

ATS-11-14

HOBBS OCD

OCT 13 2011

OCD-HOBBS

Form 3160-3
(April 2004)

RECEIVED

FORM APPROVED
OMB No 1004-0137
Expires March 31, 2007

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of Work ☒ DRILL ☐ REENTER		5 Lease Serial No NM-57285, NM-60789, NM-94622 BH	
1b. Type of Well ☒ Oil Well ☐ Gas Well ☐ Other ☒ Single Zone ☐ 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. Pending	
3a. Address 600 N. Marienfeld St., Ste. 600; Midland, TX 79701		8. Lease Name and Well No Chaparral 33 Federal Com No. 4	
3b. Phone No (include area code) 432-571-7800		9 API Well No 30-025- 40328	
4. Location of Well (Report location clearly and in accordance with any State requirements *) At Surface 330 FNL & 2010 FEL Unit B At proposed prod Zone 330 FSL & 1980 FEL Unit 8 Horizontal Bone Spring test		10. Field and Pool, or Exploratory Quail Ridge; Bone Spring, South	
11 Sec., T. R. M. or Blk and Survey or Area 33-19S-34E		12. County or Parish Lea	
13 State NM			
15 Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig unit line if any) 330'	16 No of acres in lease NM-57285 1280 acres NM-60789 200 acres NM-94622 120 acres	17 Spacing Unit dedicated to this well W2E2 160 acres	
18 Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft 1207'	19 Proposed Depth Pilot Hole 11000 MD 15371 TVD 10820	20 BLM/BIA Bond No on File NM-2575	
21 Elevations (Show whether DF, KDB, RT, GL, etc.) 3691' GR	22 Approximate date work will start* 11.01.11	23. Estimated duration 25-30 days	
24. Attachments			

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

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

25 Signature Zeno Farris	Name (Printed/Typed) Zeno Farris	Date 07.13.11
Title Manager Operations Administration		
Approved By (Signature) /s/ Don Peterson	Name (Printed/Typed) /s/ Don Peterson	Date OCT 11 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.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)

Witness Surface &
Intermediate Casing

CAPITAN CONTROLLED WATER BASIN

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

KZ 11/07/11

APPROVAL SUBJECT TO
GENERAL REQUIREMENTS AND
SPECIAL STIPULATIONS

NOV 08 2011

Application to Drill
Chaparral 33 Federal Com No. 4
 Cimarex Energy Co. of Colorado
 Unit B, Section 33
 T19S-R34E, Lea County, NM

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

- 1 Location: SHL 330 FNL & 2010 FEL
 BHL 330 FSL & 1980 FEL

- 2 Elevation above sea level: 3691' 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: Pilot Hole 11000 MD 15371 TVD 10820

- 6 Estimated tops of geological markers:

Rustler	1600'	Penrose	4894'
T. Salt	1700'	Grayburg	4962'
B. Salt	3299'	Cherry Canyon	5600'
Tansill	3334'	San Andres	6014'
Yates	3522'	Bone Spring	8250'
7 Rivers	3805'	TBSS	10570'
Queen	4498'	Wolfcamp	10870'

- 7 Possible mineral bearing formation:

Bone Spring	Oil
Delaware	Oil

8 Proposed Mud Circulating System:

Depth	Mud Wt	Visc	Fluid Loss	Type Mud
0' to 1750'	8.4 - 8.6	28-32	NC	FW gel spud mud
1750' to 5480'	10.0	28-29	NC	Brine
5480' to 11000'	8.4-9.0	28-29	NC	FW and brine, use hi-vis sweeps to keep hole clean
10629' to 15371'	8.5-9.5	27-45	NC	2% KCL

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.

Proposed drilling Plan

Drill to pilot hole TD @ 11000 and log. Set 205 sks HalCem -H 0.5% CFR-3 0.1% HR-601 16.5 ppg yield 1.06 0% Excess cement plug from 10500-11000. Drill through cement to KOP @ 10629 and drill lateral to TD @ MD 15371 TVD 10820. Run 5½" liner from 0-TD and cement.

Application to Drill
Chaparral 33 Federal Com No. 4
 Cimarex Energy Co. of Colorado
 Unit B, Section 33
 T19S-R34E, Lea County, NM

9 Casing & Cementing Program:

String	Hole Size	Depth		Casing OD		Weight	Collar	Grade
Surface	17½"	0'	to 1750'	New	13¾"	54.5#	STC	J55
Intermediate	12¼"	0'	to 5480'	New	9¾"	40#	LTC	N80
Production	8¾"	0'	to 15371'	New	5½"	17#	LTC	P110

10 Cementing:

Surface

Lead: 995 sx Halcem C + 4% Bentomite + 2% CaCl 13.5ppg 1.75yield 100% Excess

Tail: 420 sx Halcem C + 2% CaCl 14.2ppg 1.34 yield 50% Excess

TOC Surface

Intermediate

Lead: 1815 sx EconoCem + 5% salt + 5 lbm gilsonite 14.6ppg 1.54yield 70% Excess

Tail: 200 sx HalCem + 1% CaCl 14.8ppg 1.34 yield 25% Excess

TOC Surface

Production

Lead: 825 sx EconoCem - H + 0.2 % HR-601 2.44 11.9ppg 2.44 yield 50% Excess

Tail: 1410 sx Versacem - H + 0.5% Halad(R)-344 + 0.4% CFR-3 + 1 lbm/sk salt + 0.1% HR-601 14.5ppg
 1.22 yield 25% Excess

TOC 5280'

According to the NM State Engineer, depth to ground water is 160 feet. Fresh water zones will be protected by setting 13¾" casing at 1750 and cementing to surface. Hydrocarbon zones will be protected by setting 9¾" casing at 5480 and production casing at 15371 and cementing to 5280.

