intermediate	12¼"	0 to 1840 1872	New 9½"	40#	LTC	J-55
Production	8½"	0 to 9240	New 7"	26#	LTC	P-110
Liner	6½"	9040 to 14026	New 4½"	11.6#	BTC/LTC*	P-110

*BTC from 9040-9797 (EOC) and LTC from 9797-14026

11. Cementing Program:

Surface Excess 100%	Lead: 176 sx (C) +2% S1+2%D46 YIELD 1.97 Tail: 235 sx. (C) +1% S1 YIELD 1.34. TOC Surface Centralizers per Onshorder 2.III.B.1.f
Intermediate Excess 25%	Lead: 271 sx. (C) 4% D20 + .2% D46 + 1% S1. YIELD 1.96, MIX WATER 10.85, WT. 12.9 Tail: 173 sx. (C) + .1% D13. YIELD 1.33, MIX WATER 3.36, WT. 14.8 TOC Surface
Production Excess 25%	Lead: 605 sx Interfill H with 0.3% HR-601, 5 lb/ sx Gilsonite, 0.125 lb/ sx Poly-E-Flake, mixed at 11.9 ppg. Yield 2.47 cf/ sx. Tail: 440 sx Super H with 0.5% Halad ® 344, 0.25% D-Air 3000, 0.4% CFR-3, 1 lb/ sx Salt, 5 lb/ sx Gilsonite, 0.125 lb/ sx Poly-E-Flake, 0.35% HR-7 mixed at 13.2 ppf. Yield 1.61 cf/ sx TOC Surface
Liner Excess 25%	451 sx 50:50 Poz:H + 2%D20 + 0.2% D112 + 0.2% D65, Yield 1.24, 14.58 ppg Centralizers every 3rd joint in lateral to provide adequate cement coverage every 100' unless lateral doglegs require greater spacing between centralizers.

According to the State Engineer, depth to groundwater is 21'. Fresh water zones will be protected by setting 13½" casing at 450 and cementing to surface. Hydrocarbon zones will be protected by setting 9½" casing at 1872 and 7" to 9240 and cementing to surface.

<u>Collapse Factor</u>	<u>Burst Factor</u>	<u>Tension Factor</u>
1.125	1.125	1.6

Application to Drill
Cottonwood Draw 22 Federal No. 6
Cimarex Energy Co. of Colorado
Unit L, Section 22
T25S-R26E, Eddy County, NM

12. Pressure control Equipment:

Exhibit "E". A 13 3/4" 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 1872.' 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. Mud/gas separator will be utilized if drilling in potential H2S area.

BOP unit will be hydraulically operated. BOP will be nipped up and operated at least once a day while drilling and the blind rams will be operated when out of hole during trips. No abnormal pressure or temperature is expected while drilling. From the base of the surface pipe through the running of production casing, the well will be equipped with a 5000 psi BOP system.

Before drilling out of the surface casing BOPs will be tested to 250 psi high and 3000 psi high by and independent service company. Hydril will be tested to 250 psi high and 1500 high. Before drilling out of the intermediate casing BOPs will be tested by an independent service company to 250 psi low and 5000 psi high. Hydril will be tested to 250 psi low and 2500 psi high.

Cimarex Energy Co. of Colorado (operator) requests a variance if Cactus 122 (rig name) is used to drill this well to use a co-flex line between the BOP and choke manifold.

Manufacturer: Midwest Hose & Specialty

Serial Number: 211964 See attached htdrostatic test report

Length: 35' Size: 4-1/16" Ends - flanges/clamps

WP rating: 10,000 psi Anchors required by manufacturer - Yes/No

13. Testing, Logging and Coring Program: *See COA*

- A. Mud logging program: No mud logging program.
- B. Electric logging program: CNL / LDT / CAL / GR, DLL / CAL / GR
- C. DSTs or Cores:

14. Potential Hazards:

No abnormal pressures or temperatures are expected. In accordance with Onshore Order 6, Cimarex has encountered H₂S 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 H₂S 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 4000 psi Estimated BHT 175°

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

Drilling expected to take 25-35 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.

Wolfcamp pay will be perforated and stimulated.

The proposed well will be tested and potentialized as a gas well.

Cimarex Energy Co. (Midland)

Eddy County (NM83E)

Sec 22 - T25S - R26

Cottonwood Draw 22 Fed #6

Wellbore #1

Plan: Plan #2

Standard Planning Report

30 March, 2011

Great White Directional Services

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Cottonwood Draw 22 Fed #6
Company:	Cimarex Energy Co. (Midland)	TVD Reference:	WELL @ 3356.0usft (Original Well Elev)
Project:	Eddy County (NM83E)	MD Reference:	WELL @ 3356.0usft (Original Well Elev)
Site:	Sec 22 - T25S - R26	North Reference:	Grid
Well:	Cottonwood Draw 22 Fed #6	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2		

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 22 - T25S - R26		
Site Position:	Northings:	407,849.00 usft	Latitude: 32° 7' 16.470 N
From: Map	Easting:	559,962.20 usft	Longitude: 104° 16' 23.419 W
Position Uncertainty:	0.0 usft	Slot Radius: 13-3/16"	Grid Convergence: 0.03°

Well	Cottonwood Draw 22 Fed #6		
Well Position	+N/-S	-3,102.2 usft	Northings: 404,746.80 usft
	+E/-W	220.2 usft	Easting: 560,182.40 usft
Position Uncertainty	0.0 usft	Wellhead Elevation:	Ground Level: 3,294.0 usft

Wellbore	Wellbore #1		
Magnetics	Model Name	Sample Date	Declination (°)
	IGRF2010	02/22/11	7.93
			Dip Angle (°)
			59.97
			Field Strength (nT)
			48,501

Design	Plan #2		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth: 0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)
	0.0	0.0	0.0
			Direction (°)
			273.96

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
9,340.0	0.00	0.00	9,340.0	0.0	0.0	0.00	0.00	0.00	0.00	
9,797.0	91.40	273.96	9,626.4	20.3	-292.8	20.00	20.00	0.00	273.96	
14,025.7	91.40	273.96	9,523.1	312.2	-4,510.2	0.00	0.00	0.00	0.00	Cottonwood #6

Great White Directional Services

Planning Report

Database:	EDM/5000.1/Single User Db	Local Co-ordinate Reference:	Well/Cottonwood Draw 22 Fed #6
Company:	Cimarex Energy Co. (Midland)	TVD Reference:	WELL @ 3356:0usft (Original Well Elev)
Project:	Eddy County (NM83E)	MD Reference:	WELL @ 3356:0usft (Original Well Elev)
Site:	Sec.22 - T25S - R26	North Reference:	Grid
Well:	Cottonwood Draw 22 Fed #6	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
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2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	0.00
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	0.00
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	0.00
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	0.00
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	0.00
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	0.00
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	0.00
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	0.00
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	0.00
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	0.00
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	0.00
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	0.00
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	0.00
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	0.00
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	0.00	0.00
4,600.0	0.00	0.00	4,600.0	0.0	0.0	0.0	0.00	0.00	0.00
4,700.0	0.00	0.00	4,700.0	0.0	0.0	0.0	0.00	0.00	0.00
4,800.0	0.00	0.00	4,800.0	0.0	0.0	0.0	0.00	0.00	0.00
4,900.0	0.00	0.00	4,900.0	0.0	0.0	0.0	0.00	0.00	0.00
5,000.0	0.00	0.00	5,000.0	0.0	0.0	0.0	0.00	0.00	0.00
5,100.0	0.00	0.00	5,100.0	0.0	0.0	0.0	0.00	0.00	0.00
5,200.0	0.00	0.00	5,200.0	0.0	0.0	0.0	0.00	0.00	0.00
5,300.0	0.00	0.00	5,300.0	0.0	0.0	0.0	0.00	0.00	0.00

