

OCD-HOBBS
HOBBS OCDForm 3160-3
(April 2004)

FEB 23 2012

FORM APPROVED
OMB No 1004-0137
Expires March 31, 2007UNITED 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 NM-0392082-A
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
3a Address 600 N. Marienfeld St., Ste. 600; Midland, TX 79701		8 Lease Name and Well No. Hallertau 5 Federal No. 3H <38778>
3b Phone No (include area code) 432-571-7800		9 API Well No. 30-025- 40455
4 Location of Well (Report location clearly and in accordance with any State requirements *) At Surface 330 FSL & 1980 FWL Unit N At proposed prod Zone 330 FNL & 1980 FWL Unit E Horizontal Bone Spring test		10 Field and Pool, or Exploratory Bone Spring Wildcat UPPER SHALE
14 Distance in miles and direction from nearest town or post office*		11. Sec, T, R, M or Blk. and Survey or Area 5-26S-32E
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 1720.49 acres	12 County or Parish Lea
17. Spacing Unit dedicated to this well E2W2 160 acres	13 State NM	
18 Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft 1320'	19 Proposed Depth MD 13497 TVD 8939	20 BLM/BIA Bond No on File NM-2575
21 Elevations (Show whether DF, KDB, RT, GL, etc) 3272' GR	22 Approximate date work will start* 2.1.11	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 	Name (Printed/Typed) Terri Stathem	Date 12.16.11
Title Regulatory Analyst		
Approved By (Signature)	Name (Printed/Typed)	FEB 21 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

FEB 28 2012

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

Application to Drill
Hallertau 5 Federal No. 3H
 Cimarex Energy Co. of Colorado
 Unit N, Section 5
 T26S-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 FSL & 1980 FWL
 BHL 330 FNL & 1980 FWL

2 Elevation above sea level: 3272 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 13497 TVD 8939

6 Estimated tops of geological markers:

Rustler	1100	Cherry Canyon	5549
T. Salt	1367	Basal Brushy Canyon	8239
B. Salt	4209	Bone Spring	8434
Delaware	4419	FBSS	9439

7 Possible mineral bearing formation:

Delaware	Oil
Bone Spring	Oil

8 Proposed Mud Circulating System:

Depth	Mud Wt	Visc	Fluid Loss	Type Mud
0' to ¹¹²⁵ 1100'	8.4 - 8.6	28	NC	FW
1100' to ⁴⁴⁰⁰ 4800'	10.0	30-32	NC	Brine water
4800' to 13497'	8.4 - 9.5	30-32	NC	FW, brine

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 surface and intermediate holes and set casing. Drill 8¾" hole to KOP @ 8652 and drill through curve to lateral TD @ 13497 MD, 8939 TVD. Set 5½" 17# P110 LTC casing from 0-13497. Cement as shown in cementing proposal.

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9 Casing & Cementing Program:

String	Hole Size	Depth	Casing OD	Weight	Collar	Grade
<i>2 1/2"</i> Surface	17½"	0' to 1125 1100'	New 13¾"	54.5#	STC	J-55
Intermediate	12¼"	0' to 440 4800'	New 9½"	40 36#	LTC	J-55
Production	8¾"	0' to 13497'	New 5½"	17#	LTC	P-110

per Operator 2/21/12

10 Cementing:

Surface	835SKS Class C Cement + 4% Bentomite + 2% CaCl 13.5ppg 1.75yield 100% Excess, Circulate Cmnt to Surface TOC Surface Centralizers per Onshorder 2.III.B.1.f	
Intermediate	Lead:1240SKS Type C Cement, 5% NaCl WOW, D132 (ext) 27.522 lb/sk, D020 (ext) 6%, D042 (ext) 3lb/sk, D130 (LCM) 0.125lb/sk 12.6ppg 2.06yield 70% Excess Tail:200SKS Type C Cement 14.8ppg 1.33 yield 25% Excess TOC Surface	
Production	Lead:945SKS Type H cement, NaCl 5% WOW, D132 (ext) 39.39lb/sk, D020 (ext) 10%, D046 Antifoam 0.20%, D130 LCM 0.125lb/sk, D112 1% 11.8ppg 2.56 yield 45% Excess Tail:745SKS D049 Cement, 1.3% NaCl, 0.4% D207 fluid loss, 0.2% AnitFoam, 0.3% retarder, 2.0% D174 Expanding Agent 14.5ppg 1.44 yield 25% Excess TOC 4500' 4200' Centralizers every 3rd joint in lateral to provide adequate cement coverage every 100' unless lateral doglegs require greater spacing between centralizers.	