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

11 Pressure control Equipment:

Exhibit "E". A 13¾" 5000 PSI working pressure BOP 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 as needed. 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 available if drilling in H2S areas.

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.

The BOP will be tested to 250 psi low and 5000 psi high by an independent service company. Hydril will be tested to 250 psi low and 2500 psi high.

Cimarex Energy Co. of Colorado (operator) requests a variance if Cactus 101 (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: 59473

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

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

Application to Drill
Chaparral 33 Federal Com No. 4
Cimarex Energy Co. of Colorado
Unit B, Section 33
T19S-R34E, Lea County, NM

12 Testing, Logging and Coring Program: *See COA*

- A. Mud logging program: 2 man unit from 5480 to TD
- B. Electric logging program: CNL / LDT / CAL / GR, DLL / CAL / GR
- C. No DSTs or cores are planned at this time.

13 Potential Hazards:

No abnormal pressures or temperatures are expected. In accordance with Onshore Order 6, Cimarex does not anticipate that there will be enough H₂S from the surface to the Bone Spring formations to meet the BLM's minimum requirements for the submission of an "H₂S Drilling Operation Plan" or "Public Protection Plan" for the drilling and completion of this well. Since we have an H₂S Safety package on all wells, attached is an "H₂S Drilling Operations Plan." 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 **3000 psi** Estimated BHT **130°**

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

Drilling expected to take 30-35 days

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

15 Other Facets of Operations:

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

Bone Spring pay will be perforated and stimulated.

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



Cimarex Energy Co.

Lea County (NAD 83)
Sec 33 - T19S - R34E
Chapparral 33 Fed Com #4

Wellbore #1

Plan: Plan #1

HOBBS OCD

OCT 13 2011

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Standard Planning Report

01 February, 2011



Great White Directional Services
Planning Report

Database:	EDM 5000.1 Single-User Db	Local Co-ordinate Reference:	Well Chapparal 33 Fed Com #4
Company:	Cimarex Energy Co.	TVD Reference:	WELL @ 0.0usft (Original Well Elev)
Project:	Lea County (NAD 83)	MD Reference:	WELL @ 0.0usft (Original Well Elev)
Site:	Sec 33 - T19S - R34E	North Reference:	Grid
Well:	Chapparal 33 Fed Com #4	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1		

Project	Lea County (NAD 83)		
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 33 - T19S - R34E		
Site Position:	Map	Northing:	591,385.60 usft
From:		Easting:	779,655.50 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 37' 24.180 N
		Longitude:	103° 33' 33.346 W
		Grid Convergence:	0.42 °

Well	Chapparal 33 Fed Com #4		
Well Position	+N/-S	-113.7 usft	Northing:
	+E/-W	-1,199.0 usft	Easting:
Position Uncertainty	0.0 usft	Wellhead Elevation:	Ground Level:
			0.0 usft

Wellbore	Wellbore #1		
Magnetics	Model Name	Sample Date	Declination
	IGRF200510	02/01/11	7.65
			Dip Angle
			60.59
			Field Strength
			48,955

Design	Plan #1		
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
			(°)
			179.11

Plan Sections										
Measured Depth	Inclination	Azimuth	Vertical Depth	+N/-S	+E/-W	Dogleg Rate	Build Rate	Turn Rate	TFO	Target
(usft)	(°)	(°)	(usft)	(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	
10,629.0	0.00	0.00	10,629.0	0.0	0.0	0.00	0.00	0.00	0.00	
10,929.0	90.00	179.11	10,820.0	-191.0	3.0	30.00	30.00	0.00	179.11	
15,370.9	90.00	179.11	10,820.0	-4,632.3	72.0	0.00	0.00	0.00	0.00	Chapparal #4 PBHL



Great White Directional Services Planning Report

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Project:	Lea County (NAD 83)	MD Reference:	WELL @ 0.0usft (Original Well Elev)
Site:	Sec 33 - T19S - R34E	North Reference:	Grid
Well:	Chapparral 33 Fed Com #4	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1		