Great White Directional Services

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Cottonwood Draw 22 Fed #6
Company:	Cimarex Energy Co. (Midland)	TVD Reference:	WELL @ 3356.0usft (Original Well Elev)
Project:	Eddy County (NM83E)	MD Reference:	WELL @ 3356.0usft (Original Well Elev)
Site:	Sec 22 - T25S - R26	North Reference:	Grid
Well:	Cottonwood Draw 22 Fed #6	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
5,400.0	0.00	0.00	5,400.0	0.0	0.0	0.0	0.00	0.00	0.00	
5,500.0	0.00	0.00	5,500.0	0.0	0.0	0.0	0.00	0.00	0.00	
5,600.0	0.00	0.00	5,600.0	0.0	0.0	0.0	0.00	0.00	0.00	
5,700.0	0.00	0.00	5,700.0	0.0	0.0	0.0	0.00	0.00	0.00	
5,800.0	0.00	0.00	5,800.0	0.0	0.0	0.0	0.00	0.00	0.00	
5,900.0	0.00	0.00	5,900.0	0.0	0.0	0.0	0.00	0.00	0.00	
6,000.0	0.00	0.00	6,000.0	0.0	0.0	0.0	0.00	0.00	0.00	
6,100.0	0.00	0.00	6,100.0	0.0	0.0	0.0	0.00	0.00	0.00	
6,200.0	0.00	0.00	6,200.0	0.0	0.0	0.0	0.00	0.00	0.00	
6,300.0	0.00	0.00	6,300.0	0.0	0.0	0.0	0.00	0.00	0.00	
6,400.0	0.00	0.00	6,400.0	0.0	0.0	0.0	0.00	0.00	0.00	
6,500.0	0.00	0.00	6,500.0	0.0	0.0	0.0	0.00	0.00	0.00	
6,600.0	0.00	0.00	6,600.0	0.0	0.0	0.0	0.00	0.00	0.00	
6,700.0	0.00	0.00	6,700.0	0.0	0.0	0.0	0.00	0.00	0.00	
6,800.0	0.00	0.00	6,800.0	0.0	0.0	0.0	0.00	0.00	0.00	
6,900.0	0.00	0.00	6,900.0	0.0	0.0	0.0	0.00	0.00	0.00	
7,000.0	0.00	0.00	7,000.0	0.0	0.0	0.0	0.00	0.00	0.00	
7,100.0	0.00	0.00	7,100.0	0.0	0.0	0.0	0.00	0.00	0.00	
7,200.0	0.00	0.00	7,200.0	0.0	0.0	0.0	0.00	0.00	0.00	
7,300.0	0.00	0.00	7,300.0	0.0	0.0	0.0	0.00	0.00	0.00	
7,400.0	0.00	0.00	7,400.0	0.0	0.0	0.0	0.00	0.00	0.00	
7,500.0	0.00	0.00	7,500.0	0.0	0.0	0.0	0.00	0.00	0.00	
7,600.0	0.00	0.00	7,600.0	0.0	0.0	0.0	0.00	0.00	0.00	
7,700.0	0.00	0.00	7,700.0	0.0	0.0	0.0	0.00	0.00	0.00	
7,800.0	0.00	0.00	7,800.0	0.0	0.0	0.0	0.00	0.00	0.00	
7,900.0	0.00	0.00	7,900.0	0.0	0.0	0.0	0.00	0.00	0.00	
8,000.0	0.00	0.00	8,000.0	0.0	0.0	0.0	0.00	0.00	0.00	
8,100.0	0.00	0.00	8,100.0	0.0	0.0	0.0	0.00	0.00	0.00	
8,200.0	0.00	0.00	8,200.0	0.0	0.0	0.0	0.00	0.00	0.00	
8,300.0	0.00	0.00	8,300.0	0.0	0.0	0.0	0.00	0.00	0.00	
8,400.0	0.00	0.00	8,400.0	0.0	0.0	0.0	0.00	0.00	0.00	
8,500.0	0.00	0.00	8,500.0	0.0	0.0	0.0	0.00	0.00	0.00	
8,600.0	0.00	0.00	8,600.0	0.0	0.0	0.0	0.00	0.00	0.00	
8,700.0	0.00	0.00	8,700.0	0.0	0.0	0.0	0.00	0.00	0.00	
8,800.0	0.00	0.00	8,800.0	0.0	0.0	0.0	0.00	0.00	0.00	
8,900.0	0.00	0.00	8,900.0	0.0	0.0	0.0	0.00	0.00	0.00	
9,000.0	0.00	0.00	9,000.0	0.0	0.0	0.0	0.00	0.00	0.00	
9,100.0	0.00	0.00	9,100.0	0.0	0.0	0.0	0.00	0.00	0.00	
9,200.0	0.00	0.00	9,200.0	0.0	0.0	0.0	0.00	0.00	0.00	
9,300.0	0.00	0.00	9,300.0	0.0	0.0	0.0	0.00	0.00	0.00	
9,340.0	0.00	0.00	9,340.0	0.0	0.0	0.0	0.00	0.00	0.00	
9,400.0	12.00	273.96	9,399.6	0.4	-6.2	6.3	20.00	20.00	0.00	
9,500.0	32.00	273.96	9,491.8	3.0	-43.4	43.5	20.00	20.00	0.00	
9,600.0	52.00	273.96	9,565.7	7.6	-109.8	110.1	20.00	20.00	0.00	
9,700.0	72.00	273.96	9,612.5	13.7	-197.5	198.0	20.00	20.00	0.00	
9,797.0	91.40	273.96	9,626.4	20.3	-292.8	293.5	20.00	20.00	0.00	
9,800.0	91.40	273.96	9,626.3	20.5	-295.8	296.5	0.00	0.00	0.00	
9,900.0	91.40	273.96	9,623.9	27.4	-395.5	396.4	0.00	0.00	0.00	
10,000.0	91.40	273.96	9,621.4	34.3	-495.2	496.4	0.00	0.00	0.00	
10,100.0	91.40	273.96	9,619.0	41.2	-595.0	596.4	0.00	0.00	0.00	
10,200.0	91.40	273.96	9,616.5	48.1	-694.7	696.4	0.00	0.00	0.00	
10,300.0	91.40	273.96	9,614.1	55.0	-794.4	796.3	0.00	0.00	0.00	
10,400.0	91.40	273.96	9,611.7	61.9	-894.2	896.3	0.00	0.00	0.00	
10,500.0	91.40	273.96	9,609.2	68.8	-993.9	996.3	0.00	0.00	0.00	

