

12-314

OCD-HOBBS

HOBBS OCD

Form 3160-3
(April 2004)

MAY 03 2012

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

RECEIVED

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of Work ☒ DRILL ☐ REENTER		5. Lease Serial No. SHL NM-025497, BHL NM-063530	
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. East Lusk 15 Federal Com No. <38371>	
3b. Phone No. (include area code) 432-571-7800		9. API Well No 30-025- 40557	
4. Location of Well (Report location clearly and in accordance with any State requirements) At Surface 2325 FSL & 330 FEL At proposed prod Zone 1980 FSL & 330 FWL Horizontal Bone Spring test		10. Field and Pool, or Exploratory Lusk; Bone Spring, E <41442>	
14. Distance in miles and direction from nearest town or post office*		11. Sec., T R M. or Blk and Survey or Area 15-19S-32E	
15. Distance from proposed* location to nearest property or lease line, ft (Also to nearest drig. unit line if any) 315'		12. County or Parish Lea	
16. No of acres in lease NM-025497 - 920 acres NM-063530 - 440 acres		13. State NM	
17. Spacing Unit dedicated to this well 52 320 N252 160			
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft 20'			
19. Proposed Depth MD 14421' TVD 9900'		20. BLM/BIA Bond No on File NM-2575	
21. Elevations (Show whether DF, KDB, RT, GL, etc) 3628' GR		22. Approximate date work will start* 05.01.12	
		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 <i>Zeno Farris</i>	Name (Printed/Typed) Zeno Farris	Date 01.19.12
Title Manager Operations Administration		
Approved By (Signature) <i>/s/ Don Peterson</i>	Name (Printed/Typed) Don Peterson	Date MAY 01 2012
Title FIELD MANAGER		
Office CARLSBAD FIELD OFFICE		

OCD CONDITION OF APPROVAL for Drilling
Intent to drill ONLY--CANNOT produce until
the Non-Standard Location has been approved
by OCD Santa Fe Office.

those rights in the subject lease which would entitle the applicant to
APPROVAL FOR TWO YEARS
jointly and willfully to make to any department or agency of the United
jurisdiction

Capitan Controlled Water Basin

[Signature]
05/04/12

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

Approval Subject to General Requirements
& Special Stipulations Attached
MAY 08 2012

Application to Drill
East Lusk 15 Federal Com No. 2
 Cimarex Energy Co. of Colorado
 Unit I, Section 15
 T19S-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 2325 FSL & 330 FEL
 BHL 1980 FSL & 330 FWL

- 2 Elevation above sea level: 3628' 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 14421' TVD 9900'

- 6 Estimated tops of geological markers:

Rustler	1200'	Delaware	5180'
T. Salt	1412'	Bone Spring	7850'
B. Salt	2718'	Wolfcamp	11100'
Yates	3020'	Strawn	12110'
Capitan	3650'	Morrow	12820'

- 7 Possible mineral bearing formation:

Bone Spring	Oil
Delaware	Oil
Yates	Oil

8 Proposed Mud Circulating System:

Depth	Mud Wt	Visc	Fluid Loss	Type Mud
0' to 1170' 1225'	8.4 - 8.6	28	NC	FW
1225' to 5200'	10.0	30-32	NC	Brine water
5200' to 9614'	8.4 - 9.5	30-32	NC	FW, brine
9614' to 14421'	8.4	28-29	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

After setting surface and intermediate casing, drill 8.75" hole to KOP @ 9614' and drill through curve to TD @ 14421'. Set 5.5" casing from 0-TD and cement as shown on next page.

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9 Casing & Cementing Program:

String	Hole Size	Depth	Casing OD	Weight	Collar	Grade
Surface	17½"	0' to 1170' ^{See COA} 1225'	New 13¾"	48#	STC	H-40
Intermediate	12¼"	0' to 5200'	New 9¾"	40#	LTC	JK-55
Production	8¾"	0' to 14421'	New 5½"	17#	LTC	P-110

*N-80
Per Operator
4/30/12
CRW*

10 Cementing:

Surface

Lead: 780 sx Extendacem (wt 13.5, yld 1.75, 100% excess) 4% Bentomite + 2% CaCl
 Tail: 185 sx Halcem (wt 14.8, yld 1.35, 50% excess) + 2% CaCl
TOC Surface Centralizers per Onshorder 2.III.B.1.f

Intermediate

Stage 1

Lead: 460 sx Econocem (wt 12.9, yld 1.86, 70% excess) + 5% Salt + 5 lbm/sk Gilsonite
 Tail: 160 sks Halcem (wt 14.8, yld 1.34, 25% excess) + 1% CaCl

Stage 2 (DVT +/- 3200)

Lead: 2800 sx Econocem + 5# Gilsonite + 5% Salt (wt 12.9, yld 1.34, 70% excess)
 Tail: 100 sx Halcem + 1% CaCl (wt 14.8, yld 1.34, 25% excess)

TOC Surface

Production

Lead: 840 sx Premium H + 0.4% HR-601 5# Gilsonite (wt 11.9, yld 2.44, 50% excess)
 Tail: 1100 sx Premium H + 0.5% Halad-344 + 0.4% CFR-3 + 1# Salt + 0.1% HR-601 (wt 14.5, yld 1.22, 25% excess)

TOC 5000'

See COA

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 ground water is 375'. Fresh water zones will be protected by setting 13¾" casing at 1225' and cementing to surface. Hydrocarbon zones will be protected by setting 9¾" casing at 5200' and cementing to surface, and by setting 5½" casing at 14421' and cementing to 5000'.

