

HOBBS OCD

ATS-12-1029

SEP 21 2012

Form 3160-3
(April 2004)

OCD Hobbs

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

RECEIVED

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. NMNM127894	
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. (215099)		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. (39458) Diamondtail 23 Federal No. 2	
3b. Phone No. (include area code) 432-571-7800		9 API Well No. 30-025- 40781	
4 Location of Well (Report location clearly and in accordance with any State requirements *) At Surface 330 FNL & 750 FWL At proposed prod. Zone 330 FSL & 990 FWL Horizontal Bone Spring test		10 Field and Pool, or Exploratory (17644) Diamondtail; Bone Spring K2	
14 Distance in miles and direction from nearest town or post office* 26 miles east of Loving, NM		11 Sec., T R M or Blk. and Survey or Area 23-235-32E	
15 Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line if any) 330'		12 County or Parish Lea	
16 No of acres in lease 640		13. State NM	
17 Spacing Unit dedicated to this well 160 acres			
18 Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 150' from #1		20 BLM/BIA Bond No. on File NM2575; NMB000835	
19 Proposed Depth MD 14096' TVD 9675'			
21 Elevations (Show whether DF, KDB, RT, GL, etc.) 3706' GR		22 Approximate date work will start* 12.01.12	
		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 	Name (Printed/Typed) Paula Brunson	Date 07.31.12
Title Drilling Tech, Regulatory		
Approved By (Signature) /s/ Don Peterson	Name (Printed/Typed) /s/ Don Peterson	Date SEP 18 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

Approval Subject to General Requirements
& Special Stipulations AttachedSEE ATTACHED FOR
CONDITIONS OF APPROVAL

SEP 26 2012

Drilling Plan
Diamondtail 23 Federal 2
 Cimarex Energy Co.
 Unit D, Section 23
 T23S-R32E; Lea County, NM

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

- 1 **Location:** SHL 330 FNL & 750 FWL
 BHL 330 FSL & 990 FWL

- 2 **Elevation above sea level:** 3706 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 14096' TVD 9675'

- 6 **Estimated tops of geological markers:**

Water per OSE	475	
Rustler	1200	
T. Salt	1520	
Castille	3590	
B. Salt	4680	
Delaware	4980	
Basal Brushy Canyon	8470	
Bone Spring	8750	Oil
Avalon Shale	9430	Oil

- 7 **Possible mineral bearing formations:**
 See above.

8 **Proposed Mud Circulating System:**

Depth	Mud Wt	Visc	Fluid Loss	Type Mud
0' to 1225' 1315'	8.4 - 8.6	28	NC	FW
1225' to 4900'	10.0	30-32	NC	Brine water
4900' to 14096'	8.4	30-32	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 8¾" hole to 9198'. Drill 8¾" lateral through the curve to TD @ 14096' MD, 9675' TVD. Run 5½" 17# P-110 LTC from 0-14096' and cement.

Drilling Plan
Diamondtail 23 Federal 2
Cimarex Energy Co.
Unit D, Section 23
T23S-R32E; Lea County, NM

9 Casing & Cementing Program:

String	Hole Size	Depth		Casing OD		Weight	Collar	Grade
Surface	17 1/2"	0'	to 1225'	New	13 3/8"	48#	STC	H-40
Intermediate	12 1/4"	0'	to 4900'	New	9 5/8"	40#	LTC	J-55
Production	7 7/8"	0'	to 14096'	New	5 1/2"	17#	LTC	P-110

10 Cementing:

Surface

Lead: 810 SKS Premium Plus + 2% CaCl 4% gel 13.5ppg 1.75yield 115% Excess
Tail: 200 SKS Premium Plus + 2% CaCl 14.8ppg 1.34 yield 10% Excess
TOC Surface Centralizers per Onshore Order 2.III.B.1.f

Intermediate

Lead: 1555 SKS HLPP + 5% Salt + 5# Gilsonite 12.9ppg 1.92yield 120% Excess
Tail: 235 SKS Premium Plus + 1% CaCl 14.8ppg 1.34 yield 0% Excess
TOC Surface

Production

Lead: 835 SKS Econocem H + 0.5/10% HR-601 0.5/10% Halad-322 (fluid loss control/friction reducer) 11.9ppg 2.48 yield 53% Excess
Tail: 1385 SKS Versacem H + 0.5% Halad(R)-344 (fluid loss control) + 0.4% CFR-3 + 1# Salt + 0.2% HR-601 14.5ppg 1.22 yield 25% Excess Cement volumes will be adjusted depending upon hole size.
TOC 3600' Centralizers every 3rd joint in lateral to provide adequate cement coverage every 100' unless lateral doglegs require greater spacing between centralizers.

<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 13 3/8" 5000 PSI working pressure B.O.P. consisting of one set of blind rams and one set of pipe rams and a 5000# annular type preventer. A choke manifold and 120 gallon accumulator with floor and remote operating stations and auxiliary power system. Rotating head below 4900.' 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.

BOP's will be tested to 250 psi low and 3000 psi high by an independent service company. Hydril will be tested to 250 psi low and 1500 psi high.

Cimarex Energy Co. of Colorado requests a variance to drill this well using a co-flex line between the BOP and choke manifold.

Certification for proposed co-flex hose is attached. The hose is not required by the manufacturer to be anchored. In the event the specific hose is not available, one of equal or higher rating will be used.

Drilling Plan
Diamondtail 23 Federal 2
Cimarex Energy Co.
Unit D, Section 23
T23S-R32E; Lea County, NM

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

- A. Mud logging program: 2 man unit from 4900 to TD
- B. Electric logging program: CNL / LDT / CAL / GR, DLL / CAL / GR Surface to TD
- 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 **4400 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.