Great White Directional Services

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well: Cottonwood Draw.22.Fed #6
Company:	Cimarex Energy Co. (Midland)	TVD Reference:	WELL @ 3356.0usft. (Original Well Elev)
Project:	Eddy County (NM83E)	MD Reference:	WELL @ 3356.0usft. (Original Well Elev)
Site:	Sec 22 - T25S - R26	North Reference:	Grid
Well:	Cottonwood Draw.22.Fed #6	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
10,600.0	91.40	273.96	9,606.8	75.7	-1,093.6	1,096.2	0.00	0.00	0.00	
10,700.0	91.40	273.96	9,604.3	82.6	-1,193.4	1,196.2	0.00	0.00	0.00	
10,800.0	91.40	273.96	9,601.9	89.5	-1,293.1	1,296.2	0.00	0.00	0.00	
10,900.0	91.40	273.96	9,599.4	96.4	-1,392.8	1,396.1	0.00	0.00	0.00	
11,000.0	91.40	273.96	9,597.0	103.3	-1,492.5	1,496.1	0.00	0.00	0.00	
11,100.0	91.40	273.96	9,594.6	110.2	-1,592.3	1,596.1	0.00	0.00	0.00	
11,200.0	91.40	273.96	9,592.1	117.1	-1,692.0	1,696.1	0.00	0.00	0.00	
11,300.0	91.40	273.96	9,589.7	124.0	-1,791.7	1,796.0	0.00	0.00	0.00	
11,400.0	91.40	273.96	9,587.2	130.9	-1,891.5	1,896.0	0.00	0.00	0.00	
11,500.0	91.40	273.96	9,584.8	137.8	-1,991.2	1,996.0	0.00	0.00	0.00	
11,600.0	91.40	273.96	9,582.3	144.7	-2,090.9	2,095.9	0.00	0.00	0.00	
11,700.0	91.40	273.96	9,579.9	151.6	-2,190.7	2,195.9	0.00	0.00	0.00	
11,800.0	91.40	273.96	9,577.5	158.6	-2,290.4	2,295.9	0.00	0.00	0.00	
11,900.0	91.40	273.96	9,575.0	165.5	-2,390.1	2,395.9	0.00	0.00	0.00	
12,000.0	91.40	273.96	9,572.6	172.4	-2,489.9	2,495.8	0.00	0.00	0.00	
12,100.0	91.40	273.96	9,570.1	179.3	-2,589.6	2,595.8	0.00	0.00	0.00	
12,200.0	91.40	273.96	9,567.7	186.2	-2,689.3	2,695.8	0.00	0.00	0.00	
12,300.0	91.40	273.96	9,565.2	193.1	-2,789.1	2,795.7	0.00	0.00	0.00	
12,400.0	91.40	273.96	9,562.8	200.0	-2,888.8	2,895.7	0.00	0.00	0.00	
12,500.0	91.40	273.96	9,560.4	206.9	-2,988.5	2,995.7	0.00	0.00	0.00	
12,600.0	91.40	273.96	9,557.9	213.8	-3,088.3	3,095.6	0.00	0.00	0.00	
12,700.0	91.40	273.96	9,555.5	220.7	-3,188.0	3,195.6	0.00	0.00	0.00	
12,800.0	91.40	273.96	9,553.0	227.6	-3,287.7	3,295.6	0.00	0.00	0.00	
12,900.0	91.40	273.96	9,550.6	234.5	-3,387.4	3,395.6	0.00	0.00	0.00	
13,000.0	91.40	273.96	9,548.1	241.4	-3,487.2	3,495.5	0.00	0.00	0.00	
13,100.0	91.40	273.96	9,545.7	248.3	-3,586.9	3,595.5	0.00	0.00	0.00	
13,200.0	91.40	273.96	9,543.3	255.2	-3,686.6	3,695.5	0.00	0.00	0.00	
13,300.0	91.40	273.96	9,540.8	262.1	-3,786.4	3,795.4	0.00	0.00	0.00	
13,400.0	91.40	273.96	9,538.4	269.0	-3,886.1	3,895.4	0.00	0.00	0.00	
13,500.0	91.40	273.96	9,535.9	275.9	-3,985.8	3,995.4	0.00	0.00	0.00	
13,600.0	91.40	273.96	9,533.5	282.8	-4,085.6	4,095.3	0.00	0.00	0.00	
13,700.0	91.40	273.96	9,531.0	289.7	-4,185.3	4,195.3	0.00	0.00	0.00	
13,800.0	91.40	273.96	9,528.6	296.6	-4,285.0	4,295.3	0.00	0.00	0.00	
13,900.0	91.40	273.96	9,526.1	303.5	-4,384.8	4,395.3	0.00	0.00	0.00	
14,000.0	91.40	273.96	9,523.7	310.4	-4,484.5	4,495.2	0.00	0.00	0.00	
14,025.7	91.40	273.96	9,523.1	312.2	-4,510.2	4,520.9	0.00	0.00	0.00	

Design Targets										
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	
Shape	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)			
Cottonwood #6	0.00	0.00	9,527.0	312.0	-4,510.2	405,058.77	555,672.23	32° 6' 48.878 N	104° 17' 13.320 W	
- plan misses target center by 3.9usft at 14025.6usft MD (9523.1 TVD, 312.2 N, -4510.1 E)										
- Point										

Great White Directional Services

Planning Report

Database:	EDM:5000.1 Single User Db	Local Co-ordinate Reference:	Well Cottonwood Draw 22 Fed #6
Company:	Cimarex Energy Co. (Midland)	TVD Reference:	WELL @ 3356.0usft (Original Well Elev)
Project:	Eddy County (NM83E)	MD Reference:	WELL @ 3356.0usft (Original Well Elev)
Site:	Sec 22 - T25S - R26	North Reference:	Grid
Well:	Cottonwood Draw 22 Fed #6	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #2		

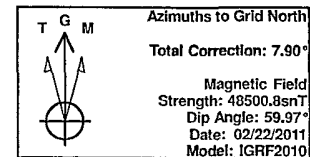
Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction	
8,617.0	8,617.0	Wolfcamp		0.00		
9,206.0	9,206.0	Wolfcamp B		0.00		
9,370.1	9,370.0	Wolfcamp C		0.00		
9,488.6	9,482.0	Wolfcamp D		0.00		

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
9,340.0	9,340.0	0.0	0.0	KOP 20°/100 @ 273.96° AZI	
9,797.0	9,626.4	20.3	-292.8	EOC - 4228.7 hold at 9797.0 MD	
14,025.7	9,523.1	312.2	-4,510.2	TD at 14025.7	



Cimarex Energy Co. (Midland)
 Project: Eddy County (NM83E)
 Site: Sec 22 - T25S - R26
 Well: Cottonwood Draw 22 Fed #6
 Wellbore: Wellbore #1

