

OCD-ARTESIA

ATS-10-533

EA-14-727

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: ☒ DRILL ☐ REENTER1b. Type of Well. ☐ Oil Well ☒ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone

2 Name of Operator

Cimarex Energy Co. of Colorado

3a. Address

600 N. Marienfeld St., Ste. 600; Midland, TX 79701

3b. Phone No (include area code)

432-571-7800

4 Location of Well (Report location clearly and in accordance with any State requirements. *)

At Surface

890 FNL & 400 FEL (A)

At proposed prod Zone

660 FNL & 660 FWL

Horizontal Wolfcamp Test

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) 400

16. No of acres in lease

NM-94839 - 1480 acres

NM-19423 - 2560 acres

17 Spacing Unit dedicated to this well

N2 320 acres

18 Distance from proposed location*
to nearest well, drilling, completed,
applied for, on this lease, ft.

362

19. Proposed Depth

Pilot Hole 10250

✓ MD 13747, TVD 9527

20. BLM/BIA Bond No. on File

NM-2575

21. Elevations (Show whether DF, KDB, RT, GL, etc.)

3340' 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

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

04.01.11

Title

Manager Operations Administration

Approved By (Signature)

/s/ Don Peterson

Name (Printed/Typed)

/s/ Don Peterson

Date

AUG 24 2011

Title

FIELD MANAGER

Office

CARLSBAD FIELD OFFICE

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

Conditions of approval, if any, are attached

APPROVAL FOR TWO YEARS

Title 18 U.S.S. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United

States any false, fictitious, or fraudulent statements or representations as to any matter within its jurisdiction

Wellbore Surface &
Intermediate CasingSEE ATTACHED FOR
CONDITIONS OF APPROVALAPPROVAL SUBJECT TO Carlsbad Controlled Water Basin
GENERAL REQUIREMENTS
AND SPECIAL STIPULATIONS
ATTACHED

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Application to Drill
Cottonwood Draw 22 Federal Com No. 8
Cimarex Energy Co. of Colorado
Unit A, 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 890 FNL & 400 FEL
 BHL 660 FNL & 660 FWL
2. Elevation above sea level: 3340' 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 13747, TVD 9527 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 8¾" hole to 9241 and set 7" casing from 0-9241 and cement. Then drill out of 7" shoe with 6⅞" 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 6⅞" bit @ 9341 to drill lateral. Drill to TD 13747 MD, 9527 TVD and run 4½" liner from liner hanger at 9041 to TD and cement liner. 9627

Application to Drill
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 Cimarex Energy Co. of Colorado
 Unit A, 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	10	28-29	NC	Saturated Brine. Sweep as needed to clean hole.
1872 to 9241	9.0	28-30	NC	Cut brine. Sweep as needed to clean hole.
9241 to 13747	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 1872	New 9½"	40#	LTC	J-55
Production	8¾"	0 to 9241	New 7"	26#	LTC	P-110
Liner	6¾"	9041 to 13747	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 9241 and cementing to surface.

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

See
COA

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Cimarex Energy Co. of Colorado
Unit A, Section 22
T25S-R26E, Eddy County, NM

12. Pressure control Equipment:

Exhibit "E". A 13½" 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 215.' 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.

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 Com #8

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 Com #8
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 Com #8	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:	Map	Northing:	407,849.00 usft
From:		Easting:	559,962.20 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 7' 16.470 N
		Longitude:	104° 16' 23.419 W
		Grid Convergence:	0.03 °

Well	Cottonwood Draw 22 Fed Com #8		
Well Position	+N/-S	-409.4 usft	Northing:
	+E/-W	-38.6 usft	Easting:
Position Uncertainty	0.0 usft	Wellhead Elevation:	Ground Level:
			3,340.0 usft

Wellbore	Wellbore #1		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2010	02/22/11	7.93
			Dip Angle
			(°)
			59.97
			Field Strength
			(nT)
			48,505

Design	Plan #2		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth:
			0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.0	0.0	0.0
			Direction
			(°)
			273.85

Plan Sections										
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Dogleg	Build	Turn	TFO	Target
Depth	(°)	(°)	Depth	(usft)	(usft)	Rate	Rate	Rate	(°)	
(usft)			(usft)			(°/100usft)	(°/100usft)	(°/100usft)		
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
9,340.6	0.00	0.00	9,340.6	0.0	0.0	0.00	0.00	0.00	0.00	
9,797.8	91.45	273.85	9,627.0	19.7	-293.1	20.00	20.00	0.00	273.85	
13,747.0	91.45	273.86	9,527.0	285.1	-4,232.0	0.00	0.00	0.00	79.40	Cottonwood #8