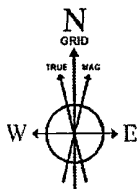
Location: Lea County, NM
Field (Diamondtail) Sec 23, T23S, R32E
Facility: Diamondtail 23 Federal No 2

Slot No 2 SHL
Well: No 2
Wellbore: No 2 PWB

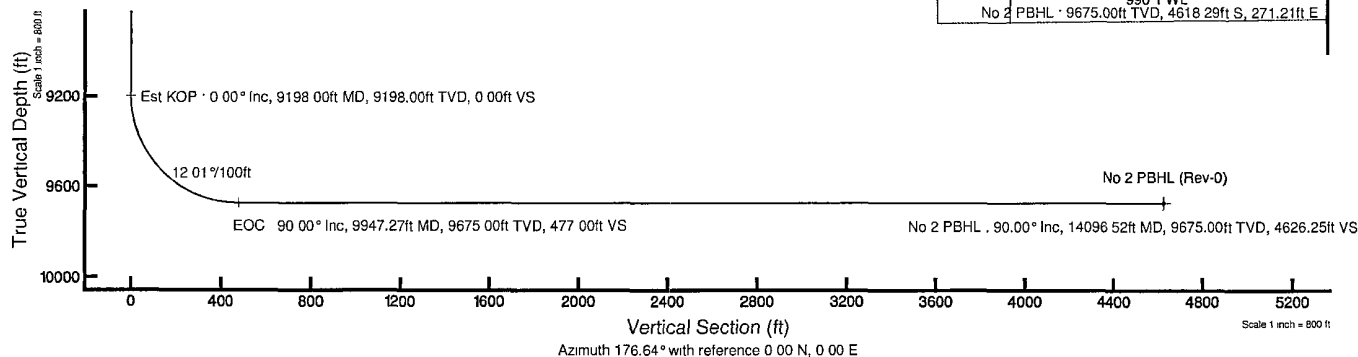
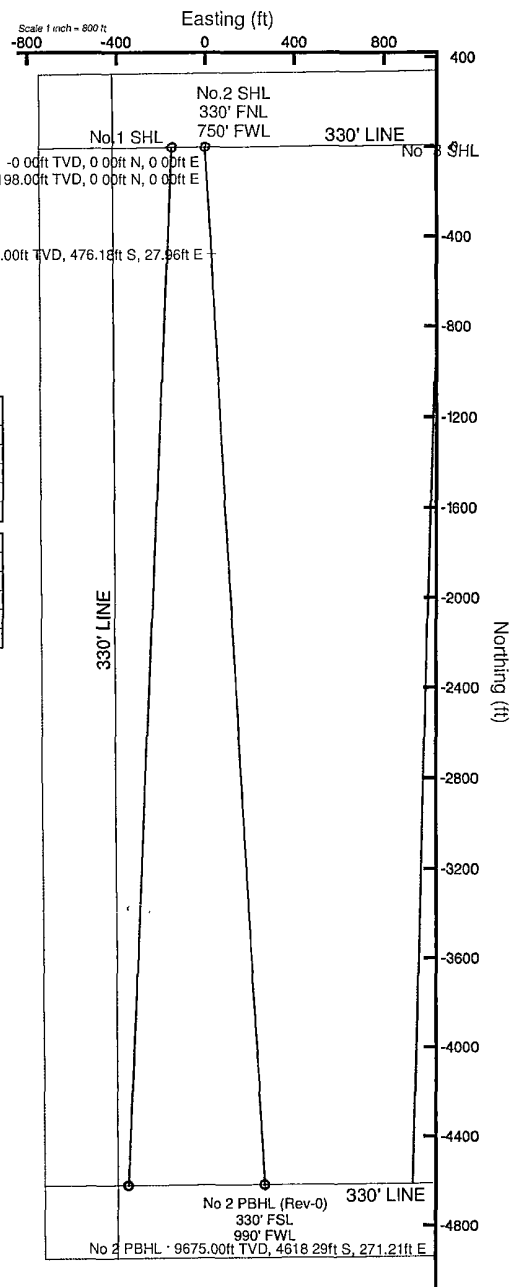


Well Profile Data							
Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	VS (ft)
Tie On	0.00	0.000	176.639	0.00	0.00	0.00	0.00
Est KOP	9198.00	0.000	176.639	9198.00	0.00	0.00	0.00
EOC	9947.27	90.000	176.639	9675.00	-476.18	27.96	477.00
No 2 PBHL	14096.52	90.000	176.639	9675.00	-4618.29	271.21	4626.25

Plot reference wellpath is Rev-A 0	
True vertical depths are referenced to Rig on No 2 SHL (RT)	Gnd System: NAD83 / TM New Mexico SP, Eastern Zone (3001), US feet
Measured depths are referenced to Rig on No 2 SHL (RT)	North Reference: Gnd north
Rig on No 2 SHL (RT) to Mean Sea Level: 3706 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot, No 2 SHL): -3706 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: gentby on 4/11/2012



BGGM (1945 0 to 2013 0) Dip: 60.18° Field: 48571 nT
Magnetic North is 7.61 degrees East of True North (at 4/11/2012)
Grid North is 0.36 degrees East of True North
To correct azimuth from True to Grid subtract 0.36 degrees
To correct azimuth from Magnetic to Grid add 7.24 degrees
For example: if the Magnetic North Azimuth = 90 degs, then the Grid North Azimuth = 90 + 7.24 = 97.24