WELL DETAILS: Cottonwood Draw 22 Fed #6						
+N/-S 0.0	+E/-W 0.0	Northing 404746.80	Ground Level: 3294.0 Easting 560182.40	Latitude 32° 6' 45.769 N	Longitude 104° 16' 20.879 W	
SHL: 1700' FSL / 150' FEL BHL: 1980' FSL / 660' FWL						

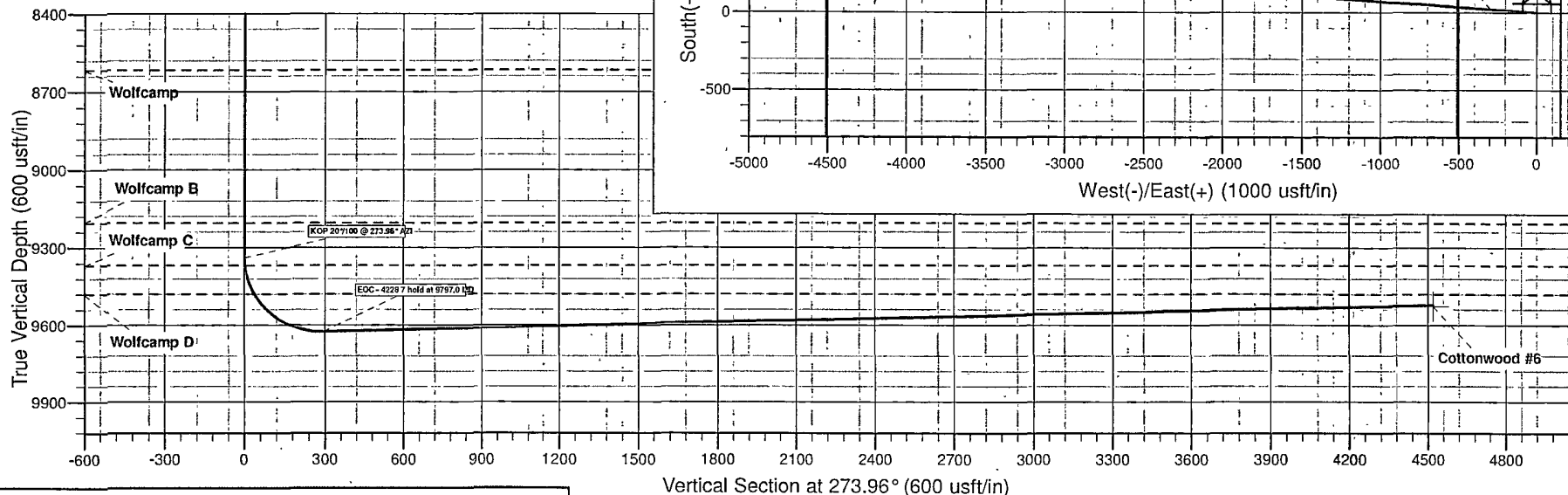
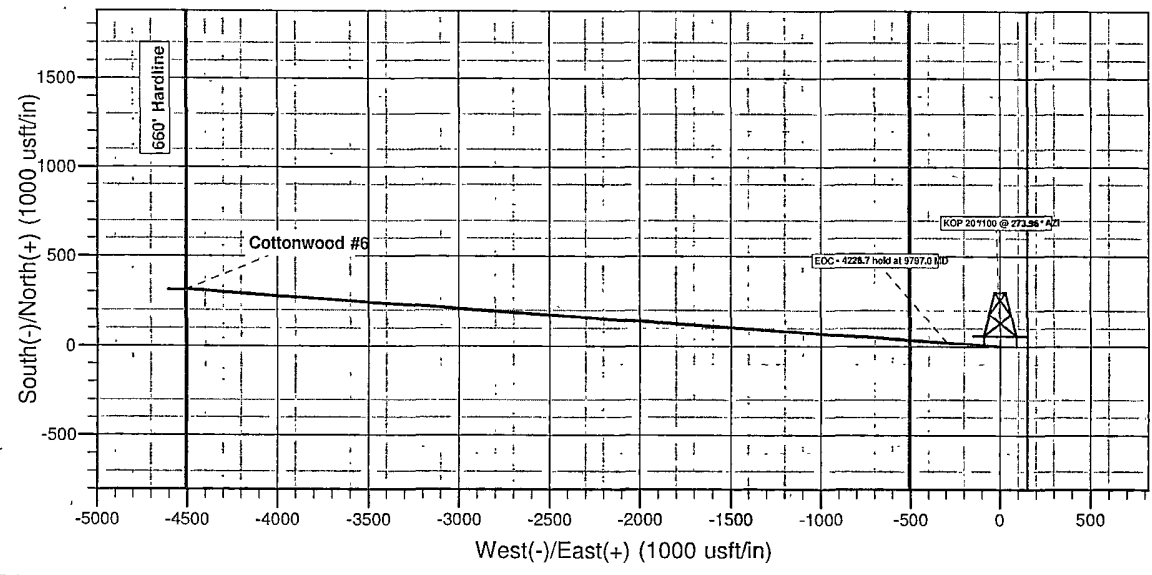


WELLBORE TARGET DETAILS (LAT/LONG)						
Name Cottonwood #6	TVD 9527.0	+N/-S 312.0	+E/-W -4510.2	Latitude 32° 6' 48.878 N	Longitude 104° 17' 13.320 W	

ANNOTATIONS									
TVD	MD	Inc	Azi	+N/-S	+E/-W	V-Sect	Departure	Annotation	
9340.0	9340.0	0.00	0.00	0.0	0.0	0.0	0.0	KOP 20°100 @ 273.96° AZI	
9626.4	9797.0	91.40	273.96	20.3	-292.8	293.5	293.5	EOC - 4228.7 hold at 9797.0 MD	
9523.1	14025.7	91.40	273.96	312.2	-4510.2	4520.9	4520.9	TD at 14025.7	

SECTION DETAILS									
TVD	MD	Inc	Azi	+N/-S	+E/-W	V-Sect	Departure	Annotation	
9340.0	9340.0	0.00	0.00	0.0	0.0	0.0	0.0	KOP 20°100 @ 273.96° AZI	
9626.4	9797.0	91.40	273.96	20.3	-292.8	293.5	293.5	EOC - 4228.7 hold at 9797.0 MD	
9523.1	14025.7	91.40	273.96	312.2	-4510.2	4520.9	4520.9	TD at 14025.7	

FORMATION TOP DETAILS					
TVDPath	MDPath	Formation	DipAngle	DipDir	
8617.0	8617.0	Wolfcamp	0.00		
9206.0	9206.0	Wolfcamp B	0.00		
9370.0	9370.1	Wolfcamp C	0.00		
9482.0	9488.6	Wolfcamp D	0.00		



Plan Plan #2 (Cottonwood Draw 22 Fed #6/Wellbore #1)