Collapse Factor Burst Factor Tension Factor

1.125 1.125 1.6

11 Pressure control Equipment:

Exhibit "E". A 13¾" 5000 PSI working pressure BOP tested to 3000 psi 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 13¾" casing through the running of production casing, the well will be equipped with a 5000 psi BOP system tested to 3000 psi.

BOPS will be tested by an independent service company to 250 psi low and 3000 psi high. Hydril will be tested to 250 psi low and 3000 psi high.

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

- A. Mud logging program: 2 man unit from 5200' 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 **4200 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: (East 15) Sec 15, T19S, R32E
Facility: East Lusk 15 Fed Com No. 2H

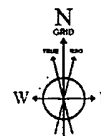
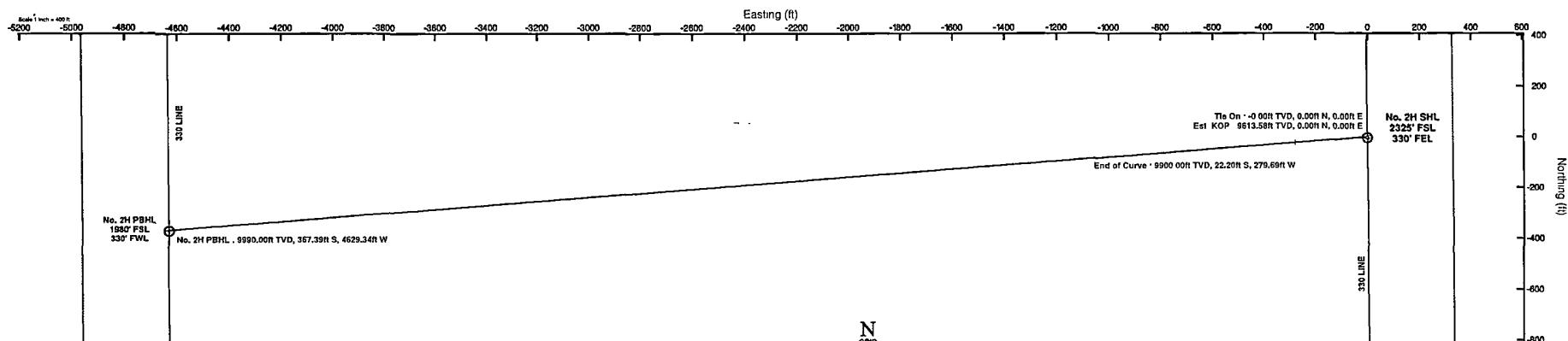
Slot: No. 2H SHL
Well: No. 2H
Wellbore: No. 2H PWB



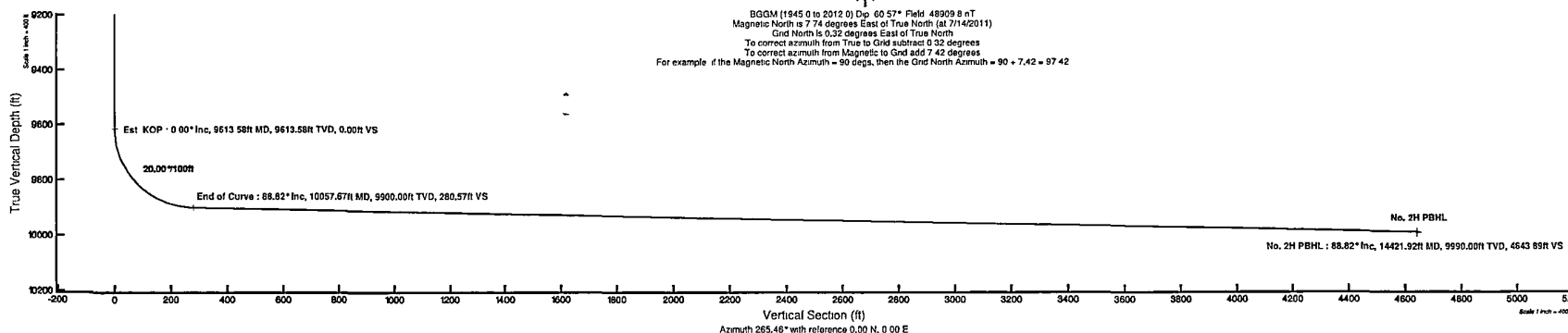
Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	0.00	0.000	265.462	0.00	0.00	0.00	0.00	0.00
Est KOP	9613.58	0.000	265.462	9613.58	0.00	0.00	0.00	0.00
End of Curve	10057.67	88.818	265.462	9900.00	-22.20	-279.69	20.00	280.57
No. 2H PBHL	14421.92	88.818	265.462	9990.00	-367.39	-4629.34	0.00	4643.89