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)
10,629.0	0.00	0.00	10,629.0	0.0	0.0	0.0	0.00	0.00	0.00
KOP 30°/100 DLS @ 179.11° AZI									
10,630.0	0.30	179.11	10,630.0	0.0	0.0	0.0	30.00	30.00	0.00
10,640.0	3.30	179.11	10,640.0	-0.3	0.0	0.3	30.00	30.00	0.00
10,650.0	6.30	179.11	10,650.0	-1.2	0.0	1.2	30.00	30.00	0.00
10,660.0	9.30	179.11	10,659.9	-2.5	0.0	2.5	30.00	30.00	0.00
10,670.0	12.30	179.11	10,669.7	-4.4	0.1	4.4	30.00	30.00	0.00
10,680.0	15.30	179.11	10,679.4	-6.8	0.1	6.8	30.00	30.00	0.00
10,690.0	18.30	179.11	10,689.0	-9.7	0.2	9.7	30.00	30.00	0.00
10,700.0	21.30	179.11	10,698.4	-13.0	0.2	13.0	30.00	30.00	0.00
10,710.0	24.30	179.11	10,707.6	-16.9	0.3	16.9	30.00	30.00	0.00
10,720.0	27.30	179.11	10,716.6	-21.3	0.3	21.3	30.00	30.00	0.00
10,730.0	30.30	179.11	10,725.4	-26.1	0.4	26.1	30.00	30.00	0.00
10,740.0	33.30	179.11	10,733.9	-31.4	0.5	31.4	30.00	30.00	0.00
10,750.0	36.30	179.11	10,742.1	-37.1	0.6	37.1	30.00	30.00	0.00
10,760.0	39.30	179.11	10,750.0	-43.2	0.7	43.2	30.00	30.00	0.00
10,770.0	42.30	179.11	10,757.5	-49.7	0.8	49.7	30.00	30.00	0.00
10,780.0	45.30	179.11	10,764.8	-56.6	0.9	56.6	30.00	30.00	0.00
10,790.0	48.30	179.11	10,771.6	-63.9	1.0	63.9	30.00	30.00	0.00
10,800.0	51.30	179.11	10,778.1	-71.6	1.1	71.6	30.00	30.00	0.00
10,810.0	54.30	179.11	10,784.1	-79.5	1.2	79.5	30.00	30.00	0.00
10,820.0	57.30	179.11	10,789.7	-87.8	1.4	87.8	30.00	30.00	0.00
10,830.0	60.30	179.11	10,794.9	-96.3	1.5	96.4	30.00	30.00	0.00
10,840.0	63.30	179.11	10,799.6	-105.2	1.6	105.2	30.00	30.00	0.00
10,850.0	66.30	179.11	10,803.9	-114.2	1.8	114.2	30.00	30.00	0.00
10,860.0	69.30	179.11	10,807.7	-123.5	1.9	123.5	30.00	30.00	0.00
10,870.0	72.30	179.11	10,810.9	-132.9	2.1	132.9	30.00	30.00	0.00
10,880.0	75.30	179.11	10,813.7	-142.5	2.2	142.5	30.00	30.00	0.00
10,890.0	78.30	179.11	10,816.0	-152.2	2.4	152.3	30.00	30.00	0.00
10,900.0	81.30	179.11	10,817.8	-162.1	2.5	162.1	30.00	30.00	0.00
10,910.0	84.30	179.11	10,819.0	-172.0	2.7	172.0	30.00	30.00	0.00
10,920.0	87.30	179.11	10,819.8	-182.0	2.8	182.0	30.00	30.00	0.00
10,929.0	90.00	179.11	10,820.0	-191.0	3.0	191.0	30.00	30.00	0.00
EOC - Hold to TD									
11,000.0	90.00	179.11	10,820.0	-262.0	4.1	262.0	0.00	0.00	0.00
11,100.0	90.00	179.11	10,820.0	-361.9	5.6	362.0	0.00	0.00	0.00
11,200.0	90.00	179.11	10,820.0	-461.9	7.2	462.0	0.00	0.00	0.00
11,300.0	90.00	179.11	10,820.0	-561.9	8.7	562.0	0.00	0.00	0.00
11,400.0	90.00	179.11	10,820.0	-661.9	10.3	662.0	0.00	0.00	0.00
11,500.0	90.00	179.11	10,820.0	-761.9	11.8	762.0	0.00	0.00	0.00
11,600.0	90.00	179.11	10,820.0	-861.9	13.4	862.0	0.00	0.00	0.00
11,700.0	90.00	179.11	10,820.0	-961.9	14.9	962.0	0.00	0.00	0.00
11,800.0	90.00	179.11	10,820.0	-1,061.9	16.5	1,062.0	0.00	0.00	0.00
11,900.0	90.00	179.11	10,820.0	-1,161.8	18.0	1,162.0	0.00	0.00	0.00
12,000.0	90.00	179.11	10,820.0	-1,261.8	19.6	1,262.0	0.00	0.00	0.00
12,100.0	90.00	179.11	10,820.0	-1,361.8	21.2	1,362.0	0.00	0.00	0.00
12,200.0	90.00	179.11	10,820.0	-1,461.8	22.7	1,462.0	0.00	0.00	0.00
12,300.0	90.00	179.11	10,820.0	-1,561.8	24.3	1,562.0	0.00	0.00	0.00
12,400.0	90.00	179.11	10,820.0	-1,661.8	25.8	1,662.0	0.00	0.00	0.00
12,500.0	90.00	179.11	10,820.0	-1,761.8	27.4	1,762.0	0.00	0.00	0.00
12,600.0	90.00	179.11	10,820.0	-1,861.8	28.9	1,862.0	0.00	0.00	0.00
12,700.0	90.00	179.11	10,820.0	-1,961.7	30.5	1,962.0	0.00	0.00	0.00
12,800.0	90.00	179.11	10,820.0	-2,061.7	32.0	2,062.0	0.00	0.00	0.00
12,900.0	90.00	179.11	10,820.0	-2,161.7	33.6	2,162.0	0.00	0.00	0.00



Great White Directional Services

Planning Report

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Wellbore:	Wellbore #1		
Design:	Plan #1		