Created By: Mirenda Morgan

Date: 9 28, March 30 2011

SR & A

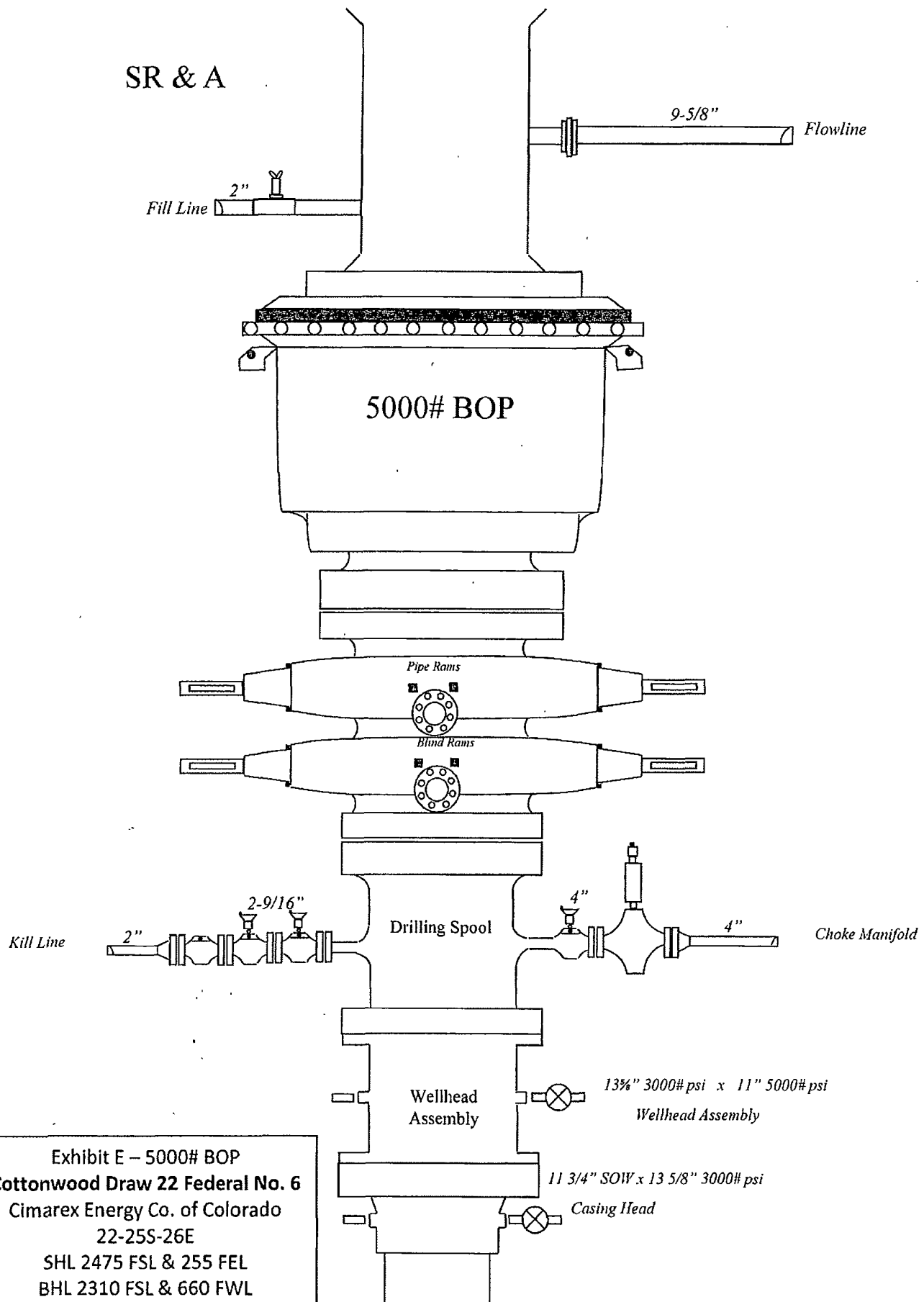
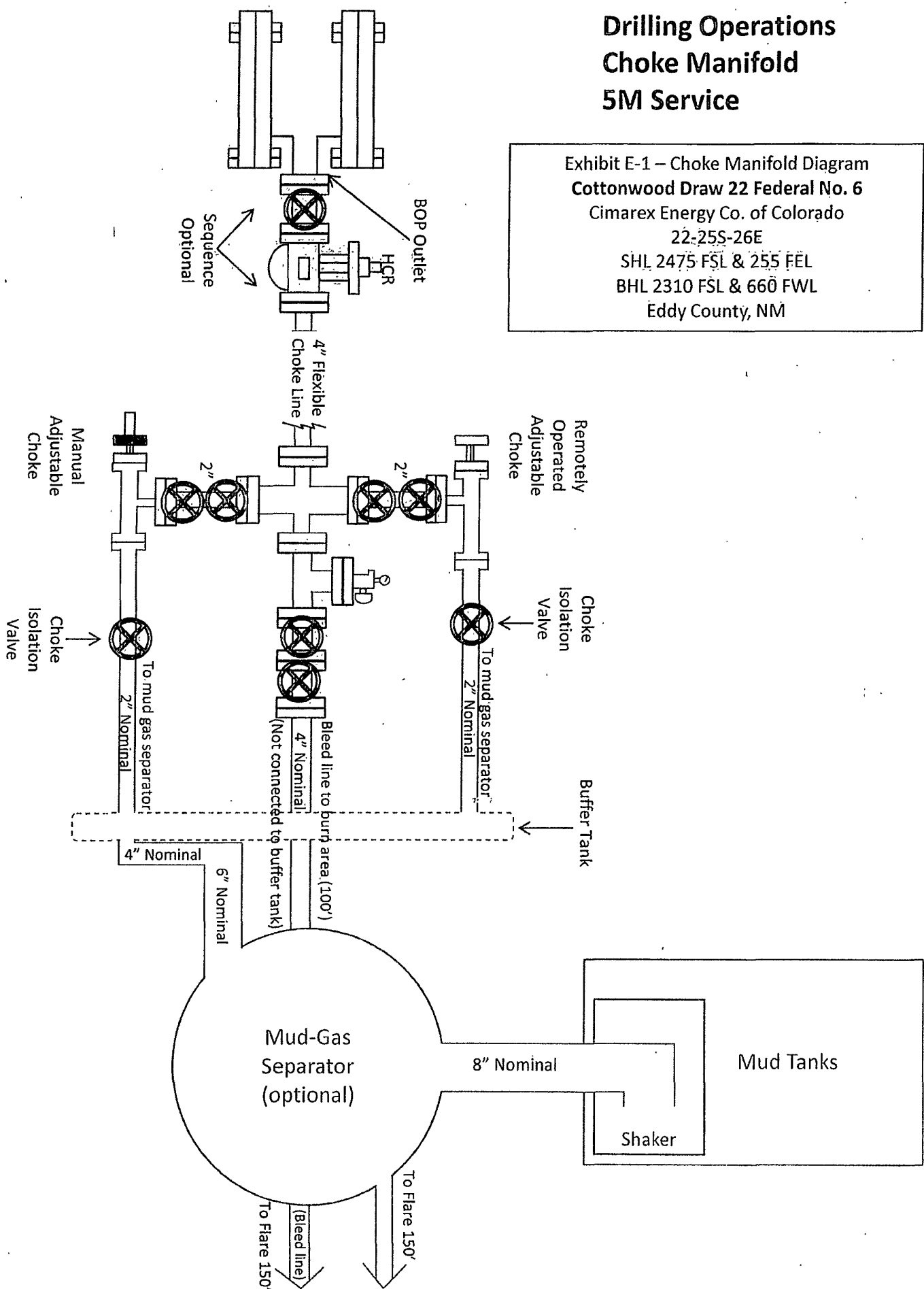