Plot reference wellpath is Prelim_3	
True vertical depths are referenced to Rig on No. 2H SHL (KB)	Grid System: NAD83 / TM New Mexico SP, Eastern Zone (3001), US feet
Measured depths are referenced to Rig on No. 2H SHL (KB)	North Reference: Grid north
Rig on No. 2H SHL (KB) to Mean Sea Level: 3626 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot No. 2H SHL): -3626 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: calphuk on 7/14/2011



BGGM (1945 0 to 2012 0) Dp: 60.57° Field: 48909.8 nT
Magnetic North is 7.74 degrees East of True North (at 7/14/2011)
Grid North is 0.32 degrees East of True North
To correct azimuth from True to Grid subtract 0.32 degrees
To correct azimuth from Magnetic to Grid add 7.42 degrees
For example if the Magnetic North Azimuth = 90 degs, then the Grid North Azimuth = 90 + 7.42 = 97.42





Planned Wellpath Report

Prelim_3
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REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 2H SHL
Area	Lea County, NM	Well	No. 2H
Field	(East 15) Sec 15, T19S, R32E	Wellbore	No. 2H PWB
Facility	East Lusk 15 Fed Com No. 2H		

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	Calhphik
Scale	0.999946	Report Generated	7/14/2011 at 12:42:47 PM
Convergence at slot	0.32° East	Database/Source file	WA Midland/No. 2H_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	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W
Facility Reference Pt			721926.60	604164.80	32°39'34.286"N	103°44'47.510"W
Field Reference Pt			721939.70	602500.30	32°39'17.815"N	103°44'47.464"W

WELLPATH DATUM			
Calculation method	Minimum curvature	Rig on No. 2H SHL (KB) to GL	3628.00ft
Horizontal Reference Pt	Slot	Rig on No. 2H SHL (KB) to Mean Sea Level	3628.00ft
Vertical Reference Pt	Rig on No. 2H SHL (KB)	Rig on No. 2H SHL (KB) to Mud Line at Slot (No. 2H SHL)	0.00ft
MD Reference Pt	Rig on No. 2H SHL (KB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	265.46°



Planned Wellpath Report

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Facility	East Lusk 15 Fed Com No. 2H		

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	265.462	0.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	Tie On
100.00†	0.000	265.462	100.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
200.00†	0.000	265.462	200.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
300.00†	0.000	265.462	300.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
400.00†	0.000	265.462	400.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
500.00†	0.000	265.462	500.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
600.00†	0.000	265.462	600.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
700.00†	0.000	265.462	700.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
800.00†	0.000	265.462	800.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
900.00†	0.000	265.462	900.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
1000.00†	0.000	265.462	1000.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
1100.00†	0.000	265.462	1100.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
1200.00†	0.000	265.462	1200.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
1300.00†	0.000	265.462	1300.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
1400.00†	0.000	265.462	1400.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
1500.00†	0.000	265.462	1500.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
1600.00†	0.000	265.462	1600.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
1700.00†	0.000	265.462	1700.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
1800.00†	0.000	265.462	1800.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
1900.00†	0.000	265.462	1900.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
2000.00†	0.000	265.462	2000.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
2100.00†	0.000	265.462	2100.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
2200.00†	0.000	265.462	2200.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
2300.00†	0.000	265.462	2300.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
2400.00†	0.000	265.462	2400.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
2500.00†	0.000	265.462	2500.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
2600.00†	0.000	265.462	2600.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
2700.00†	0.000	265.462	2700.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
2800.00†	0.000	265.462	2800.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
2900.00†	0.000	265.462	2900.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
3000.00†	0.000	265.462	3000.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
3100.00†	0.000	265.462	3100.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
3200.00†	0.000	265.462	3200.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
3300.00†	0.000	265.462	3300.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
3400.00†	0.000	265.462	3400.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
3500.00†	0.000	265.462	3500.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
3600.00†	0.000	265.462	3600.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
3700.00†	0.000	265.462	3700.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
3800.00†	0.000	265.462	3800.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
3900.00†	0.000	265.462	3900.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
4000.00†	0.000	265.462	4000.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
4100.00†	0.000	265.462	4100.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
4200.00†	0.000	265.462	4200.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
4300.00†	0.000	265.462	4300.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
4400.00†	0.000	265.462	4400.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	



Planned Wellpath Report

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REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 2H SHL
Area	Lea County, NM	Well	No. 2H
Field	(East 15) Sec 15, T19S, R32E	Wellbore	No. 2H PWB
Facility	East Lusk 15 Fed Com No. 2H		