See COA

Depth to ground water is 275 according to the State Engineer. Fresh water zones will be protected by setting 13¾" casing at ~~1100~~ and cementing to surface. Hydrocarbon zones will be protected by setting 9½" casing at ~~4800~~ and cementing to surface, and by setting 5½" casing at 13497 and cementing to ~~4600~~.

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

11 Pressure control Equipment:

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 to be used when 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 1500 psi high.

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Cimarex Energy Co. of Colorado
Unit N, Section 5
T26S-R32E; Lea County, NM

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- 12 Testing, Logging and Coring Program: *See COA*
- A. Mud logging program: 2 man unit from 4800' 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 **4023 psi** Estimated BHT **150°**

- 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.**

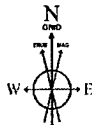
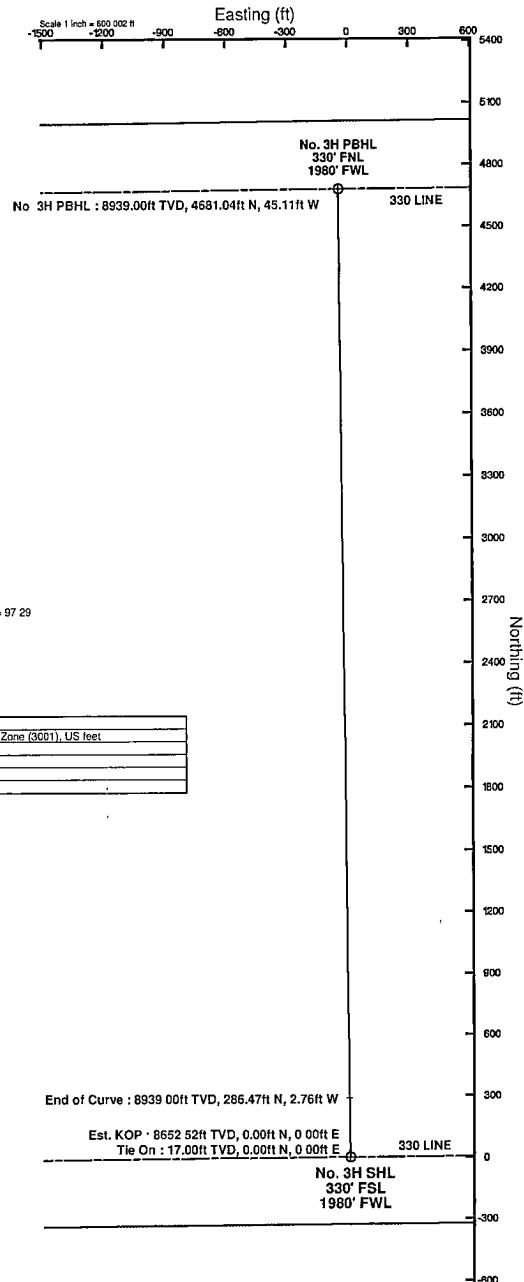


Cimarex Energy Co.
Location: Lea County, NM
Field: (Hallertau) Sec 5, T26S, R32E
Facility: Hallertau 5 Federal No. 4H
Slot: No. 3H SHL
Well: No. 3H
Wellbore: No. 3H PWB



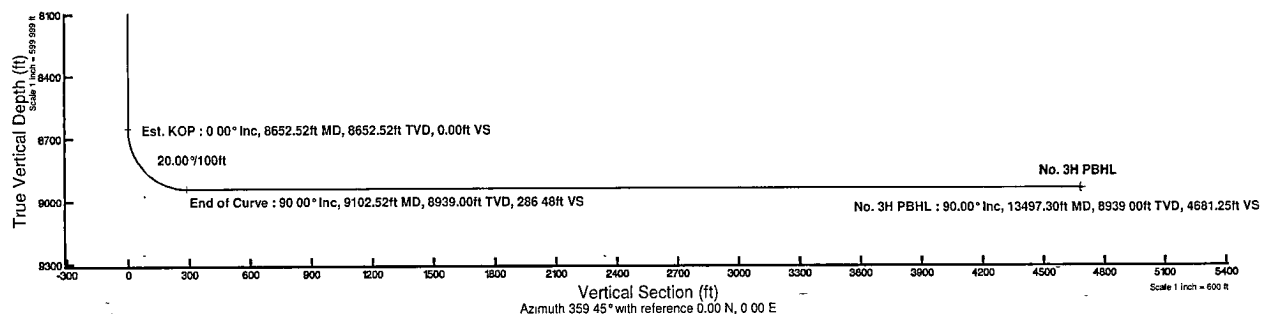
Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	17.00	0.000	359.448	17.00	0.00	0.00	0.00	0.00
Est. KOP	8652.52	0.000	359.448	8652.52	0.00	0.00	0.00	0.00
End of Curve	9102.52	90.000	359.448	8939.00	286.47	-2.76	20.00	286.48
No. 3H PBL	13497.30	90.000	359.448	8939.00	4681.04	-45.11	0.00	4681.25