Exhibit E – 5000# BOP
Cottonwood Draw 22 Federal No. 6
Cimarex Energy Co. of Colorado
22-25S-26E
SHL 2475 FSL & 255 FEL
BHL 2310 FSL & 660 FWL
Eddy County, NM

Drilling Operations Choke Manifold 5M Service

Exhibit E-1 – Choke Manifold Diagram
Cottonwood Draw 22 Federal No. 6
 Cimarex Energy Co. of Colorado
 22-25S-26E
 SHL 2475 FSL & 255 FEL
 BHL 2310 FSL & 660 FWL
 Eddy County, NM



M I D W E S T
HOSE AND SPECIALTY INC.

INTERNAL HYDROSTATIC TEST REPORT			
Customer: CACTUS		P.O. Number: Asset#M4812	
HOSE SPECIFICATIONS			
Type: CHOKER LINE		Length: 35'	
I.D. 4" INCHES		O.D. 8" INCHES	
WORKING PRESSURE 10,000 PSI	TEST PRESSURE 15,000 PSI		BURST PRESSURE PSI
COUPLINGS			
Type of End Fitting 4 1/16 10K FLANGE			
Type of Coupling: SWEDGED		MANUFACTURED BY MIDWEST HOSE & SPECIALTY	
PROCEDURE			
<u>Hose assembly pressure tested with water at ambient temperature.</u>			
TIME HELD AT TEST PRESSURE 15 MIN.		ACTUAL BURST PRESSURE: 0 PSI	
COMMENTS: s/n#O211964 Hose is covered with stainless steel armour cover and wrapped with fire resistant vermiculite coated fiberglass insulation rated for 1500 degrees complete with lifting eyes			
Date: 6/28/2006	Tested By: BOBBY FINK		Approved: MENDI JACKSON

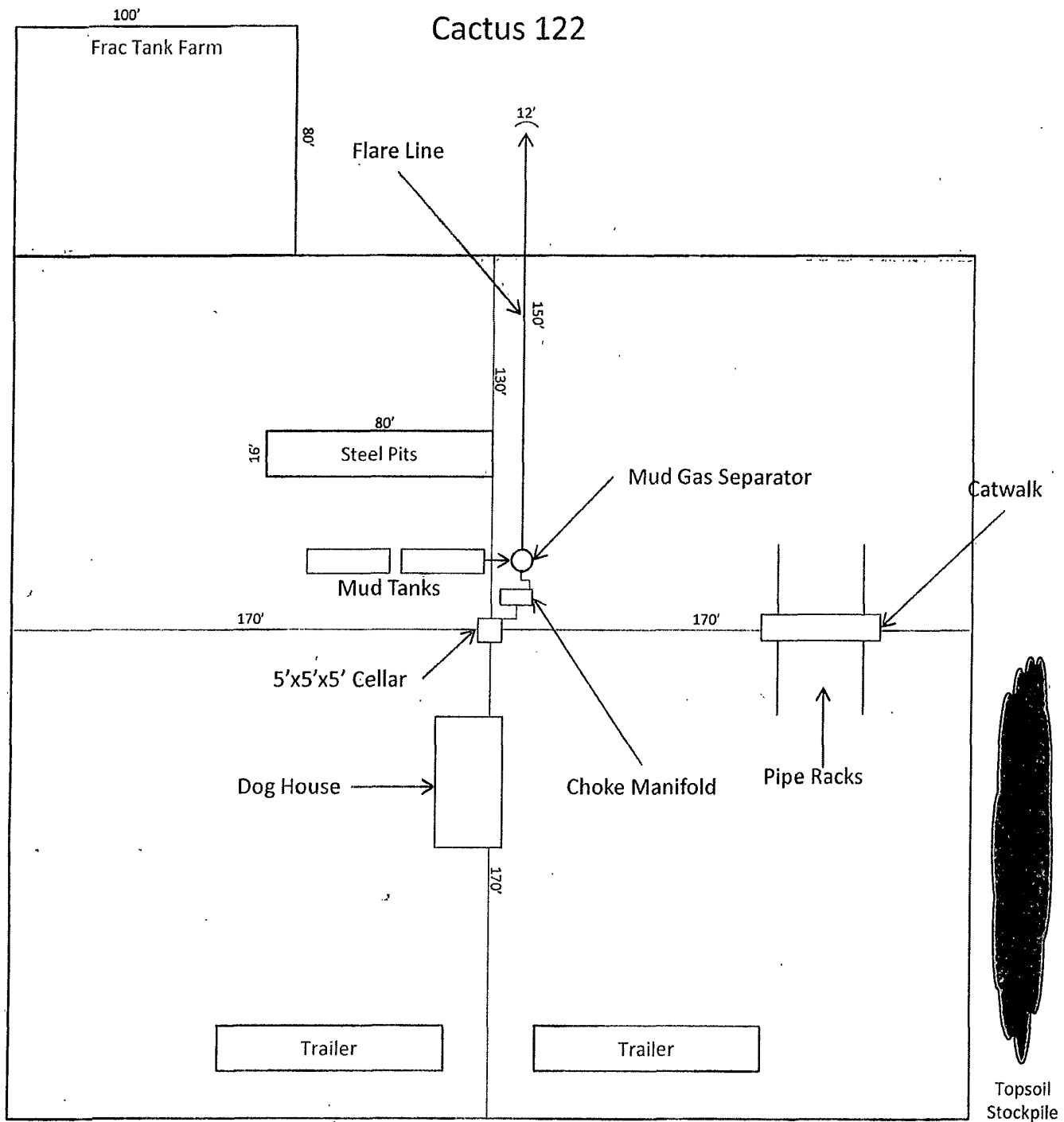


Midwest Hose
& Specialty, Inc.

Specification Sheet Choke & Kill Hose

The Midwest Hose & Specialty Choke & Kill hose is manufactured with only premium components. The reinforcement cables, inner liner and cover are made of the highest quality material to handle the tough drilling applications of today's industry. The end connections are available with API flanges, API male threads, hubs, hammer unions or other special fittings upon request. Hose assembly is manufactured to API 7K. This assembly is wrapped with fire resistant vermiculite coated fiberglass insulation, rated at 2000 degrees with stainless steel armor cover.