Planned Wellpath Report

Rev-A.0

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REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No.2 SHL
Area	Lea County, NM	Well	No.2
Field	(Diamondtail) Sec 23, T23S, R32E	Wellbore	No.2 PWB
Facility	Diamondtail 23 Federal No.2		

REPORT SETUP INFORMATION			
Projection System	NAD83 / TM New Mexico SP, Eastern Zone (3001), US feet	Software System	WellArchitect® 3.0.0
North Reference	Grid	User	Gentbry
Scale	0.99996	Report Generated	4/11/2012 at 12:44:03 PM
Convergence at slot	0.36° East	Database/Source file	WA Midland/No.2_PWB.xml

WELLPATH LOCATION						
	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W
Facility Reference Pt			752012.20	472285.50	32°17'47.563"N	103°39'05.453"W
Field Reference Pt			753067.10	472297.00	32°17'47.610"N	103°38'53.162"W

WELLPATH DATUM			
Calculation method	Minimum curvature	Rig on No.2 SHL (RT) to Facility Vertical Datum	0.00ft
Horizontal Reference Pt	Slot	Rig on No.2 SHL (RT) to Mean Sea Level	3706.00ft
Vertical Reference Pt	Rig on No.2 SHL (RT)	Rig on No.2 SHL (RT) to Mud Line at Slot (No.2 SHL)	0.00ft
MD Reference Pt	Rig on No.2 SHL (RT)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	176.64°



Planned Wellpath Report

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REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No.2 SHL
Area	Lea County, NM	Well	No.2
Field	(Diamondtail) Sec 23, T23S, R32E	Wellbore	No.2 PWB
Facility	Diamondtail 23 Federal No.2		

WELLPATH DATA (151 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
0.00	0.000	176.639	0.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	Tie On
100.00†	0.000	176.639	100.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
200.00†	0.000	176.639	200.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
300.00†	0.000	176.639	300.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
400.00†	0.000	176.639	400.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
500.00†	0.000	176.639	500.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
600.00†	0.000	176.639	600.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
700.00†	0.000	176.639	700.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
800.00†	0.000	176.639	800.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
900.00†	0.000	176.639	900.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
1000.00†	0.000	176.639	1000.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
1100.00†	0.000	176.639	1100.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
1200.00†	0.000	176.639	1200.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
1220.00†	0.000	176.639	1220.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	Rustler
1300.00†	0.000	176.639	1300.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
1400.00†	0.000	176.639	1400.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
1500.00†	0.000	176.639	1500.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
1520.00†	0.000	176.639	1520.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	Salt
1600.00†	0.000	176.639	1600.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
1700.00†	0.000	176.639	1700.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
1800.00†	0.000	176.639	1800.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
1900.00†	0.000	176.639	1900.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
2000.00†	0.000	176.639	2000.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
2100.00†	0.000	176.639	2100.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
2200.00†	0.000	176.639	2200.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
2300.00†	0.000	176.639	2300.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
2400.00†	0.000	176.639	2400.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
2500.00†	0.000	176.639	2500.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
2600.00†	0.000	176.639	2600.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
2700.00†	0.000	176.639	2700.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
2800.00†	0.000	176.639	2800.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
2900.00†	0.000	176.639	2900.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
3000.00†	0.000	176.639	3000.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
3100.00†	0.000	176.639	3100.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
3200.00†	0.000	176.639	3200.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
3300.00†	0.000	176.639	3300.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
3400.00†	0.000	176.639	3400.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
3500.00†	0.000	176.639	3500.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
3590.00†	0.000	176.639	3590.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	Castille
3600.00†	0.000	176.639	3600.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
3700.00†	0.000	176.639	3700.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
3800.00†	0.000	176.639	3800.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
3900.00†	0.000	176.639	3900.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
4000.00†	0.000	176.639	4000.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
4100.00†	0.000	176.639	4100.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	



Planned Wellpath Report

Rev-A.0
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REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No.2 SHL
Area	Lea County, NM	Well	No.2
Field	(Diamondtail) Sec 23, T23S, R32E	Wellbore	No.2 PWB
Facility	Diamondtail 23 Federal No.2		

WELLPATH DATA (151 stations) † = interpolated/extrapolated station												
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
4200.00†	0.000	176.639	4200.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
4300.00†	0.000	176.639	4300.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
4400.00†	0.000	176.639	4400.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
4500.00†	0.000	176.639	4500.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
4600.00†	0.000	176.639	4600.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
4680.00†	0.000	176.639	4680.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	Base Salt
4700.00†	0.000	176.639	4700.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
4800.00†	0.000	176.639	4800.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
4900.00†	0.000	176.639	4900.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
5000.00†	0.000	176.639	5000.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	Delaware
5100.00†	0.000	176.639	5100.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
5200.00†	0.000	176.639	5200.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
5300.00†	0.000	176.639	5300.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
5400.00†	0.000	176.639	5400.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
5500.00†	0.000	176.639	5500.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
5600.00†	0.000	176.639	5600.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
5700.00†	0.000	176.639	5700.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
5800.00†	0.000	176.639	5800.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
5900.00†	0.000	176.639	5900.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
6000.00†	0.000	176.639	6000.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
6100.00†	0.000	176.639	6100.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
6200.00†	0.000	176.639	6200.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
6300.00†	0.000	176.639	6300.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
6400.00†	0.000	176.639	6400.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
6500.00†	0.000	176.639	6500.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
6600.00†	0.000	176.639	6600.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
6700.00†	0.000	176.639	6700.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
6800.00†	0.000	176.639	6800.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
6900.00†	0.000	176.639	6900.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
7000.00†	0.000	176.639	7000.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
7100.00†	0.000	176.639	7100.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
7200.00†	0.000	176.639	7200.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
7300.00†	0.000	176.639	7300.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
7400.00†	0.000	176.639	7400.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
7500.00†	0.000	176.639	7500.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
7600.00†	0.000	176.639	7600.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
7700.00†	0.000	176.639	7700.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
7800.00†	0.000	176.639	7800.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
7900.00†	0.000	176.639	7900.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
8000.00†	0.000	176.639	8000.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
8100.00†	0.000	176.639	8100.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
8200.00†	0.000	176.639	8200.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
8300.00†	0.000	176.639	8300.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
8400.00†	0.000	176.639	8400.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
8500.00†	0.000	176.639	8500.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	