BGGM (1945.0 to 2012.0) Dip 60.01° Field 48513.6 nT
Magnetic North is 7.62 degrees East of True North (at 11/22/2011)
Grid North is 0.34 degrees East of True North
To correct azimuth from True to Grid subtract 0.34 degrees
To correct azimuth from Magnetic to Grid add 7.29 degrees
For example if the Magnetic North Azimuth = 90 degs, then the Grid North Azimuth = 90 + 7.29 = 97.29

Plot reference wellpath is Prelim 1	
True vertical depths are referenced to Plot on No. 3H SHL (KB)	Grid System: NAD83 / TM New Mexico SP, Eastern Zone (3001), US feet
Measured depths are referenced to Plot on No. 3H SHL (KB)	North Reference: Grid north
Plot on No. 3H SHL (KB) to Mean Sea Level: 3289 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot No. 3H SHL): 0 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: caltrhik on 11/22/2011





Planned Wellpath Report

Prelim_1

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REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 3H SHL
Area	Lea County, NM	Well	No. 3H
Field	(Hallertau) Sec 5, T26S, R32E	Wellbore	No. 3H PWB
Facility	Hallertau 5 Federal No. 4H		

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	0.999953	Report Generated	11/22/2011 at 10:46:31 PM
Convergence at slot	0.34° East	Database/Source file	WellArchitectDB/No._3H_PWB.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[US ft]	Northing[US ft]	Latitude	Longitude
Slot Location	-7.34	1319.90	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W
Facility Reference Pt			736383.19	388267.27	32°03'57.105"N	103°42'13.264"W
Field Reference Pt			736383.19	388267.27	32°03'57.105"N	103°42'13.264"W

WELLPATH DATUM

Calculation method	Minimum curvature	Rig on No. 3H SHL (KB) to GL	3289.00ft
Horizontal Reference Pt	Slot	Rig on No. 3H SHL (KB) to Mean Sea Level	3289.00ft
Vertical Reference Pt	Rig on No. 3H SHL (KB)	Rig on No. 3H SHL (KB) to Mud Line at Slot (No. 3H SHL)	3289.00ft
MD Reference Pt	Rig on No. 3H SHL (KB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	359.45°



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WELLPATH DATA (141 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	359.448	0.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
17.00	0.000	359.448	17.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	Tie On
117.00†	0.000	359.448	117.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
217.00†	0.000	359.448	217.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
317.00†	0.000	359.448	317.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
417.00†	0.000	359.448	417.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
517.00†	0.000	359.448	517.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
617.00†	0.000	359.448	617.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
717.00†	0.000	359.448	717.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
817.00†	0.000	359.448	817.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
917.00†	0.000	359.448	917.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
1017.00†	0.000	359.448	1017.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
1117.00†	0.000	359.448	1117.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
1217.00†	0.000	359.448	1217.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
1317.00†	0.000	359.448	1317.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
1417.00†	0.000	359.448	1417.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
1517.00†	0.000	359.448	1517.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
1617.00†	0.000	359.448	1617.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
1717.00†	0.000	359.448	1717.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
1817.00†	0.000	359.448	1817.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
1917.00†	0.000	359.448	1917.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
2017.00†	0.000	359.448	2017.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
2117.00†	0.000	359.448	2117.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
2217.00†	0.000	359.448	2217.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
2317.00†	0.000	359.448	2317.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
2417.00†	0.000	359.448	2417.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
2517.00†	0.000	359.448	2517.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
2617.00†	0.000	359.448	2617.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
2717.00†	0.000	359.448	2717.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
2817.00†	0.000	359.448	2817.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
2917.00†	0.000	359.448	2917.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
3017.00†	0.000	359.448	3017.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
3117.00†	0.000	359.448	3117.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
3217.00†	0.000	359.448	3217.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
3317.00†	0.000	359.448	3317.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
3417.00†	0.000	359.448	3417.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
3517.00†	0.000	359.448	3517.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
3617.00†	0.000	359.448	3617.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
3717.00†	0.000	359.448	3717.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
3817.00†	0.000	359.448	3817.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
3917.00†	0.000	359.448	3917.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
4017.00†	0.000	359.448	4017.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
4117.00†	0.000	359.448	4117.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
4217.00†	0.000	359.448	4217.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
4317.00†	0.000	359.448	4317.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	