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
4500.00†	0.000	265.462	4500.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
4600.00†	0.000	265.462	4600.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
4700.00†	0.000	265.462	4700.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
4800.00†	0.000	265.462	4800.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
4900.00†	0.000	265.462	4900.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
5000.00†	0.000	265.462	5000.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
5100.00†	0.000	265.462	5100.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
5200.00†	0.000	265.462	5200.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
5300.00†	0.000	265.462	5300.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
5400.00†	0.000	265.462	5400.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
5500.00†	0.000	265.462	5500.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
5600.00†	0.000	265.462	5600.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
5700.00†	0.000	265.462	5700.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
5800.00†	0.000	265.462	5800.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
5900.00†	0.000	265.462	5900.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
6000.00†	0.000	265.462	6000.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
6100.00†	0.000	265.462	6100.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
6200.00†	0.000	265.462	6200.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
6300.00†	0.000	265.462	6300.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
6400.00†	0.000	265.462	6400.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
6500.00†	0.000	265.462	6500.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
6600.00†	0.000	265.462	6600.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
6700.00†	0.000	265.462	6700.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
6800.00†	0.000	265.462	6800.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
6900.00†	0.000	265.462	6900.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
7000.00†	0.000	265.462	7000.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
7100.00†	0.000	265.462	7100.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
7200.00†	0.000	265.462	7200.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
7300.00†	0.000	265.462	7300.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
7400.00†	0.000	265.462	7400.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
7500.00†	0.000	265.462	7500.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
7600.00†	0.000	265.462	7600.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
7700.00†	0.000	265.462	7700.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
7770.00†	0.000	265.462	7770.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	Bone Spring
7800.00†	0.000	265.462	7800.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
7900.00†	0.000	265.462	7900.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
8000.00†	0.000	265.462	8000.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
8100.00†	0.000	265.462	8100.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
8200.00†	0.000	265.462	8200.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
8300.00†	0.000	265.462	8300.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
8400.00†	0.000	265.462	8400.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
8500.00†	0.000	265.462	8500.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
8600.00†	0.000	265.462	8600.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
8700.00†	0.000	265.462	8700.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
8800.00†	0.000	265.462	8800.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	



Planned Wellpath Report

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REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 2H SHL
Area	Lea County, NM	Well	No. 2H
Field	(East 15) Sec 15, T19S, R32E	Wellbore	No. 2H PWB
Facility	East Lusk 15 Fed Com No. 2H		