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REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No.2 SHL
Area	Lea County, NM	Well	No.2
Field	(Diamondtail) Sec 23, T23S, R32E	Wellbore	No.2 PWB
Facility	Diamondtail 23 Federal No.2		

WELLPATH DATA (151 stations) † = interpolated/extrapolated station												
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
8550.00†	0.000	176.639	8550.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	Basal Brushy Canyon
8600.00†	0.000	176.639	8600.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
8700.00†	0.000	176.639	8700.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
8800.00†	0.000	176.639	8800.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
8855.00†	0.000	176.639	8855.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	Bone Spring
8900.00†	0.000	176.639	8900.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
9000.00†	0.000	176.639	9000.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
9100.00†	0.000	176.639	9100.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	
9198.00	0.000	176.639	9198.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	0.00	Est KOP
9200.00†	0.240	176.639	9200.00	0.00	0.00	0.00	752012.20	472285.50	32°17'47.563"N	103°39'05.453"W	12.01	
9275.34†	9.290	176.639	9275.00	6.26	-6.25	0.37	752012.57	472279.26	32°17'47.501"N	103°39'05.449"W	12.01	Avalon Shale
9300.00†	12.252	176.639	9299.22	10.86	-10.85	0.64	752012.84	472274.65	32°17'47.455"N	103°39'05.446"W	12.01	
9400.00†	24.264	176.639	9394.02	42.14	-42.06	2.47	752014.67	472243.44	32°17'47.146"N	103°39'05.427"W	12.01	
9500.00†	36.275	176.639	9480.22	92.45	-92.29	5.42	752017.62	472193.21	32°17'46.649"N	103°39'05.397"W	12.01	
9600.00†	48.287	176.639	9554.07	159.60	-159.33	9.36	752021.56	472126.18	32°17'45.986"N	103°39'05.356"W	12.01	
9700.00†	60.299	176.639	9612.33	240.66	-240.24	14.11	752026.31	472045.27	32°17'45.185"N	103°39'05.306"W	12.01	
9800.00†	72.310	176.639	9652.45	332.06	-331.49	19.47	752031.67	471954.03	32°17'44.281"N	103°39'05.251"W	12.01	
9900.00†	84.322	176.639	9672.66	429.81	-429.07	25.20	752037.40	471856.45	32°17'43.316"N	103°39'05.191"W	12.01	
9947.27	90.000	176.639	9675.00	477.00	-476.18	27.96	752040.16	471809.34	32°17'42.849"N	103°39'05.162"W	12.01	EOC
10000.00†	90.000	176.639	9675.00	529.73	-528.82	31.06	752043.25	471756.70	32°17'42.328"N	103°39'05.130"W	0.00	
10100.00†	90.000	176.639	9675.00	629.73	-628.65	36.92	752049.12	471656.88	32°17'41.340"N	103°39'05.069"W	0.00	
10200.00†	90.000	176.639	9675.00	729.73	-728.48	42.78	752054.98	471557.06	32°17'40.352"N	103°39'05.009"W	0.00	
10300.00†	90.000	176.639	9675.00	829.73	-828.30	48.64	752060.84	471457.23	32°17'39.364"N	103°39'04.948"W	0.00	
10400.00†	90.000	176.639	9675.00	929.73	-928.13	54.50	752066.70	471357.41	32°17'38.376"N	103°39'04.887"W	0.00	
10500.00†	90.000	176.639	9675.00	1029.73	-1027.96	60.37	752072.56	471257.58	32°17'37.387"N	103°39'04.826"W	0.00	
10600.00†	90.000	176.639	9675.00	1129.73	-1127.79	66.23	752078.43	471157.76	32°17'36.399"N	103°39'04.765"W	0.00	
10700.00†	90.000	176.639	9675.00	1229.73	-1227.62	72.09	752084.29	471057.94	32°17'35.411"N	103°39'04.704"W	0.00	
10800.00†	90.000	176.639	9675.00	1329.73	-1327.44	77.95	752090.15	470958.11	32°17'34.423"N	103°39'04.643"W	0.00	
10900.00†	90.000	176.639	9675.00	1429.73	-1427.27	83.82	752096.01	470858.29	32°17'33.435"N	103°39'04.582"W	0.00	
11000.00†	90.000	176.639	9675.00	1529.73	-1527.10	89.68	752101.88	470758.47	32°17'32.447"N	103°39'04.521"W	0.00	
11100.00†	90.000	176.639	9675.00	1629.73	-1626.93	95.54	752107.74	470658.64	32°17'31.458"N	103°39'04.461"W	0.00	
11200.00†	90.000	176.639	9675.00	1729.73	-1726.76	101.40	752113.60	470558.82	32°17'30.470"N	103°39'04.400"W	0.00	
11300.00†	90.000	176.639	9675.00	1829.73	-1826.58	107.27	752119.46	470458.99	32°17'29.482"N	103°39'04.339"W	0.00	
11400.00†	90.000	176.639	9675.00	1929.73	-1926.41	113.13	752125.32	470359.17	32°17'28.494"N	103°39'04.278"W	0.00	
11500.00†	90.000	176.639	9675.00	2029.73	-2026.24	118.99	752131.19	470259.35	32°17'27.506"N	103°39'04.217"W	0.00	
11600.00†	90.000	176.639	9675.00	2129.73	-2126.07	124.85	752137.05	470159.52	32°17'26.518"N	103°39'04.156"W	0.00	
11700.00†	90.000	176.639	9675.00	2229.73	-2225.90	130.72	752142.91	470059.70	32°17'25.530"N	103°39'04.095"W	0.00	
11800.00†	90.000	176.639	9675.00	2329.73	-2325.72	136.58	752148.77	469959.87	32°17'24.541"N	103°39'04.034"W	0.00	
11900.00†	90.000	176.639	9675.00	2429.73	-2425.55	142.44	752154.64	469860.05	32°17'23.553"N	103°39'03.973"W	0.00	
12000.00†	90.000	176.639	9675.00	2529.73	-2525.38	148.30	752160.50	469760.23	32°17'22.565"N	103°39'03.912"W	0.00	
12100.00†	90.000	176.639	9675.00	2629.73	-2625.21	154.17	752166.36	469660.40	32°17'21.577"N	103°39'03.852"W	0.00	
12200.00†	90.000	176.639	9675.00	2729.73	-2725.04	160.03	752172.22	469560.58	32°17'20.589"N	103°39'03.791"W	0.00	
12300.00†	90.000	176.639	9675.00	2829.73	-2824.86	165.89	752178.08	469460.76	32°17'19.601"N	103°39'03.730"W	0.00	
12400.00†	90.000	176.639	9675.00	2929.73	-2924.69	171.75	752183.95	469360.93	32°17'18.612"N	103°39'03.669"W	0.00	
12500.00†	90.000	176.639	9675.00	3029.73	-3024.52	177.62	752189.81	469261.11	32°17'17.624"N	103°39'03.608"W	0.00	