Planned Wellpath Report

Prelim_1

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REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 3H SHL
Area	Lea County, NM	Well	No. 3H
Field	(Hallertau) Sec 5, T26S, R32E	Wellbore	No. 3H PWB
Facility	Hallertau 5 Federal No. 4H		

WELLPATH DATA (141 stations) † = interpolated/extrapolated station												Comments
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]	
4417.00†	0.000	359.448	4417.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
4517.00†	0.000	359.448	4517.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
4617.00†	0.000	359.448	4617.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
4717.00†	0.000	359.448	4717.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
4817.00†	0.000	359.448	4817.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
4917.00†	0.000	359.448	4917.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
5017.00†	0.000	359.448	5017.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
5117.00†	0.000	359.448	5117.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
5217.00†	0.000	359.448	5217.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
5317.00†	0.000	359.448	5317.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
5417.00†	0.000	359.448	5417.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
5517.00†	0.000	359.448	5517.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
5617.00†	0.000	359.448	5617.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
5717.00†	0.000	359.448	5717.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
5817.00†	0.000	359.448	5817.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
5917.00†	0.000	359.448	5917.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
6017.00†	0.000	359.448	6017.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
6117.00†	0.000	359.448	6117.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
6217.00†	0.000	359.448	6217.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
6317.00†	0.000	359.448	6317.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
6417.00†	0.000	359.448	6417.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
6517.00†	0.000	359.448	6517.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
6617.00†	0.000	359.448	6617.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
6717.00†	0.000	359.448	6717.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
6817.00†	0.000	359.448	6817.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
6917.00†	0.000	359.448	6917.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
7017.00†	0.000	359.448	7017.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
7117.00†	0.000	359.448	7117.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
7217.00†	0.000	359.448	7217.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
7317.00†	0.000	359.448	7317.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
7417.00†	0.000	359.448	7417.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
7517.00†	0.000	359.448	7517.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
7617.00†	0.000	359.448	7617.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
7717.00†	0.000	359.448	7717.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
7817.00†	0.000	359.448	7817.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
7917.00†	0.000	359.448	7917.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
8017.00†	0.000	359.448	8017.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
8117.00†	0.000	359.448	8117.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
8217.00†	0.000	359.448	8217.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
8317.00†	0.000	359.448	8317.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
8417.00†	0.000	359.448	8417.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
8434.00†	0.000	359.448	8434.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	Bone Spring
8517.00†	0.000	359.448	8517.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	
8539.00†	0.000	359.448	8539.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	Bone Spring A Shale
8617.00†	0.000	359.448	8617.00	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	



Planned Wellpath Report

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REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 3H SHL
Area	Lea County, NM	Well	No. 3H
Field	(Hallertau) Sec 5, T26S, R32E	Wellbore	No. 3H PWB
Facility	Hallertau 5 Federal No. 4H		