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)
13,000.0	90.00	179.11	10,820.0	-2,261.7	35.1	2,262.0	0.00	0.00	0.00
13,100.0	90.00	179.11	10,820.0	-2,361.7	36.7	2,362.0	0.00	0.00	0.00
13,200.0	90.00	179.11	10,820.0	-2,461.7	38.2	2,462.0	0.00	0.00	0.00
13,300.0	90.00	179.11	10,820.0	-2,561.7	39.8	2,562.0	0.00	0.00	0.00
13,400.0	90.00	179.11	10,820.0	-2,661.7	41.3	2,662.0	0.00	0.00	0.00
13,500.0	90.00	179.11	10,820.0	-2,761.7	42.9	2,762.0	0.00	0.00	0.00
13,600.0	90.00	179.11	10,820.0	-2,861.6	44.5	2,862.0	0.00	0.00	0.00
13,700.0	90.00	179.11	10,820.0	-2,961.6	46.0	2,962.0	0.00	0.00	0.00
13,800.0	90.00	179.11	10,820.0	-3,061.6	47.6	3,062.0	0.00	0.00	0.00
13,900.0	90.00	179.11	10,820.0	-3,161.6	49.1	3,162.0	0.00	0.00	0.00
14,000.0	90.00	179.11	10,820.0	-3,261.6	50.7	3,262.0	0.00	0.00	0.00
14,100.0	90.00	179.11	10,820.0	-3,361.6	52.2	3,362.0	0.00	0.00	0.00
14,200.0	90.00	179.11	10,820.0	-3,461.6	53.8	3,462.0	0.00	0.00	0.00
14,300.0	90.00	179.11	10,820.0	-3,561.6	55.3	3,562.0	0.00	0.00	0.00
14,400.0	90.00	179.11	10,820.0	-3,661.5	56.9	3,662.0	0.00	0.00	0.00
14,500.0	90.00	179.11	10,820.0	-3,761.5	58.4	3,762.0	0.00	0.00	0.00
14,600.0	90.00	179.11	10,820.0	-3,861.5	60.0	3,862.0	0.00	0.00	0.00
14,700.0	90.00	179.11	10,820.0	-3,961.5	61.5	3,962.0	0.00	0.00	0.00
14,800.0	90.00	179.11	10,820.0	-4,061.5	63.1	4,062.0	0.00	0.00	0.00
14,900.0	90.00	179.11	10,820.0	-4,161.5	64.6	4,162.0	0.00	0.00	0.00
15,000.0	90.00	179.11	10,820.0	-4,261.5	66.2	4,262.0	0.00	0.00	0.00
15,100.0	90.00	179.11	10,820.0	-4,361.5	67.8	4,362.0	0.00	0.00	0.00
15,200.0	90.00	179.11	10,820.0	-4,461.4	69.3	4,462.0	0.00	0.00	0.00
15,300.0	90.00	179.11	10,820.0	-4,561.4	70.9	4,562.0	0.00	0.00	0.00
15,370.9	90.00	179.11	10,820.0	-4,632.3	72.0	4,632.9	0.00	0.00	0.00
TD at 15370.9									

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									
Chapparral #4 PBHL	0.00	0.00	10,830.0	-4,632.3	71.6	586,639.60	778,528.10	32° 36' 37.302 N	103° 33' 46.930 W
- plan misses target center by 10.0usft at 15370.9usft MD (10820.0 TVD, -4632.3 N, 72.0 E)									
- Point									

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
5,600.0	5,600.0	Cherry Canyon		0.00	
8,250.0	8,250.0	Bone Spring		0.00	
9,480.0	9,480.0	1st BS s		0.00	
10,000.0	10,000.0	2nd BS s		0.00	
10,570.0	10,570.0	3rd BS s		0.00	



Great White Directional Services
Planning Report

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Chapparal 33 Fed Com #4
Company:	Cimarex Energy Co.	TVD Reference:	WELL @ 0.0usft (Original Well Elev)
Project:	Lea County (NAD 83)	MD Reference:	WELL @ 0.0usft (Original Well Elev)
Site:	Sec 33 - T19S - R34E	North Reference:	Grid
Well:	Chapparal 33 Fed Com #4	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
10,629.0	10,629.0	0.0	0.0	KOP 30°/100 DLS @ 179.11° AZI
10,929.0	10,820.0	-191.0	3.0	EOC - Hold to TD
15,370.9	10,820.0	-4,632.3	72.0	TD at 15370.9



Cimarex Energy Co.
Project: Lea County (NAD 83)
Site: Sec 33 - T19S - R34E
Well: Chapparral 33 Fed Com #4
Wellbore: Wellbore #1

WELL DETAILS: Chapparral 33 Fed Com #4

+N/-S	+E/-W	Northing	Ground Level:	0.0	Latitude	Longitude
0.0	0.0	591271.90	Easting	778458.50	32° 37' 23.141 N	103° 33' 47.375 W
SHL: 330° FNL / 2010° FEL						
BHL: 330° FSL / 1980° FEL						



Azimuths to Grid North
True North: -0.41°
Total Correction: 7.23°
Magnetic Field
Strength: 48955.1nT
Dip Angle: 60.59°
Date: 02/01/2011
Model: IGRF200510

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude
Chapparral #4 PBHL	10830.0	-4632.3	71.6	32° 36' 37.302 N	103° 33' 46.930 W