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
8900.00†	0.000	265.462	8900.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
8920.00†	0.000	265.462	8920.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	1st Bone Spring Shale
9000.00†	0.000	265.462	9000.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
9100.00†	0.000	265.462	9100.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
9200.00†	0.000	265.462	9200.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
9300.00†	0.000	265.462	9300.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
9400.00†	0.000	265.462	9400.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
9500.00†	0.000	265.462	9500.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
9600.00†	0.000	265.462	9600.00	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	
9613.58†	0.000	265.462	9613.58	0.00	0.00	0.00	721926.60	604164.80	32°39'34.286"N	103°44'47.510"W	0.00	Est KOP
9650.10†	7.304	265.462	9650.00	2.32	-0.18	-2.32	721924.28	604164.62	32°39'34.284"N	103°44'47.537"W	20.00	2nd Bone Spring Shale
9700.00†	17.284	265.462	9698.70	12.94	-1.02	-12.90	721913.70	604163.78	32°39'34.276"N	103°44'47.661"W	20.00	
9800.00†	37.284	265.462	9787.12	58.54	-4.63	-58.36	721868.24	604160.17	32°39'34.243"N	103°44'48.193"W	20.00	
9900.00†	57.284	265.462	9854.61	131.64	-10.41	-131.23	721795.38	604154.39	32°39'34.190"N	103°44'49.045"W	20.00	
10000.00†	77.284	265.462	9893.03	223.42	-17.68	-222.72	721703.89	604147.13	32°39'34.123"N	103°44'50.116"W	20.00	
10057.67	88.818	265.462	9900.00	280.57	-22.20	-279.69	721646.92	604142.60	32°39'34.081"N	103°44'50.783"W	20.00	End of Curve
10100.00†	88.818	265.462	9900.87	322.89	-25.54	-321.88	721604.74	604139.26	32°39'34.050"N	103°44'51.276"W	0.00	
10200.00†	88.818	265.462	9902.93	422.87	-33.45	-421.54	721505.08	604131.35	32°39'33.978"N	103°44'52.443"W	0.00	
10300.00†	88.818	265.462	9905.00	522.85	-41.36	-521.21	721405.42	604123.44	32°39'33.905"N	103°44'53.609"W	0.00	
10400.00†	88.818	265.462	9907.06	622.83	-49.27	-620.87	721305.76	604115.53	32°39'33.832"N	103°44'54.775"W	0.00	
10500.00†	88.818	265.462	9909.12	722.81	-57.18	-720.54	721206.10	604107.62	32°39'33.759"N	103°44'55.941"W	0.00	
10600.00†	88.818	265.462	9911.18	822.78	-65.09	-820.21	721106.44	604099.71	32°39'33.686"N	103°44'57.108"W	0.00	
10700.00†	88.818	265.462	9913.24	922.76	-73.00	-919.87	721006.78	604091.80	32°39'33.613"N	103°44'58.274"W	0.00	
10800.00†	88.818	265.462	9915.31	1022.74	-80.91	-1019.54	720907.12	604083.89	32°39'33.541"N	103°44'59.440"W	0.00	
10900.00†	88.818	265.462	9917.37	1122.72	-88.82	-1119.20	720807.46	604075.98	32°39'33.468"N	103°45'00.606"W	0.00	
11000.00†	88.818	265.462	9919.43	1222.70	-96.73	-1218.87	720707.80	604068.07	32°39'33.395"N	103°45'01.773"W	0.00	
11100.00†	88.818	265.462	9921.49	1322.68	-104.64	-1318.53	720608.14	604060.17	32°39'33.322"N	103°45'02.939"W	0.00	
11200.00†	88.818	265.462	9923.56	1422.66	-112.55	-1418.20	720508.48	604052.26	32°39'33.249"N	103°45'04.105"W	0.00	
11300.00†	88.818	265.462	9925.62	1522.64	-120.46	-1517.86	720408.82	604044.35	32°39'33.176"N	103°45'05.271"W	0.00	
11400.00†	88.818	265.462	9927.68	1622.61	-128.37	-1617.53	720309.16	604036.44	32°39'33.103"N	103°45'06.438"W	0.00	
11500.00†	88.818	265.462	9929.74	1722.59	-136.28	-1717.19	720209.50	604028.53	32°39'33.031"N	103°45'07.604"W	0.00	
11600.00†	88.818	265.462	9931.80	1822.57	-144.19	-1816.86	720109.84	604020.62	32°39'32.958"N	103°45'08.770"W	0.00	
11700.00†	88.818	265.462	9933.87	1922.55	-152.10	-1916.52	720010.18	604012.71	32°39'32.885"N	103°45'09.936"W	0.00	
11800.00†	88.818	265.462	9935.93	2022.53	-160.01	-2016.19	719910.52	604004.80	32°39'32.812"N	103°45'11.103"W	0.00	
11900.00†	88.818	265.462	9937.99	2122.51	-167.92	-2115.85	719810.86	603996.89	32°39'32.739"N	103°45'12.269"W	0.00	
12000.00†	88.818	265.462	9940.05	2222.49	-175.83	-2215.52	719711.20	603988.98	32°39'32.666"N	103°45'13.435"W	0.00	
12100.00†	88.818	265.462	9942.12	2322.46	-183.74	-2315.19	719611.54	603981.07	32°39'32.593"N	103°45'14.601"W	0.00	
12200.00†	88.818	265.462	9944.18	2422.44	-191.65	-2414.85	719511.88	603973.16	32°39'32.520"N	103°45'15.768"W	0.00	
12300.00†	88.818	265.462	9946.24	2522.42	-199.56	-2514.52	719412.22	603965.26	32°39'32.448"N	103°45'16.934"W	0.00	
12400.00†	88.818	265.462	9948.30	2622.40	-207.46	-2614.18	719312.56	603957.35	32°39'32.375"N	103°45'18.100"W	0.00	
12500.00†	88.818	265.462	9950.37	2722.38	-215.37	-2713.85	719212.90	603949.44	32°39'32.302"N	103°45'19.266"W	0.00	
12600.00†	88.818	265.462	9952.43	2822.36	-223.28	-2813.51	719113.24	603941.53	32°39'32.229"N	103°45'20.433"W	0.00	
12700.00†	88.818	265.462	9954.49	2922.34	-231.19	-2913.18	719013.58	603933.62	32°39'32.156"N	103°45'21.599"W	0.00	
12800.00†	88.818	265.462	9956.55	3022.32	-239.10	-3012.84	718913.92	603925.71	32°39'32.083"N	103°45'22.765"W	0.00	
12900.00†	88.818	265.462	9958.61	3122.29	-247.01	-3112.51	718814.26	603917.80	32°39'32.010"N	103°45'23.931"W	0.00	



Planned Wellpath Report

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REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 2H SHL
Area	Lea County, NM	Well	No. 2H
Field	(East 15) Sec 15, T19S, R32E	Wellbore	No. 2H PWB
Facility	East Lusk 15 Fed Com No. 2H		