Working Pressure:	5,000 or 10,000 psi working pressure
Test Pressure:	10,000 or 15,000 psi test pressure
Reinforcement:	Multiple steel cables
Cover:	Stainless Steel Armor
Inner Tube:	Petroleum resistant, Abrasion resistant
End Fitting:	API flanges, API male threads, threaded or butt weld hammer unions, unbolt and other special connections
Maximum Length:	110 Feet
ID:	2-1/2", 3", 3-1/2", 4"
Operating Temperature:	-22 deg F to +180 deg F (-30 deg C to +82 deg C)



1"=50'

Exhibit D – Rig Diagram
Cottonwood Draw 22 Federal No. 6
 Cimarex Energy Co. of Colorado
 22-25S-26E
 SHL 2475 FSL & 255 FEL
 BHL 2310 FSL & 660 FWL
 Eddy County, NM

Hydrogen Sulfide Drilling Operations Plan
Cottonwood Draw 22 Federal No. 6
Cimarex Energy Co. of Colorado
Unit L, Section 22
T25S-R26E, Eddy County, NM

H₂S 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 H₂S 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 ₂ S Concentration	11,000 ppm
100' ROE	6'
500' ROE	3'

Cimarex will have 24-hour H₂S 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 ₂ S 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 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.

4. 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.

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 (H₂S present in dangerous concentration). Only emergency personnel admitted to location.

Hydrogen Sulfide Drilling Operations Plan
Cottonwood Draw 22 Federal No. 6
Cimarex Energy Co. of Colorado
Unit L, Section 22
T25S-R26E, Eddy County, NM

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:
DSTs or Cores:
10. Drilling contractor supervisor will be required to be familiar with the effects H₂S has on tubular goods and other mechanical equipment.
11. 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.

H₂S Contingency Plan
Cottonwood Draw 22 Federal No. 6
Cimarex Energy Co. of Colorado
Unit L, Section 22
T25S-R26E, Eddy County, NM

Emergency Procedures

In the event of a release of gas containing H₂S, 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 H₂S 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 H₂S, 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 (SO₂). 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 H₂S and SO₂

Common Name	Chemical Formula	Specific Gravity	Threshold Limit	Hazardous Limit	Lethal Concentration
Hydrogen Sulfide	H ₂ S	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).

H₂S Contingency Plan Emergency Contacts

Cottonwood Draw 22 Federal No. 6

Cimarex Energy Co. of Colorado

Unit L, Section 22

T25S-R26E, Eddy County, NM

Company Office

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

Key Personnel

Name	Title	Office	Mobile
Doug Park	Drilling Manager	432-620-1934	972-333-1407
Dee Smith	Drilling Super	432-620-1933	972-882-1010
Jim Evans	Drilling Super	432-620-1929	972-465-0564
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
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Medical

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

Other

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

PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME:	CIMAREX ENERGY
LEASE NO.:	NM94839
WELL NAME & NO.:	COTTONWOOD DRAW 22 FEDERAL 6
SURFACE HOLE FOOTAGE:	1700' FSL & 150' FEL
BOTTOM HOLE FOOTAGE:	1980' FSL & 600' FEL
LOCATION:	Section 22, 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.

- ☐ **General Provisions**
- ☐ **Permit Expiration**
- ☐ **Archaeology, Paleontology, and Historical Sites**
- ☐ **Noxious Weeds**
- ☒ **Special Requirements**
 - Cave/karst
- ☐ **Construction**
 - Notification
 - Topsoil
 - Closed Loop System
 - Federal Mineral Material Pits
 - Well Pads
 - Roads
- ☐ **Road Section Diagram**
- ☒ **Drilling**
 - Logging Requirements
 - Critical Cave/Karst
 - Waste Material and Fluids
- ☐ **Production (Post Drilling)**
 - Well Structures & Facilities
 - Pipelines
 - Electric Lines
- ☒ **Interim Reclamation**
- ☒ **Final Abandonment & Reclamation**

I. GENERAL PROVISIONS

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

II. PERMIT EXPIRATION

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

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

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

IV. NOXIOUS WEEDS

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

V. SPECIAL REQUIREMENT(S)

- Any water erosion that may occur due to the construction of the well pad during the life of the well will be quickly corrected and proper measures will be taken to prevent future erosion.
- Stockpiling of topsoil is required. The top soil shall be stockpiled in an appropriate location to prevent loss of soil due to water or wind erosion and not used for berming or erosion control

Cave and Karst

** Depending on location, additional Drilling, Casing, and Cementing procedures may be required by engineering to protect critical karst groundwater recharge areas.

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 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, siting valves 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 valves, 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.

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 in a low profile manner in order to prevent wind/water erosion of the topsoil. The topsoil to be stripped is approximately 4 inches in depth. The topsoil will be used for interim and final reclamation.

C. CLOSED LOOP SYSTEM

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

Payment shall be made to the BLM prior to removal of any federal mineral materials. 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 twenty (20) feet.

Surfacing

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

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

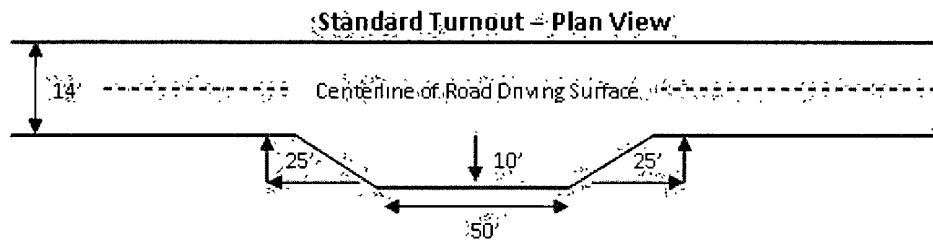
The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing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