WELLPATH DATA (141 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
8652.52	0.000	359.448	8652.52	0.00	0.00	0.00	737703.02	388259.93	32°03'56.955"N	103°41'57.927"W	0.00	Est. KOP
8717.00†	12.896	359.448	8716.46	7.23	7.23	-0.07	737702.95	388267.15	32°03'57.027"N	103°41'57.927"W	20.00	
8817.00†	32.896	359.448	8808.11	45.93	45.93	-0.44	737702.58	388305.86	32°03'57.410"N	103°41'57.929"W	20.00	
8917.00†	52.896	359.448	8881.00	113.66	113.65	-1.10	737701.92	388373.57	32°03'58.080"N	103°41'57.932"W	20.00	
9017.00†	72.896	359.448	8926.33	202.22	202.21	-1.95	737701.07	388462.13	32°03'58.957"N	103°41'57.936"W	20.00	
9102.52	90.000	359.448	8939.00	286.48	286.47	-2.76	737700.26	388546.38	32°03'59.790"N	103°41'57.940"W	20.00	End of Curve
9117.00†	90.000	359.448	8939.00	300.96	300.94	-2.90	737700.12	388560.86	32°03'59.934"N	103°41'57.940"W	0.00	
9217.00†	90.000	359.448	8939.00	400.96	400.94	-3.86	737699.16	388660.85	32°04'00.923"N	103°41'57.945"W	0.00	
9317.00†	90.000	359.448	8939.00	500.96	500.93	-4.83	737698.19	388760.84	32°04'01.913"N	103°41'57.949"W	0.00	
9417.00†	90.000	359.448	8939.00	600.96	600.93	-5.79	737697.23	388860.83	32°04'02.902"N	103°41'57.953"W	0.00	
9517.00†	90.000	359.448	8939.00	700.96	700.93	-6.75	737696.27	388960.82	32°04'03.892"N	103°41'57.958"W	0.00	
9617.00†	90.000	359.448	8939.00	800.96	800.92	-7.72	737695.30	389060.81	32°04'04.881"N	103°41'57.962"W	0.00	
9717.00†	90.000	359.448	8939.00	900.96	900.92	-8.68	737694.34	389160.80	32°04'05.871"N	103°41'57.967"W	0.00	
9817.00†	90.000	359.448	8939.00	1000.96	1000.91	-9.65	737693.38	389260.79	32°04'06.860"N	103°41'57.971"W	0.00	
9917.00†	90.000	359.448	8939.00	1100.96	1100.91	-10.61	737692.41	389360.78	32°04'07.850"N	103°41'57.975"W	0.00	
10017.00†	90.000	359.448	8939.00	1200.96	1200.90	-11.57	737691.45	389460.77	32°04'08.839"N	103°41'57.980"W	0.00	
10117.00†	90.000	359.448	8939.00	1300.96	1300.90	-12.54	737690.48	389560.76	32°04'09.829"N	103°41'57.984"W	0.00	
10217.00†	90.000	359.448	8939.00	1400.96	1400.89	-13.50	737689.52	389660.75	32°04'10.818"N	103°41'57.988"W	0.00	
10317.00†	90.000	359.448	8939.00	1500.96	1500.89	-14.46	737688.56	389760.74	32°04'11.808"N	103°41'57.993"W	0.00	
10417.00†	90.000	359.448	8939.00	1600.96	1600.88	-15.43	737687.59	389860.74	32°04'12.797"N	103°41'57.997"W	0.00	
10517.00†	90.000	359.448	8939.00	1700.96	1700.88	-16.39	737686.63	389960.73	32°04'13.787"N	103°41'58.001"W	0.00	
10617.00†	90.000	359.448	8939.00	1800.96	1800.87	-17.35	737685.67	390060.72	32°04'14.777"N	103°41'58.006"W	0.00	
10717.00†	90.000	359.448	8939.00	1900.96	1900.87	-18.32	737684.70	390160.71	32°04'15.766"N	103°41'58.010"W	0.00	
10817.00†	90.000	359.448	8939.00	2000.96	2000.86	-19.28	737683.74	390260.70	32°04'16.756"N	103°41'58.015"W	0.00	
10917.00†	90.000	359.448	8939.00	2100.96	2100.86	-20.25	737682.78	390360.69	32°04'17.745"N	103°41'58.019"W	0.00	
11017.00†	90.000	359.448	8939.00	2200.96	2200.86	-21.21	737681.81	390460.68	32°04'18.735"N	103°41'58.023"W	0.00	
11117.00†	90.000	359.448	8939.00	2300.96	2300.85	-22.17	737680.85	390560.67	32°04'19.724"N	103°41'58.028"W	0.00	
11217.00†	90.000	359.448	8939.00	2400.96	2400.85	-23.14	737679.89	390660.66	32°04'20.714"N	103°41'58.032"W	0.00	
11317.00†	90.000	359.448	8939.00	2500.96	2500.84	-24.10	737678.92	390760.65	32°04'21.703"N	103°41'58.036"W	0.00	
11417.00†	90.000	359.448	8939.00	2600.96	2600.84	-25.06	737677.96	390860.64	32°04'22.693"N	103°41'58.041"W	0.00	
11517.00†	90.000	359.448	8939.00	2700.96	2700.83	-26.03	737676.99	390960.63	32°04'23.682"N	103°41'58.045"W	0.00	
11617.00†	90.000	359.448	8939.00	2800.96	2800.83	-26.99	737676.03	391060.62	32°04'24.672"N	103°41'58.050"W	0.00	
11717.00†	90.000	359.448	8939.00	2900.96	2900.82	-27.95	737675.07	391160.61	32°04'25.661"N	103°41'58.054"W	0.00	
11817.00†	90.000	359.448	8939.00	3000.96	3000.82	-28.92	737674.10	391260.60	32°04'26.651"N	103°41'58.058"W	0.00	
11917.00†	90.000	359.448	8939.00	3100.96	3100.81	-29.88	737673.14	391360.59	32°04'27.640"N	103°41'58.063"W	0.00	
12017.00†	90.000	359.448	8939.00	3200.96	3200.81	-30.84	737672.18	391460.58	32°04'28.630"N	103°41'58.067"W	0.00	
12117.00†	90.000	359.448	8939.00	3300.96	3300.80	-31.81	737671.21	391560.57	32°04'29.619"N	103°41'58.071"W	0.00	
12217.00†	90.000	359.448	8939.00	3400.96	3400.80	-32.77	737670.25	391660.56	32°04'30.609"N	103°41'58.076"W	0.00	
12317.00†	90.000	359.448	8939.00	3500.96	3500.80	-33.74	737669.29	391760.55	32°04'31.599"N	103°41'58.080"W	0.00	
12417.00†	90.000	359.448	8939.00	3600.96	3600.79	-34.70	737668.32	391860.55	32°04'32.588"N	103°41'58.085"W	0.00	
12517.00†	90.000	359.448	8939.00	3700.96	3700.79	-35.66	737667.36	391960.54	32°04'33.578"N	103°41'58.089"W	0.00	
12617.00†	90.000	359.448	8939.00	3800.96	3800.78	-36.63	737666.40	392060.53	32°04'34.567"N	103°41'58.093"W	0.00	
12717.00†	90.000	359.448	8939.00	3900.96	3900.78	-37.59	737665.43	392160.52	32°04'35.557"N	103°41'58.098"W	0.00	
12817.00†	90.000	359.448	8939.00	4000.96	4000.77	-38.55	737664.47	392260.51	32°04'36.546"N	103°41'58.102"W	0.00	
12917.00†	90.000	359.448	8939.00	4100.96	4100.77	-39.52	737663.50	392360.50	32°04'37.536"N	103°41'58.106"W	0.00	