Great White Directional Services

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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 Com #8	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
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
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

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Wellbore:	Wellbore #1		
Design:	Plan #2		

Planned Survey									
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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
9,340.6	0.00	0.00	9,340.6	0.0	0.0	0.0	0.00	0.00	0.00
9,400.0	11.88	273.85	9,399.6	0.4	-6.1	6.1	20.00	20.00	0.00
9,500.0	31.88	273.85	9,491.9	2.9	-43.1	43.2	20.00	20.00	0.00
9,600.0	51.88	273.85	9,566.0	7.4	-109.4	109.6	20.00	20.00	0.00
9,700.0	71.88	273.85	9,612.9	13.3	-196.9	197.4	20.00	20.00	0.00
9,797.8	91.45	273.85	9,627.0	19.7	-293.1	293.7	20.00	20.00	0.00
9,800.0	91.45	273.85	9,626.9	19.9	-295.2	295.9	0.00	0.00	0.00
9,900.0	91.45	273.85	9,624.4	26.6	-395.0	395.8	0.00	0.00	0.00
10,000.0	91.45	273.85	9,621.9	33.3	-494.7	495.8	0.00	0.00	0.00
10,100.0	91.45	273.85	9,619.3	40.0	-594.4	595.8	0.00	0.00	0.00
10,200.0	91.45	273.85	9,616.8	46.7	-694.2	695.7	0.00	0.00	0.00
10,300.0	91.45	273.85	9,614.3	53.4	-793.9	795.7	0.00	0.00	0.00
10,400.0	91.45	273.85	9,611.7	60.1	-893.7	895.7	0.00	0.00	0.00
10,500.0	91.45	273.85	9,609.2	66.9	-993.4	995.7	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 Com #8
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 Com #8	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	91.45	273.85	9,606.7	73.6	-1,093.1	1,095.6	0.00	0.00	0.00
10,700.0	91.45	273.85	9,604.2	80.3	-1,192.9	1,195.6	0.00	0.00	0.00
10,800.0	91.45	273.85	9,601.6	87.0	-1,292.6	1,295.6	0.00	0.00	0.00
10,900.0	91.45	273.85	9,599.1	93.7	-1,392.4	1,395.5	0.00	0.00	0.00
11,000.0	91.45	273.85	9,596.6	100.4	-1,492.1	1,495.5	0.00	0.00	0.00
11,100.0	91.45	273.85	9,594.0	107.2	-1,591.9	1,595.5	0.00	0.00	0.00
11,200.0	91.45	273.85	9,591.5	113.9	-1,691.6	1,695.4	0.00	0.00	0.00
11,300.0	91.45	273.85	9,589.0	120.6	-1,791.3	1,795.4	0.00	0.00	0.00
11,400.0	91.45	273.85	9,586.4	127.3	-1,891.1	1,895.4	0.00	0.00	0.00
11,500.0	91.45	273.85	9,583.9	134.0	-1,990.8	1,995.3	0.00	0.00	0.00
11,600.0	91.45	273.85	9,581.4	140.8	-2,090.6	2,095.3	0.00	0.00	0.00
11,700.0	91.45	273.85	9,578.8	147.5	-2,190.3	2,195.3	0.00	0.00	0.00
11,800.0	91.45	273.85	9,576.3	154.2	-2,290.1	2,295.2	0.00	0.00	0.00
11,900.0	91.45	273.85	9,573.8	160.9	-2,389.8	2,395.2	0.00	0.00	0.00
12,000.0	91.45	273.85	9,571.2	167.6	-2,489.5	2,495.2	0.00	0.00	0.00
12,100.0	91.45	273.86	9,568.7	174.4	-2,589.3	2,595.1	0.00	0.00	0.00
12,200.0	91.45	273.86	9,566.2	181.1	-2,689.0	2,695.1	0.00	0.00	0.00
12,300.0	91.45	273.86	9,563.6	187.8	-2,788.8	2,795.1	0.00	0.00	0.00
12,400.0	91.45	273.86	9,561.1	194.5	-2,888.5	2,895.0	0.00	0.00	0.00
12,500.0	91.45	273.86	9,558.6	201.2	-2,988.2	2,995.0	0.00	0.00	0.00
12,600.0	91.45	273.86	9,556.1	208.0	-3,088.0	3,095.0	0.00	0.00	0.00
12,700.0	91.45	273.86	9,553.5	214.7	-3,187.7	3,194.9	0.00	0.00	0.00
12,800.0	91.45	273.86	9,551.0	221.4	-3,287.5	3,294.9	0.00	0.00	0.00
12,900.0	91.45	273.86	9,548.5	228.1	-3,387.2	3,394.9	0.00	0.00	0.00
13,000.0	91.45	273.86	9,545.9	234.9	-3,487.0	3,494.9	0.00	0.00	0.00
13,100.0	91.45	273.86	9,543.4	241.6	-3,586.7	3,594.8	0.00	0.00	0.00
13,200.0	91.45	273.86	9,540.9	248.3	-3,686.4	3,694.8	0.00	0.00	0.00
13,300.0	91.45	273.86	9,538.3	255.0	-3,786.2	3,794.8	0.00	0.00	0.00
13,400.0	91.45	273.86	9,535.8	261.8	-3,885.9	3,894.7	0.00	0.00	0.00
13,500.0	91.45	273.86	9,533.3	268.5	-3,985.7	3,994.7	0.00	0.00	0.00
13,600.0	91.45	273.86	9,530.7	275.2	-4,085.4	4,094.7	0.00	0.00	0.00
13,700.0	91.45	273.86	9,528.2	281.9	-4,185.1	4,194.6	0.00	0.00	0.00
13,747.0	91.45	273.86	9,527.0	285.1	-4,232.0	4,241.6	0.00	0.00	0.00