SECTION DETAILS

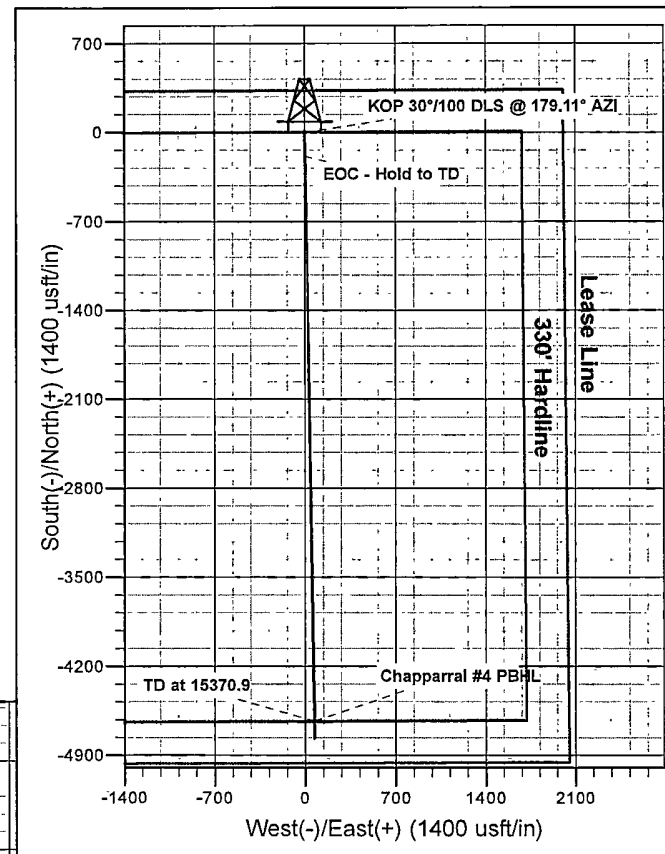
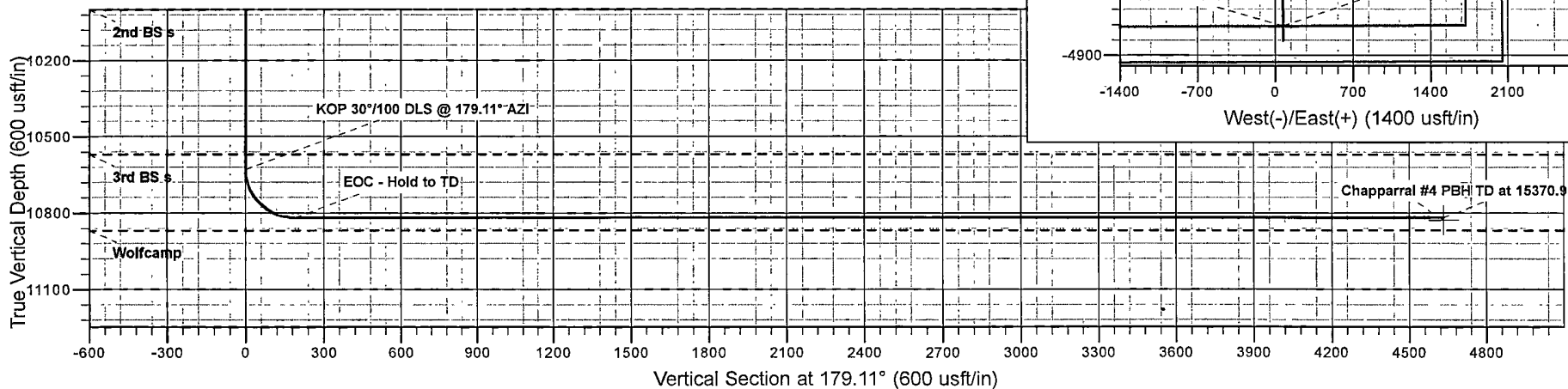
TVD	MD	Inc	Azi	+N/-S	+E/-W	VSe@departure	Annotation
10629.0	10629.0	0.00	0.00	0.0	0.0	0.0	KOP 30°/100 DLS @ 179.11° AZI
10820.0	10929.0	90.00	179.11	-191.0	3.0	191.0	EOC - Hold to TD
10820.0	15370.9	90.00	179.11	-4632.3	72.0	4632.9	TD at 15370.9

ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	VSe@departure	Annotation
10629.0	10629.0	0.00	0.00	0.0	0.0	0.0	KOP 30°/100 DLS @ 179.11° AZI
10820.0	10929.0	90.00	179.11	-191.0	3.0	191.0	EOC - Hold to TD
10820.0	15370.9	90.00	179.11	-4632.3	72.0	4632.9	TD at 15370.9

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
5600.0	5600.0	Cherry Canyon
8250.0	8250.0	Bone Spring
9480.0	9480.0	1st BS s
10000.0	10000.0	2nd BS s
10570.0	10570.0	3rd BS s