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
13000.00†	88.818	265.462	9960.68	3222.27	-254.92	-3212.17	718714.60	603909.89	32°39'31.937"N	103°45'25.098"W	0.00	
13100.00†	88.818	265.462	9962.74	3322.25	-262.83	-3311.84	718614.94	603901.98	32°39'31.864"N	103°45'26.264"W	0.00	
13200.00†	88.818	265.462	9964.80	3422.23	-270.74	-3411.50	718515.28	603894.07	32°39'31.791"N	103°45'27.430"W	0.00	
13300.00†	88.818	265.462	9966.86	3522.21	-278.65	-3511.17	718415.62	603886.16	32°39'31.719"N	103°45'28.596"W	0.00	
13400.00†	88.818	265.462	9968.93	3622.19	-286.56	-3610.84	718315.97	603878.26	32°39'31.646"N	103°45'29.763"W	0.00	
13500.00†	88.818	265.462	9970.99	3722.17	-294.47	-3710.50	718216.31	603870.35	32°39'31.573"N	103°45'30.929"W	0.00	
13600.00†	88.818	265.462	9973.05	3822.15	-302.38	-3810.17	718116.65	603862.44	32°39'31.500"N	103°45'32.095"W	0.00	
13700.00†	88.818	265.462	9975.11	3922.12	-310.29	-3909.83	718016.99	603854.53	32°39'31.427"N	103°45'33.261"W	0.00	
13800.00†	88.818	265.462	9977.17	4022.10	-318.20	-4009.50	717917.33	603846.62	32°39'31.354"N	103°45'34.427"W	0.00	
13900.00†	88.818	265.462	9979.24	4122.08	-326.11	-4109.16	717817.67	603838.71	32°39'31.281"N	103°45'35.594"W	0.00	
14000.00†	88.818	265.462	9981.30	4222.06	-334.02	-4208.83	717718.01	603830.80	32°39'31.208"N	103°45'36.760"W	0.00	
14100.00†	88.818	265.462	9983.36	4322.04	-341.93	-4308.49	717618.35	603822.89	32°39'31.135"N	103°45'37.926"W	0.00	
14200.00†	88.818	265.462	9985.42	4422.02	-349.84	-4408.16	717518.69	603814.98	32°39'31.062"N	103°45'39.092"W	0.00	
14300.00†	88.818	265.462	9987.49	4522.00	-357.75	-4507.82	717419.03	603807.07	32°39'30.989"N	103°45'40.259"W	0.00	
14400.00†	88.818	265.462	9989.55	4621.98	-365.66	-4607.49	717319.37	603799.16	32°39'30.916"N	103°45'41.425"W	0.00	
14421.92	88.818	265.462	9990.00†	4643.89	-367.39	-4629.34	717297.52	603797.43	32°39'30.900"N	103°45'41.681"W	0.00	No. 2H PBHL

TARGETS									
Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
1) No. 2H PBHL	14421.92	9990.00	-367.39	-4629.34	717297.52	603797.43	32°39'30.900"N	103°45'41.681"W	point

SURVEY PROGRAM - Ref Wellbore: No. 2H PWB Ref Wellpath: Prelim_3				
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
0.00	14421.92	NaviTrak (Standard)		No. 2H PWB