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
Cottonwood #8	0.00	0.00	9,527.0	285.1	-4,232.0	407,724.70	555,691.61	32° 7' 15.261 N	104° 17' 13.081 W
- plan hits target center									
- Point									

Great White Directional Services

Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Cottonwood Draw 22 Fed Com #8
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 Com #8	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		
9,488.5	9,482.0	Wolfcamp D		0.00		

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
9,340.6	9,340.6	0.0	0.0	KOP 20°/100 DLS @ 273.85° AZI	
9,797.8	9,627.0	19.7	-293.1	EOC - Hold to TD	
13,747.0	9,527.0	285.1	-4,232.0	TD at 13747.0	

SR & A

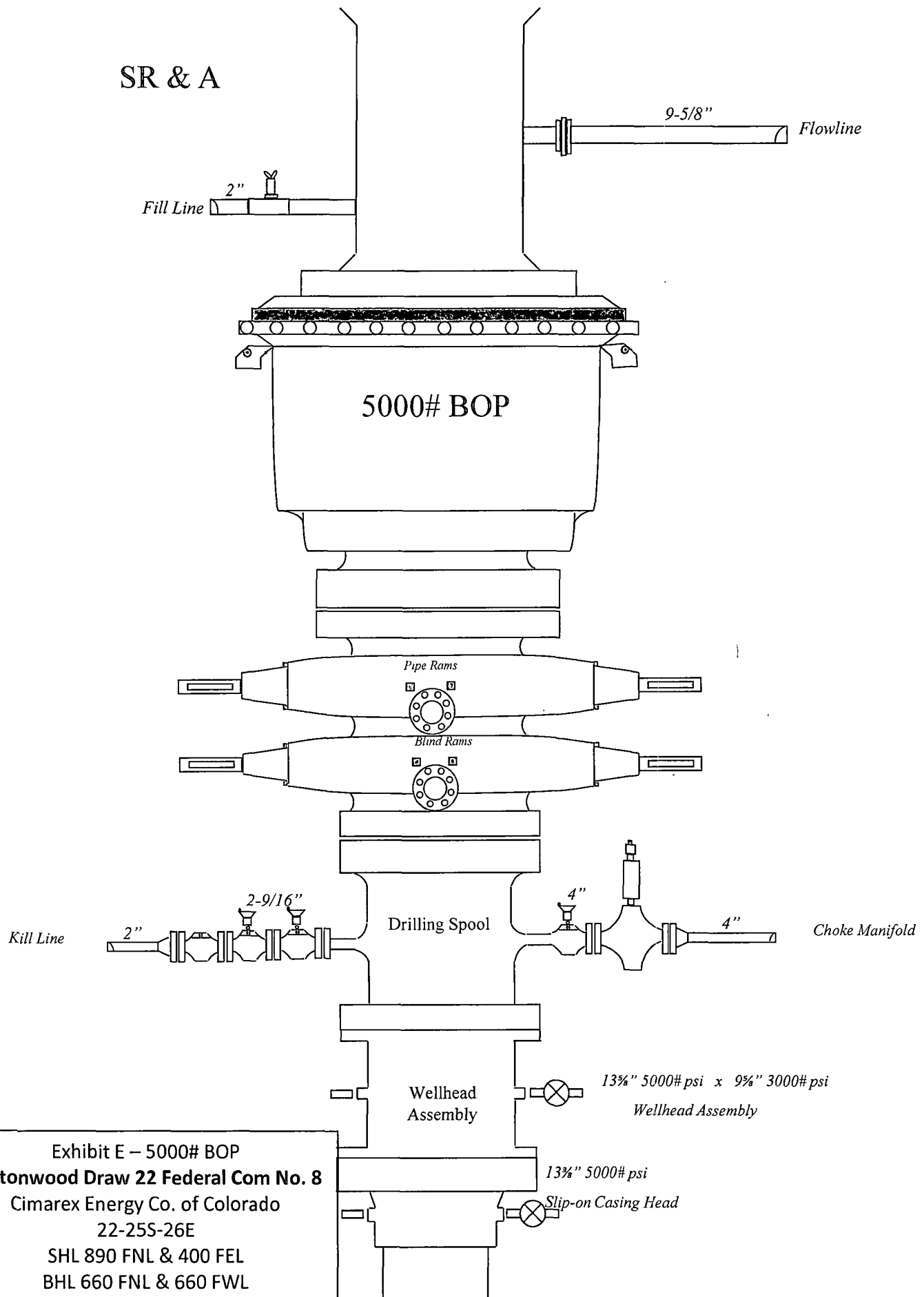
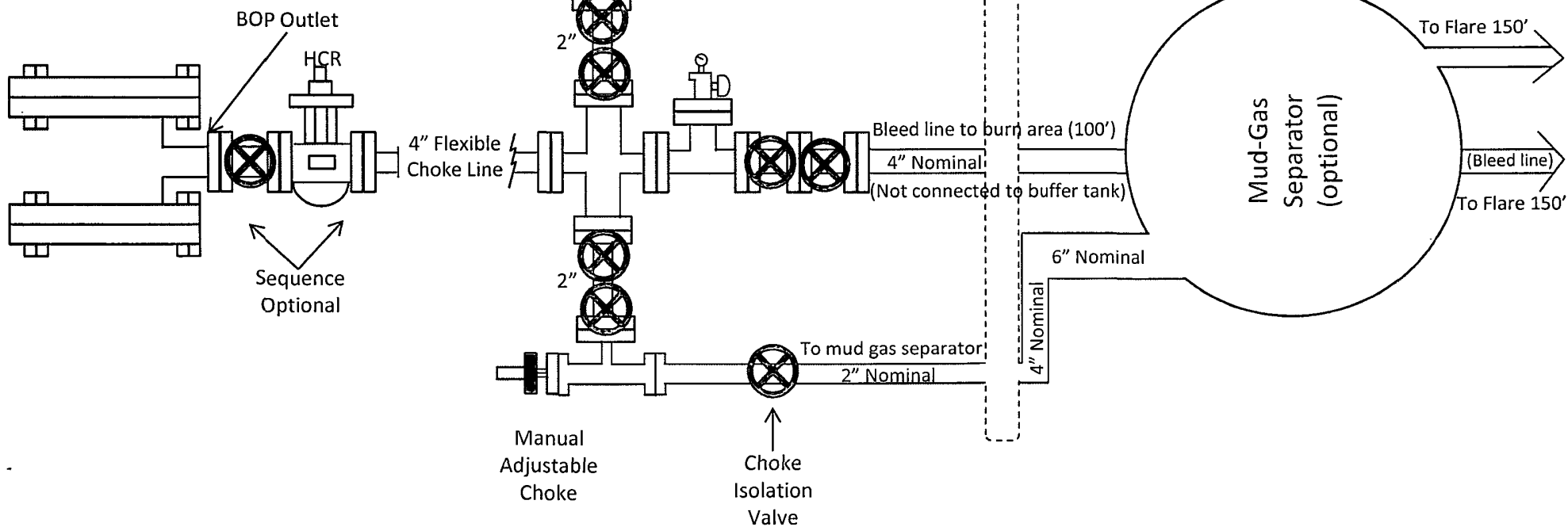
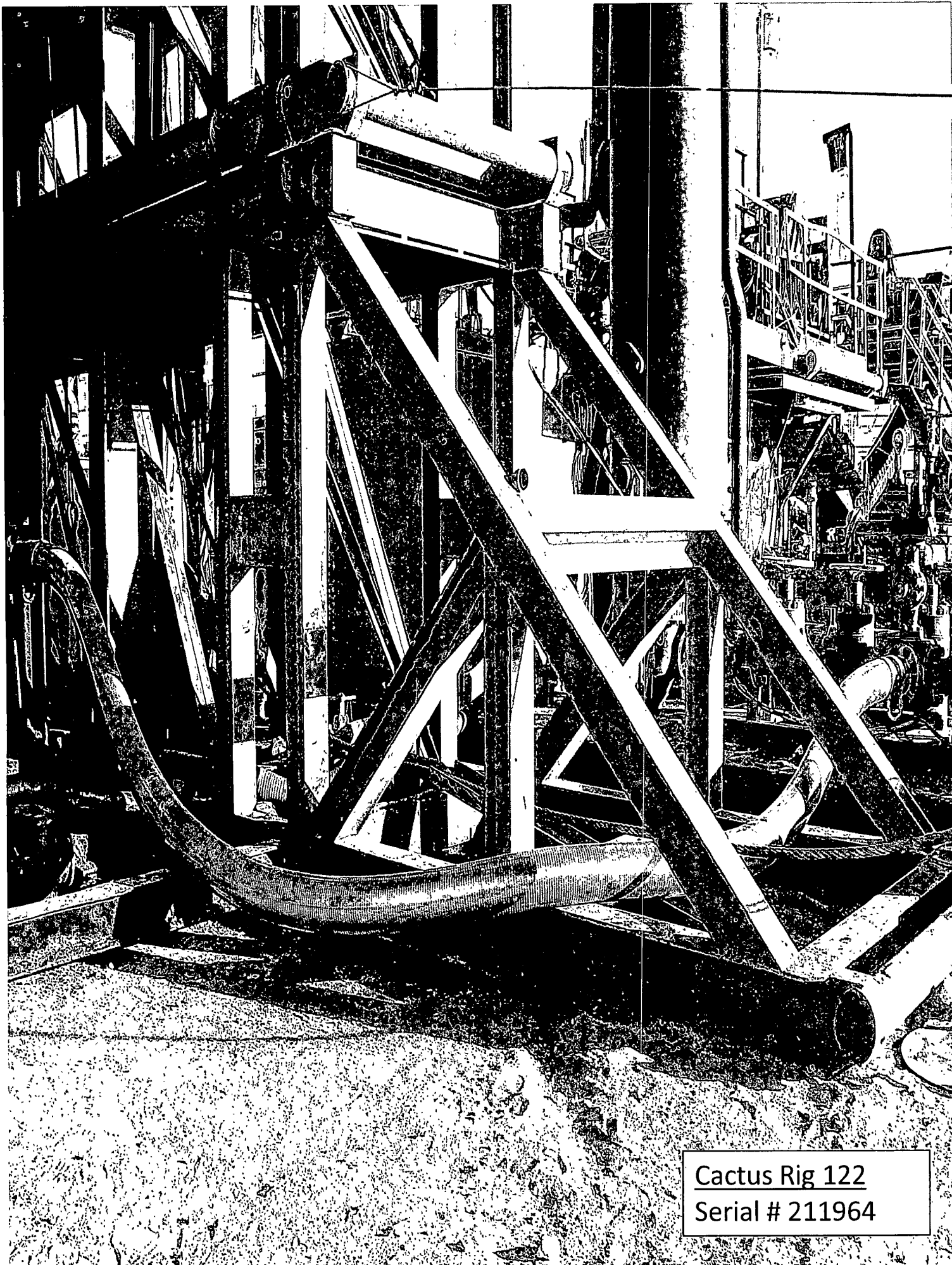


Exhibit E – 5000# BOP
Cottonwood Draw 22 Federal Com No. 8
Cimarex Energy Co. of Colorado
22-25S-26E
SHL 890 FNL & 400 FEL
BHL 660 FNL & 660 FWL
Eddy County, NM

Drilling Operations Choke Manifold 5M Service

Exhibit E-1 – Choke Manifold Diagram
Cottonwood Draw 22 Federal Com No. 8
Cimarex Energy Co. of Colorado
22-25S-26E
SHL 890 FNL & 400 FEL
BHL 660 FNL & 660 FWL
Eddy County, NM





Cactus Rig 122
Serial # 211964

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			
<i>Hose assembly pressure tested with water at ambient temperature.</i>			
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)