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REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No.2 SHL
Area	Lea County, NM	Well	No.2
Field	(Diamondtail) Sec 23, T23S, R32E	Wellbore	No.2 PWB
Facility	Diamondtail 23 Federal No.2		

WELLPATH DATA (151 stations) † = interpolated/extrapolated station												
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
12600.00†	90.000	176.639	9675.00	3129.73	-3124.35	183.48	752195.67	469161.28	32°17'16.636"N	103°39'03.547"W	0.00	
12700.00†	90.000	176.639	9675.00	3229.73	-3224.18	189.34	752201.53	469061.46	32°17'15.648"N	103°39'03.486"W	0.00	
12800.00†	90.000	176.639	9675.00	3329.73	-3324.00	195.20	752207.40	468961.64	32°17'14.660"N	103°39'03.425"W	0.00	
12900.00†	90.000	176.639	9675.00	3429.73	-3423.83	201.07	752213.26	468861.81	32°17'13.672"N	103°39'03.364"W	0.00	
13000.00†	90.000	176.639	9675.00	3529.73	-3523.66	206.93	752219.12	468761.99	32°17'12.684"N	103°39'03.304"W	0.00	
13100.00†	90.000	176.639	9675.00	3629.73	-3623.49	212.79	752224.98	468662.17	32°17'11.695"N	103°39'03.243"W	0.00	
13200.00†	90.000	176.639	9675.00	3729.73	-3723.32	218.65	752230.84	468562.34	32°17'10.707"N	103°39'03.182"W	0.00	
13300.00†	90.000	176.639	9675.00	3829.73	-3823.14	224.52	752236.71	468462.52	32°17'09.719"N	103°39'03.121"W	0.00	
13400.00†	90.000	176.639	9675.00	3929.73	-3922.97	230.38	752242.57	468362.69	32°17'08.731"N	103°39'03.060"W	0.00	
13500.00†	90.000	176.639	9675.00	4029.73	-4022.80	236.24	752248.43	468262.87	32°17'07.743"N	103°39'02.999"W	0.00	
13600.00†	90.000	176.639	9675.00	4129.73	-4122.63	242.10	752254.29	468163.05	32°17'06.755"N	103°39'02.938"W	0.00	
13700.00†	90.000	176.639	9675.00	4229.73	-4222.46	247.97	752260.16	468063.22	32°17'05.767"N	103°39'02.877"W	0.00	
13800.00†	90.000	176.639	9675.00	4329.73	-4322.28	253.83	752266.02	467963.40	32°17'04.778"N	103°39'02.816"W	0.00	
13900.00†	90.000	176.639	9675.00	4429.73	-4422.11	259.69	752271.88	467863.57	32°17'03.790"N	103°39'02.756"W	0.00	
14000.00†	90.000	176.639	9675.00	4529.73	-4521.94	265.55	752277.74	467763.75	32°17'02.802"N	103°39'02.695"W	0.00	
14096.52	90.000	176.639	9675.00†	4626.25	-4618.29	271.21	752283.40	467667.40	32°17'01.848"N	103°39'02.636"W	0.00	No.2 PBHL

TARGETS										
Name		MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
1) No.2 PBHL (Rev-0)		14096.52	9675.00	-4618.29	271.21	752283.40	467667.40	32°17'01.848"N	103°39'02.636"W	point

SURVEY PROGRAM - Ref Wellbore: No.2 PWB Ref Wellpath: Rev-A.0				
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
0.00	14096.52	NaviTrak (Standard)		No.2 PWB