Planned Wellpath Report

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REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 3H SHL
Area	Lea County, NM	Well	No. 3H
Field	(Hallertau) Sec 5, T26S, R32E	Wellbore	No. 3H PWB
Facility	Hallertau 5 Federal No. 4H		

WELLPATH DATA (141 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
13017.00†	90.000	359.448	8939.00	4200.96	4200.76	-40.48	737662.54	392460.49	32°04'38.525"N	103°41'58.111"W	0.00	
13117.00†	90.000	359.448	8939.00	4300.96	4300.76	-41.44	737661.58	392560.48	32°04'39.515"N	103°41'58.115"W	0.00	
13217.00†	90.000	359.448	8939.00	4400.96	4400.75	-42.41	737660.61	392660.47	32°04'40.504"N	103°41'58.120"W	0.00	
13317.00†	90.000	359.448	8939.00	4500.96	4500.75	-43.37	737659.65	392760.46	32°04'41.494"N	103°41'58.124"W	0.00	
13417.00†	90.000	359.448	8939.00	4600.96	4600.74	-44.34	737658.69	392860.45	32°04'42.483"N	103°41'58.128"W	0.00	
13497.30	90.000	359.448	8939.00	4681.25	4681.04	-45.11	737657.91	392940.74	32°04'43.278"N	103°41'58.132"W	0.00	No. 3H PBHL

TARGETS

Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	Shape
1) No. 3H PBHL	13497.30	8939.00	4681.04	-45.11	737657.92	392940.74	32°04'43.278"N	103°41'58.132"W	point

SURVEY PROGRAM - Ref Wellbore: No. 3H PWB Ref Wellpath: Prelim_1

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
3289.00	13497.30	NaviTrak (Standard)		No. 3H PWB