SR & A

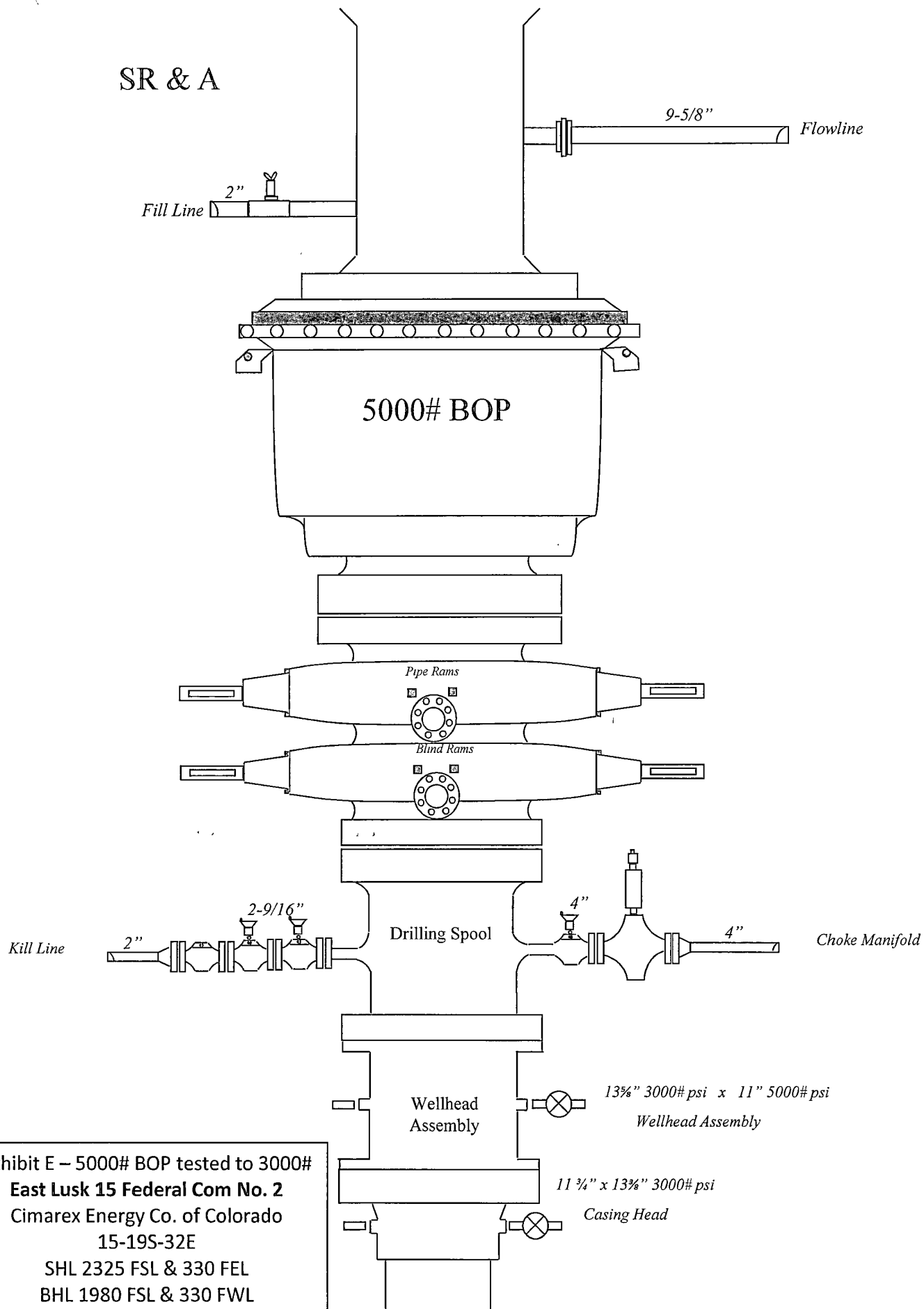


Exhibit E – 5000# BOP tested to 3000#
East Lusk 15 Federal Com No. 2
Cimarex Energy Co. of Colorado
15-19S-32E
SHL 2325 FSL & 330 FEL
BHL 1980 FSL & 330 FWL
Lea County, NM