SR & A

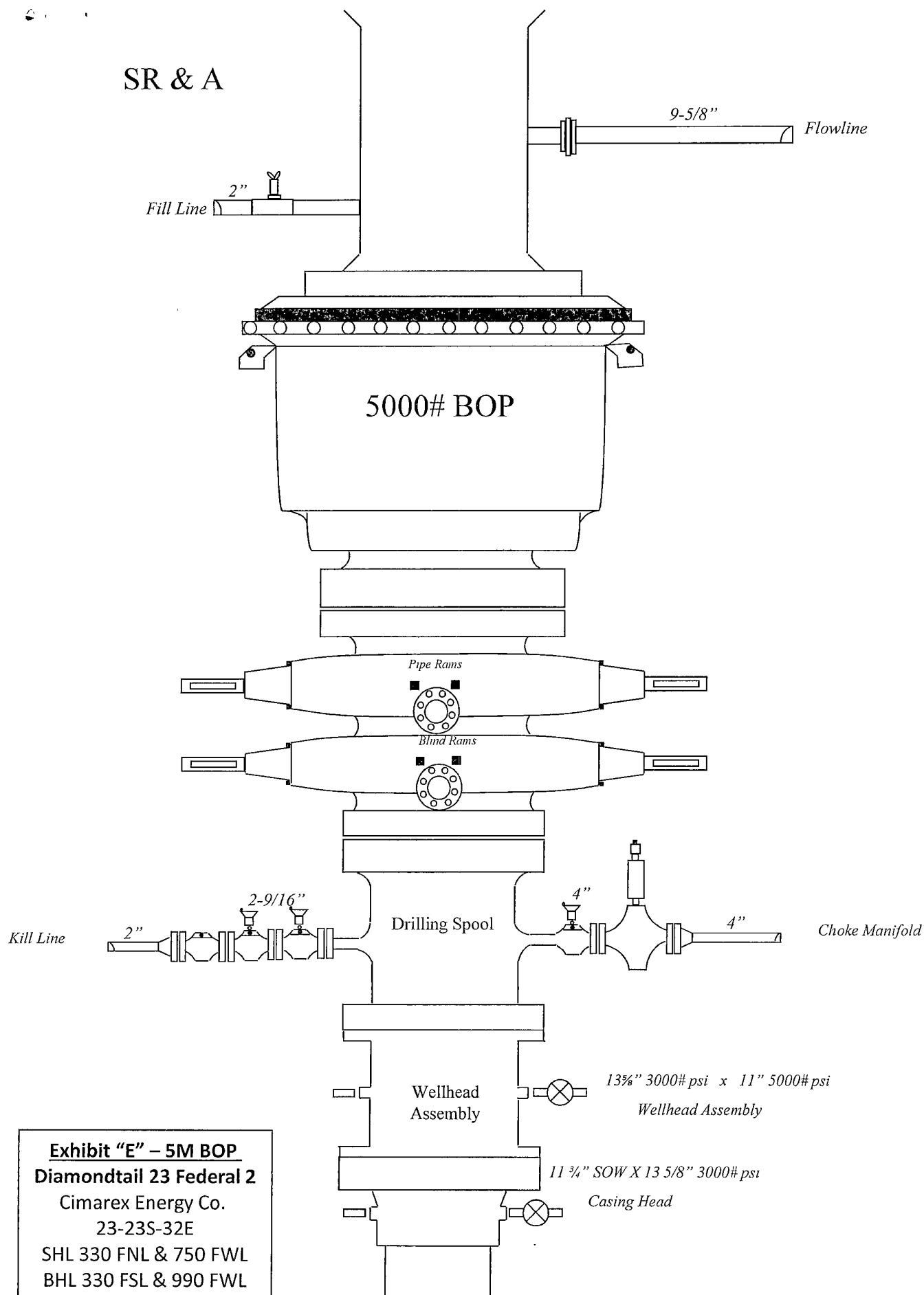


Exhibit "E" – 5M BOP
Diamondtail 23 Federal 2
 Cimarex Energy Co.
 23-23S-32E
 SHL 330 FNL & 750 FWL
 BHL 330 FSL & 990 FWL
 Lea County, NM