Crowning

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

Turnouts

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

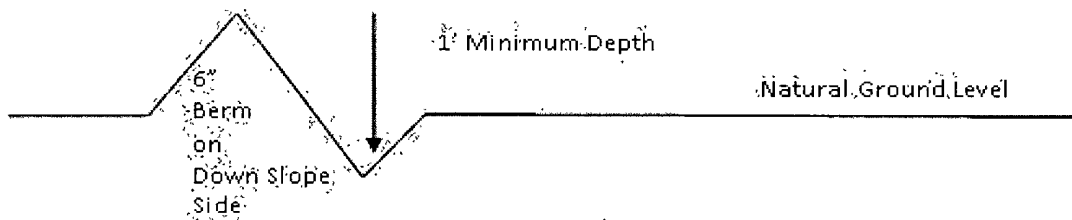


Drainage

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

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

Cross Section of a Typical Lead-off Ditch



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be

determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

Formula for Spacing Interval of Lead-off Ditches

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

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

Culvert Installations

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

Cattleguards

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

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

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

Fence Requirement

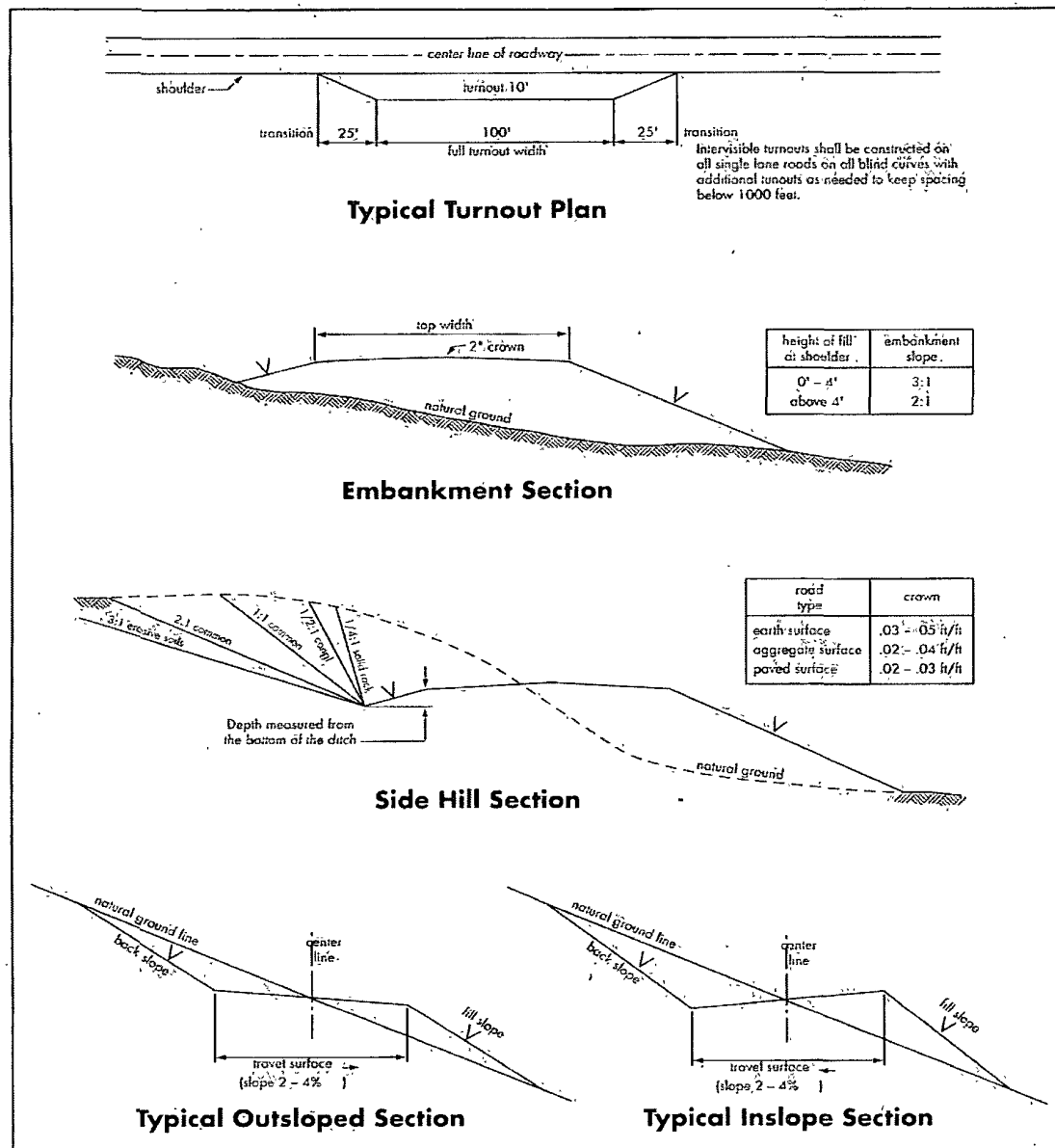
Where entry is required across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting.

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

Public Access

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

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 prior to drilling out the surface shoe. 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 provide measured values 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. **If the drilling rig is removed without approval – an Incident of Non-Compliance will be written and will be a “Major” violation.**
3. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.
4. **The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies.**

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 prior to drilling out 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. DURING THIS WOC TIME, NO DRILL PIPE, ETC. SHALL BE RUN IN THE HOLE. 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

Possible lost circulation in the Delaware.

Possible high pressure in the Wolfcamp formation.

1. The 13-3/8 inch surface casing shall be set at **approximately 450 feet (a minimum of 25 feet above the salt)** 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. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
 - 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 cementing will be done prior to drilling out that string.

Formation below the 13-3/8" shoe to be tested according to Onshore Order 2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe and the mud weight for the bottom of the hole. Report results to BLM office.

2. The minimum required fill of cement behind the **9-5/8** inch intermediate casing, **which is to be set in the Lamar or Castile at approximately 1840'**, 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. Additional cement may be required – excess calculates to 22%.

Formation below the 9-5/8" shoe to be tested according to Onshore Order 2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe (not the mud weight required to prevent dissolving the salt formation) and the mud weight for the bottom of the hole. Report results to BLM office.

Centralizers required on horizontal leg, must be type for horizontal service and a minimum of one every third joint unless lateral doglegs require greater spacing between centralizers.

The pilot hole plugging procedure is approved as written.

3. The minimum required fill of cement behind the **7** inch production casing is:

- ☒ Cement to surface. If cement does not circulate, contact the appropriate BLM office.

4. The minimum required fill of cement behind the **4-1/2** inch production casing is:

- ☒ Cement to top of liner. If cement does not come to the top of the liner, contact the appropriate BLM office. **Additional cement may be required – excess calculates to 18%.**

5. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

C. PRESSURE CONTROL

1. 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. **Variance approved to use flex line with Serial #211964 from BOP to choke manifold. Check condition of 4-1/16" flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. Anchor requirements to be onsite for review. If the BLM inspector questions the straightness of the hose, a BLM engineer will be contacted and will review in the field or via picture supplied by inspector to determine if changes are required (operator shall expect delays if this occurs).**
3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **5000 (5M) psi. 5M system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.**
4. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
 - a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips or where the float does not hold, the minimum wait time before cut-off is eight hours after bumping the plug or when the cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. BOP/BOPE testing can begin after the above conditions are satisfied.
 - b. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer.**
 - c. The results of the test shall be reported to the appropriate BLM office.
 - d. All tests are required to be recorded on a calibrated test chart. **A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.**
 - e. 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.
 - f. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the **Wolfcamp** formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

D. DRILL STEM TEST

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

E. DRILLING MUD

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the **Wolfcamp** formation, and shall be used until production casing is run and cemented.

F. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

CRW 082411

VIII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

Placement of Production Facilities

Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

Containment Structures

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

Painting Requirement

All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color
Shale Green, Munsell Soil Color Chart # 5Y 4/2

B. PIPELINES (not applied for in APD)

C. ELECTRIC LINES (not applied for in APD)

IX. 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.

Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce the size of the location. Interim reclamation 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 that is free of contaminants 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.

All disturbed areas after they have been satisfactorily prepared need to be reseeded with the seed mixture provided below.

Upon completion of interim reclamation, the operator shall submit a Sundry Notices and Reports on Wells, Subsequent Report of Reclamation (Form 3160-5).

X. FINAL ABANDONMENT & RECLAMATION

At final abandonment, well locations, production facilities, and access roads must undergo "final" reclamation so that the character and productivity of the land are restored.

Earthwork for final reclamation must be completed within six (6) months of well plugging. All pads, pits, facility locations and roads must be reclaimed to a satisfactory revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

After all disturbed areas have been satisfactorily prepared, these areas need to be revegetated with the seed mixture provided below. Seeding should be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (Jim Amos: 575-234-5909).

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:

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

DWS: DeWinged Seed

*Pounds of pure live seed:

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