SR & A

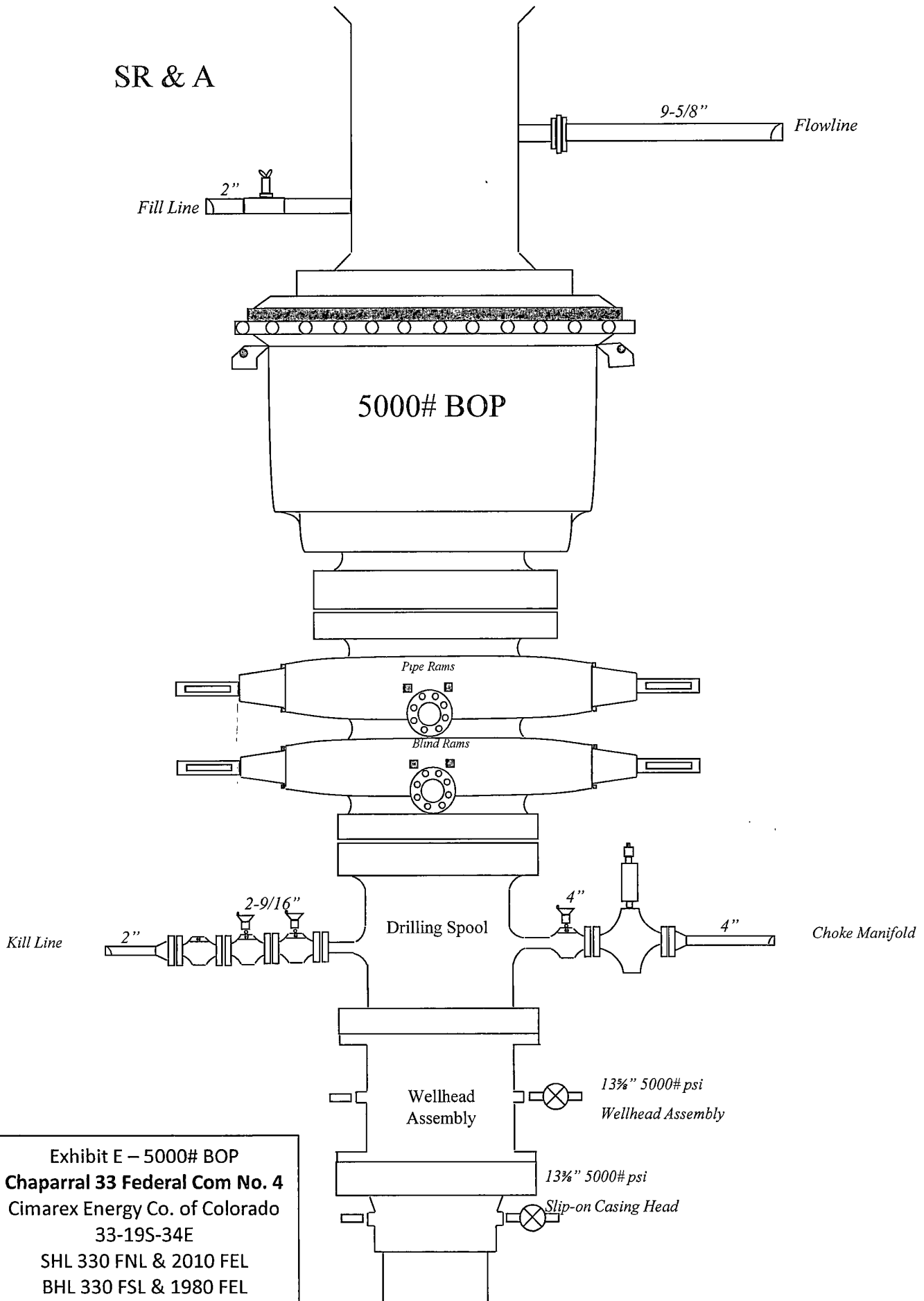
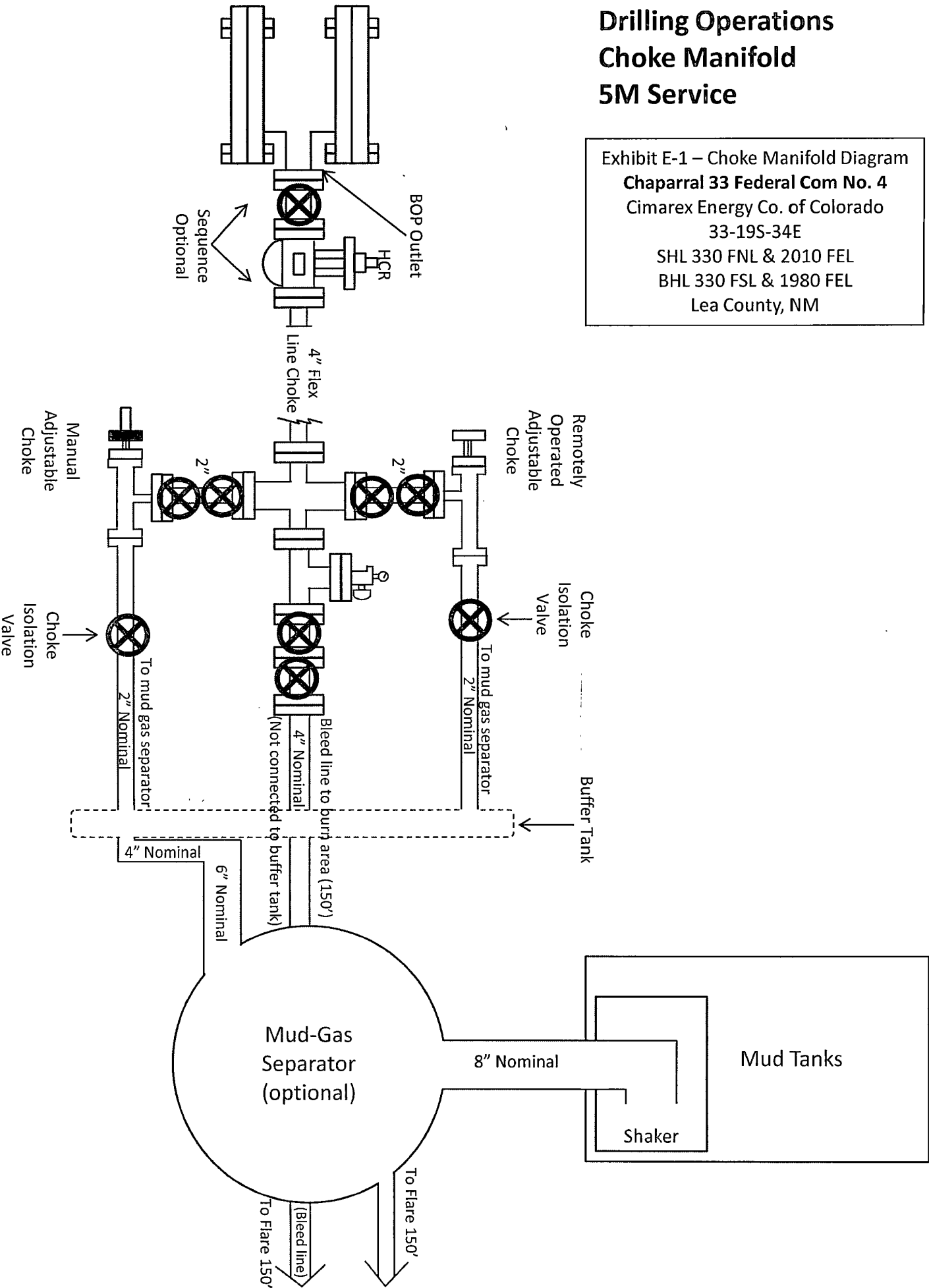