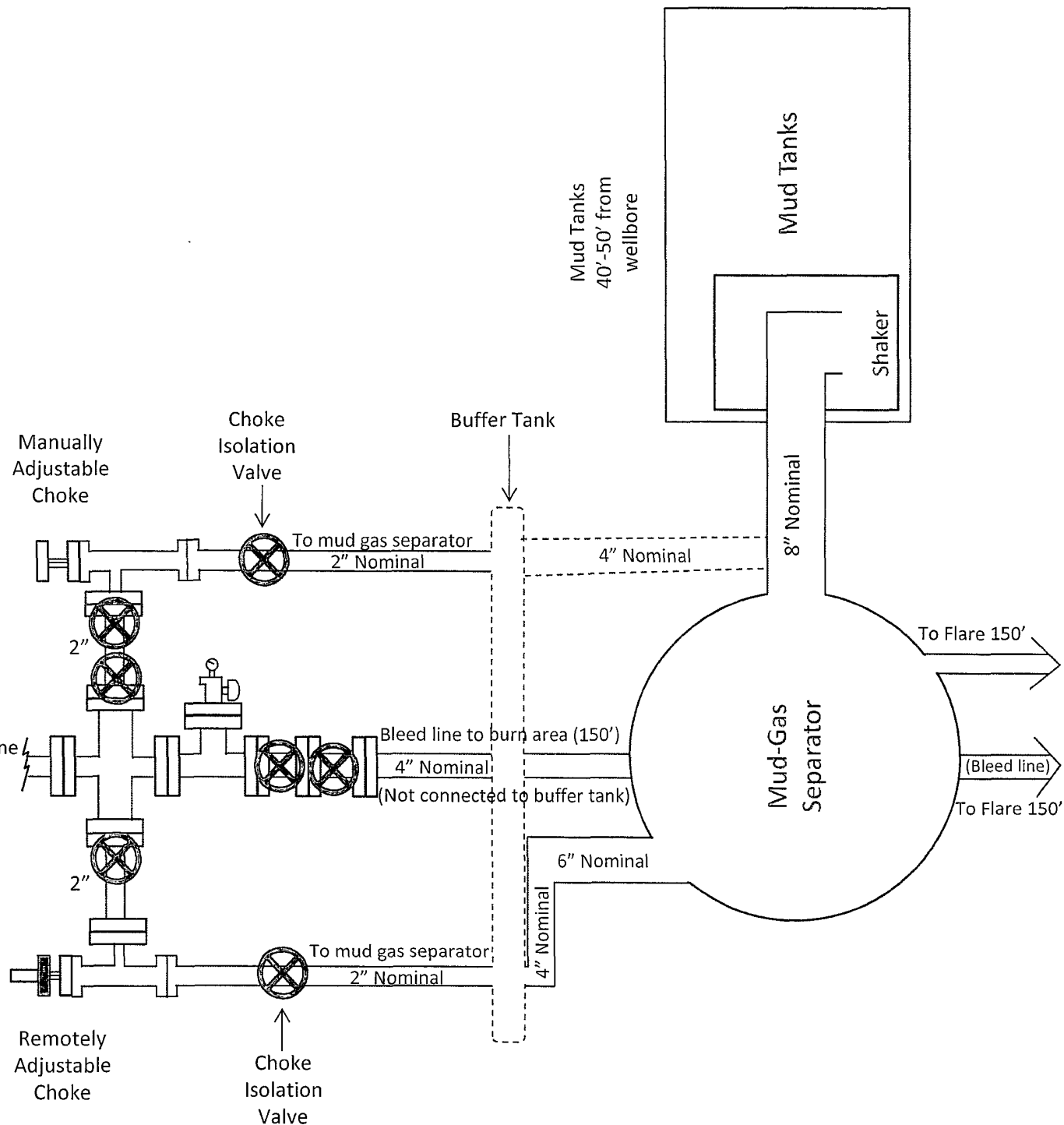
The diagram shows a cross-section of a wellhead assembly. On the left, there are two horizontal pipes. In the center, a vertical pipe is labeled "BOP Outlet". To the right of the BOP Outlet, there is a component labeled "HCR" (Hydrocarbon Control Valve). A bracket below the HCR and BOP Outlet area is labeled "Sequence Optional", indicating that the HCR is an optional part of the sequence.