Drilling Operations Choke Manifold 5M Service tested to 3M

Exhibit E-1 – Choke Manifold Diagram

East Lusk 15 Federal Com No 2

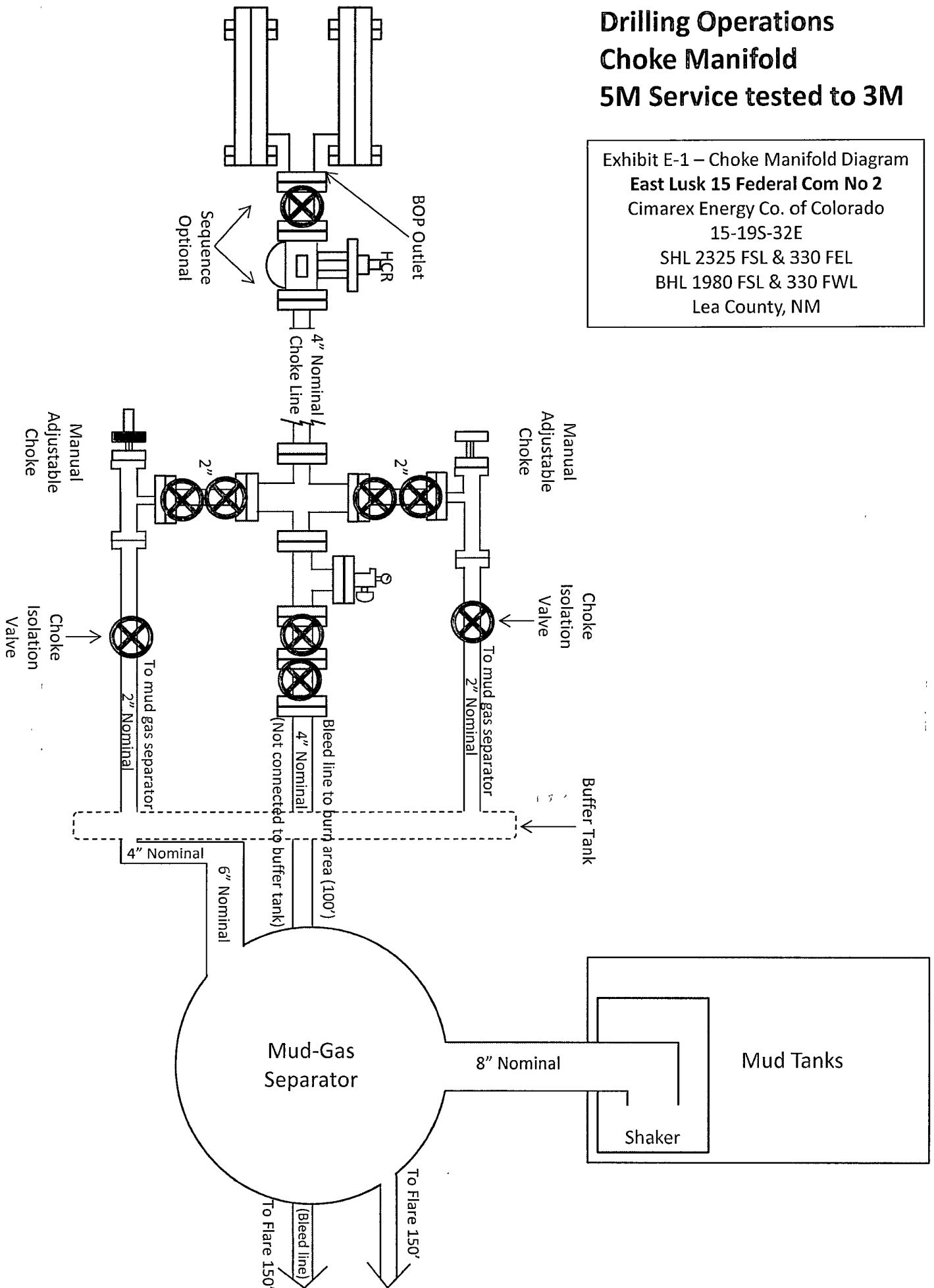
Cimarex Energy Co. of Colorado

15-19S-32E

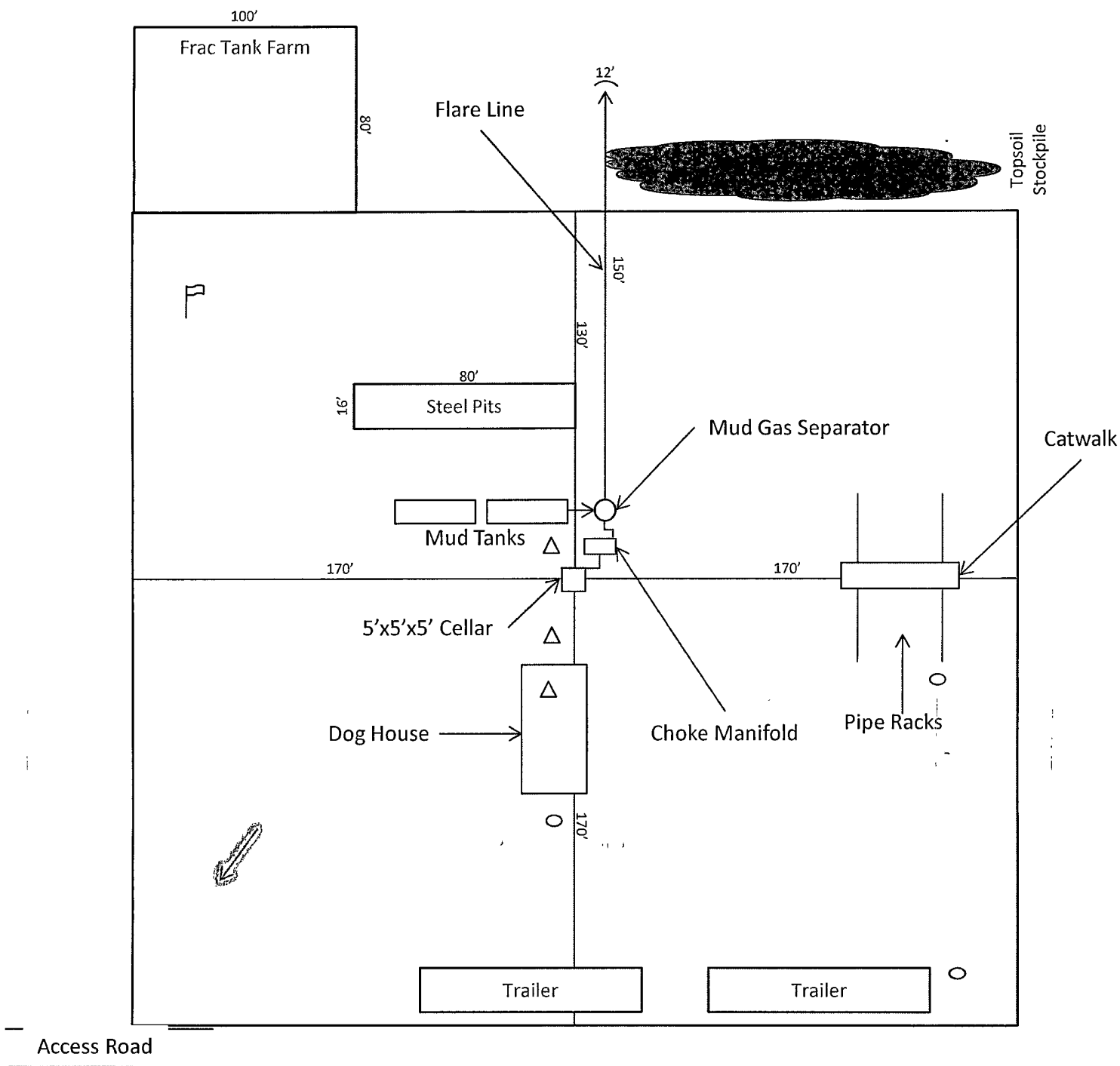
SHL 2325 FSL & 330 FEL

BHL 1980 FSL & 330 FWL

Lea County, NM



Patriot Rig 4



1"=50'



Wind Direction Indicators
(wind sock or streamers)



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



Briefing Areas

Exhibit D – Rig Diagram
East Lusk 15 Federal Com No. 2
 Cimarex Energy Co. of Colorado
 15-19S-32E
 SHL 2325 FSL & 330 FEL
 BHL 1980 FSL & 330 FWL
 Lea County, NM