Exhibit E – 5000# BOP
Chaparral 33 Federal Com No. 4
Cimarex Energy Co. of Colorado
33-19S-34E
SHL 330 FNL & 2010 FEL
BHL 330 FSL & 1980 FEL
Lea County, NM

Drilling Operations
Choke Manifold
5M Service

Exhibit E-1 – Choke Manifold Diagram
Chaparral 33 Federal Com No. 4
Cimarex Energy Co. of Colorado
33-19S-34E
SHL 330 FNL & 2010 FEL
BHL 330 FSL & 1980 FEL
Lea County, NM



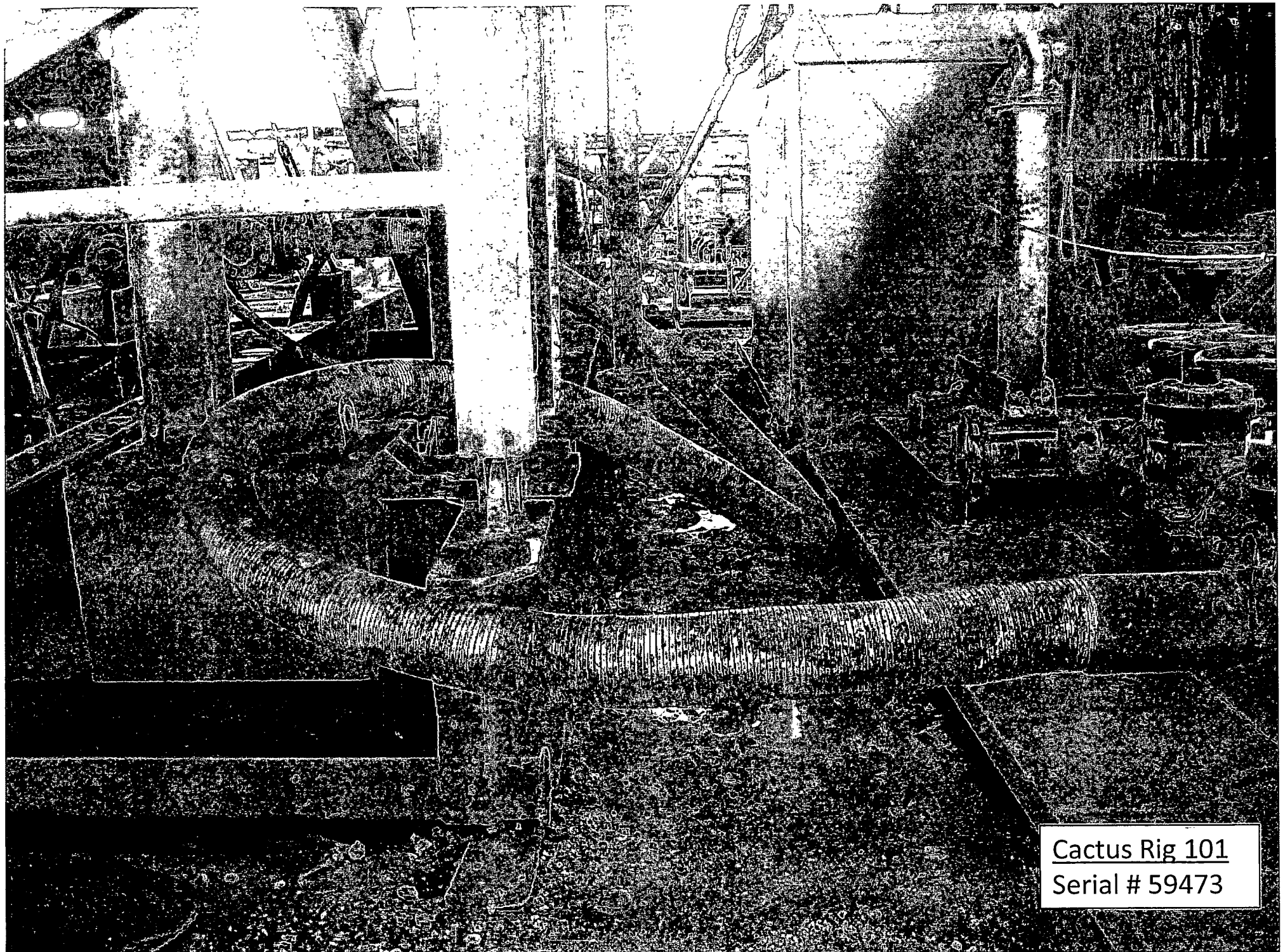


Midwest Hose
& Specialty, Inc.