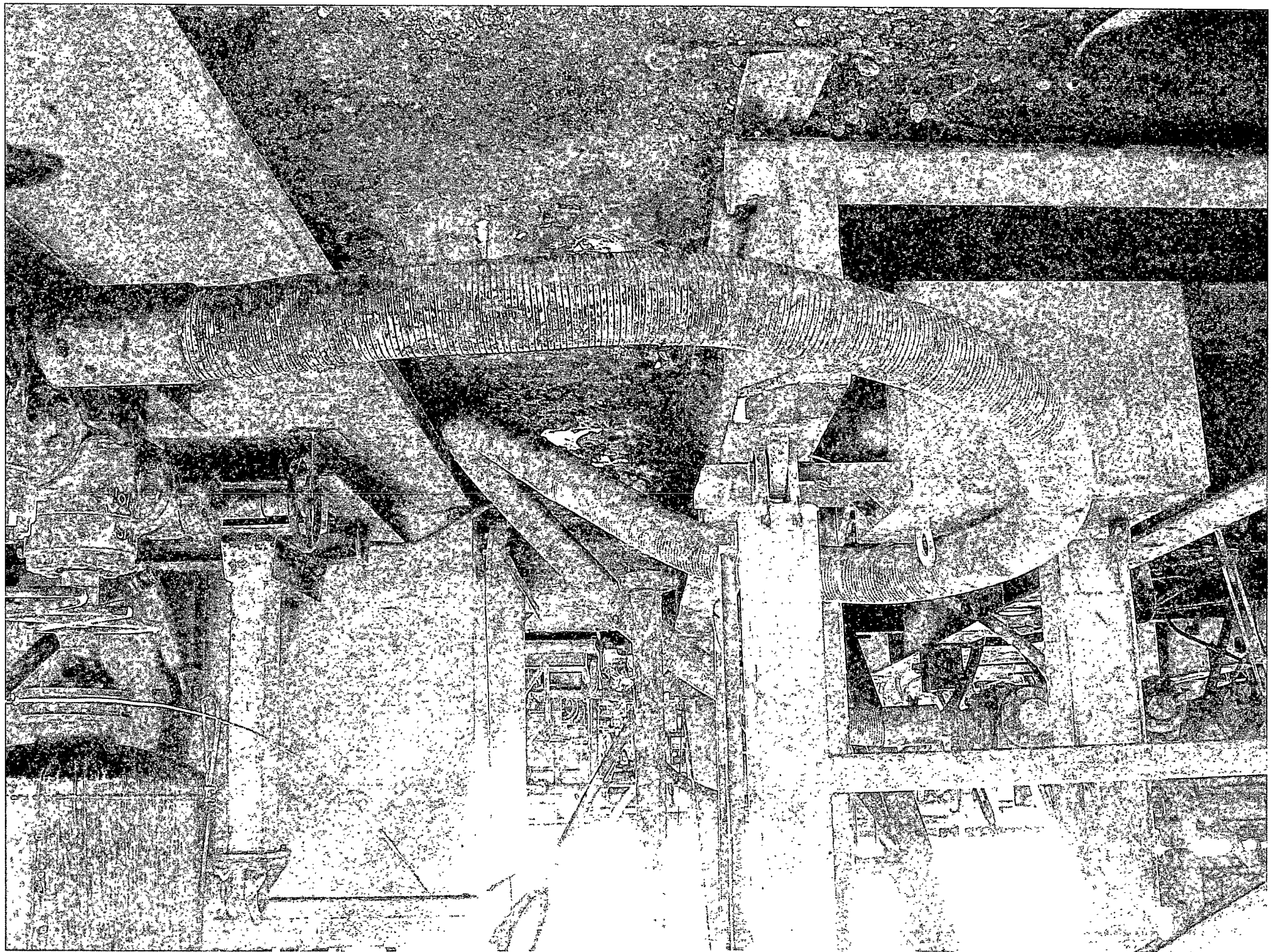
Diamondtail 23 Federal 2

23-23S-32E

BHL 330 FSL & 990 FWL

Lea County, NM





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

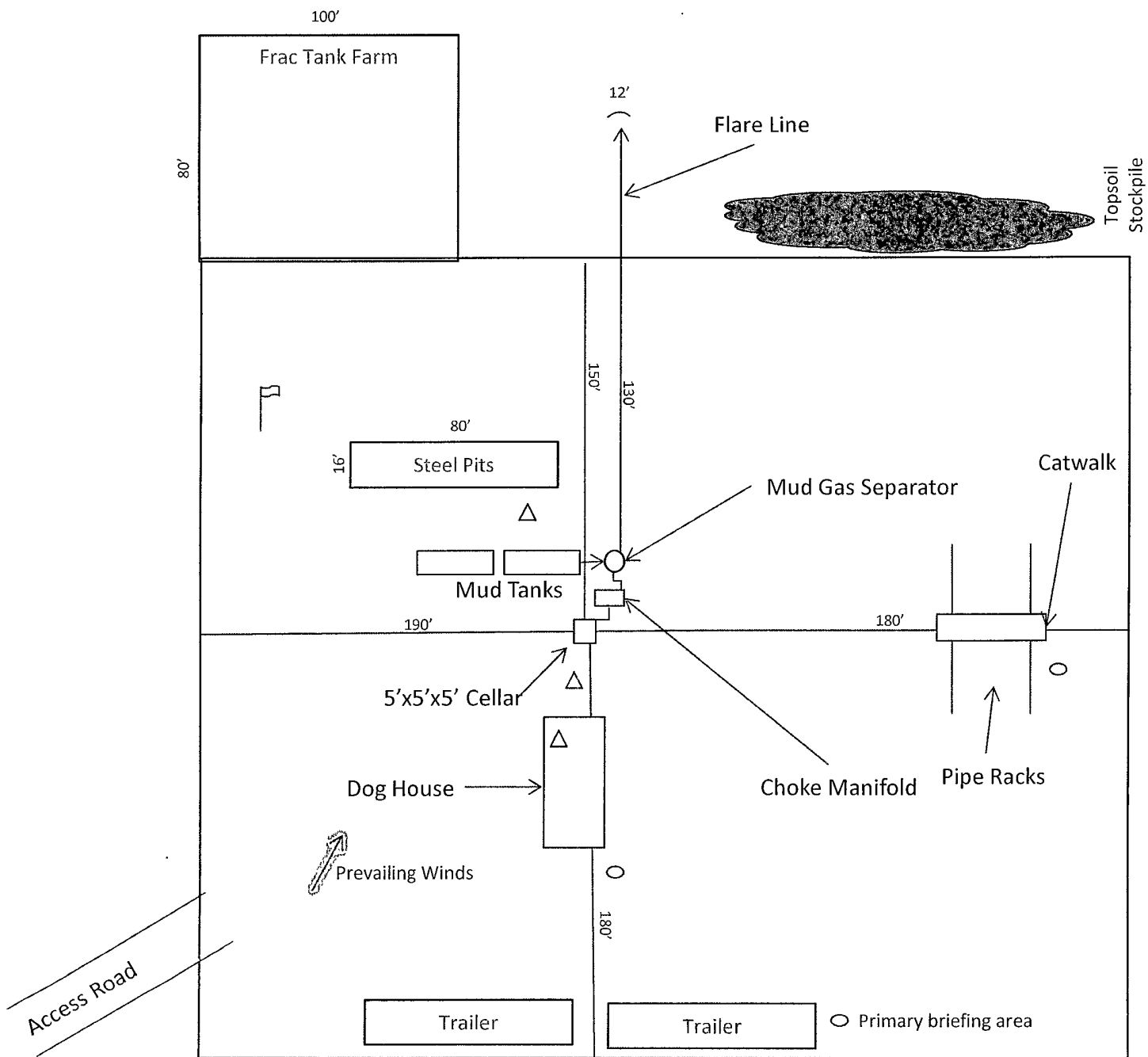


Midwest Hose
& Specialty, Inc.

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)



-  Wind Direction Indicators (wind sock or streamers)
-  • H2S Monitors (alarms at bell nipple and shale shaker)
-  Briefing Areas

Exhibit "D" – Rig Diagram
Diamondtail 23 Federal 2
 Cimarex Energy Co.
 23-23S-32E
 SHL 330 FNL & 750 FWL
 BHL 330 FSL & 990 FWL
 Lea County, NM