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)



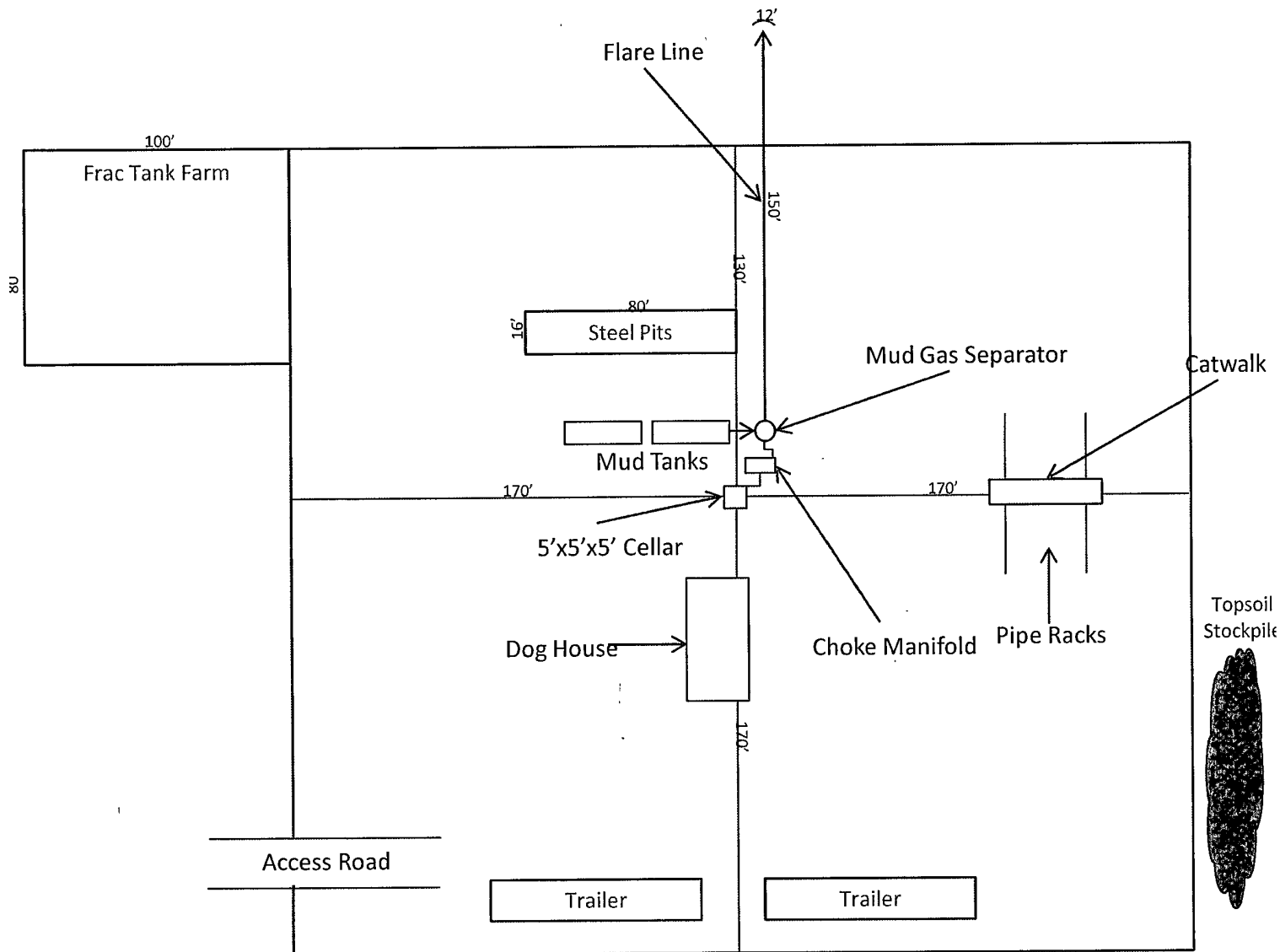
Cactus Rig 101
Serial # 59473

M I D W E S T

HOSE AND SPECIALTY INC.

INTERNAL HYDROSTATIC TEST REPORT		
Customer: CACTUS		P.O. Number: Rig#101 Asset#M5358
HOSE SPECIFICATIONS		
Type: CHOKE 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#59473 Asset#M5358 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: 5/19/2010	Tested By: BOBBY FINK	Approved: MENDI JACKSON

Cactus 101



1"=50'

N
↑

Exhibit D – Rig Diagram
Chaparral 33 Federal Com No. 4
Cimarex Energy Co. of Colorado
33-19S-34E
SHL 330 FNL & 2010 FEL
BHL 330 FSL & 1980 FEL
Lea County, NM