SR & A

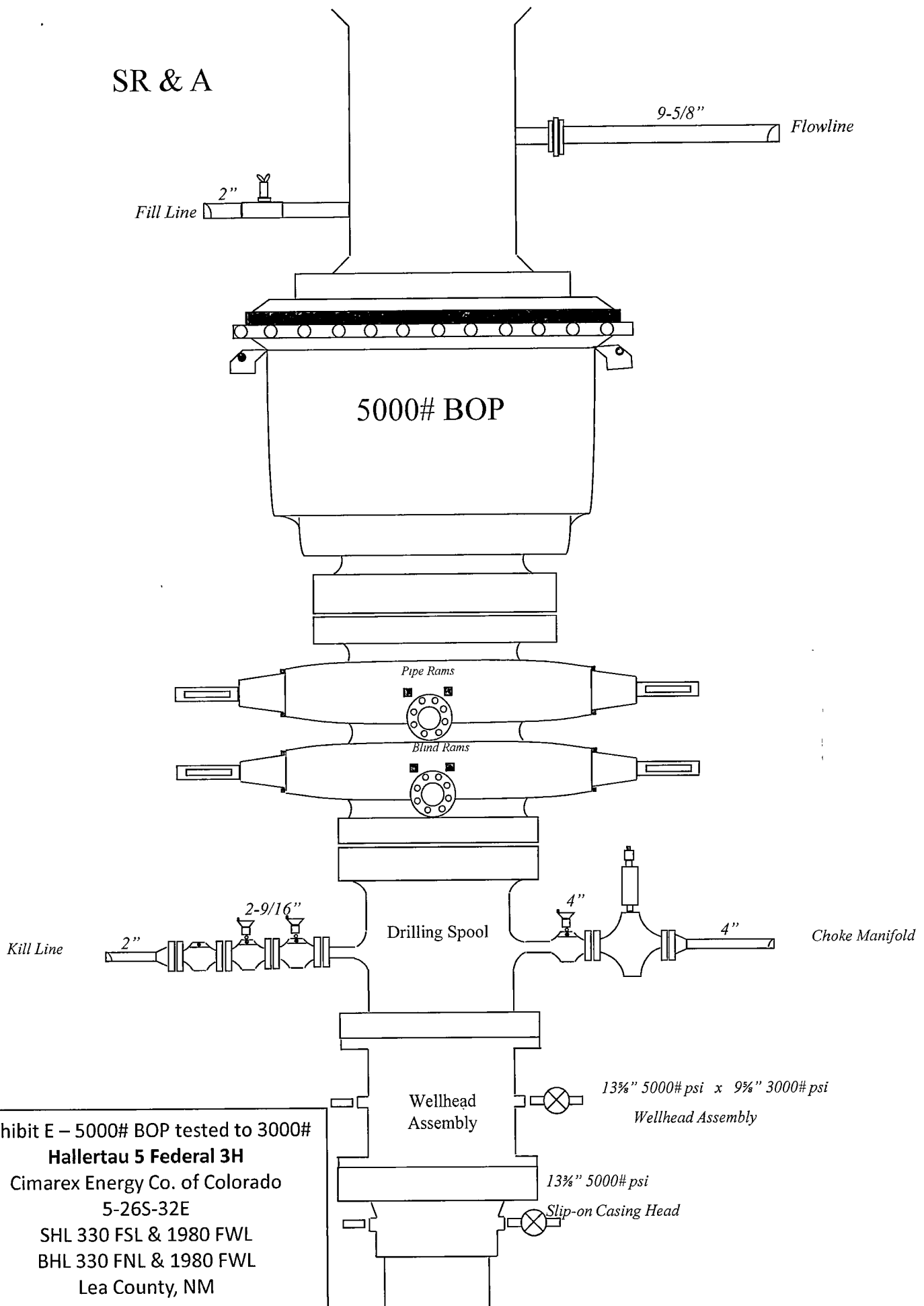


Exhibit E – 5000# BOP tested to 3000#
Hallertau 5 Federal 3H
Cimarex Energy Co. of Colorado
5-26S-32E
SHL 330 FSL & 1980 FWL
BHL 330 FNL & 1980 FWL
Lea County, NM

Drilling Operations Choke Manifold 5M Service tested to 3M

Exhibit E-1 – Choke Manifold Diagram

Hallertau 5 Federal 3H

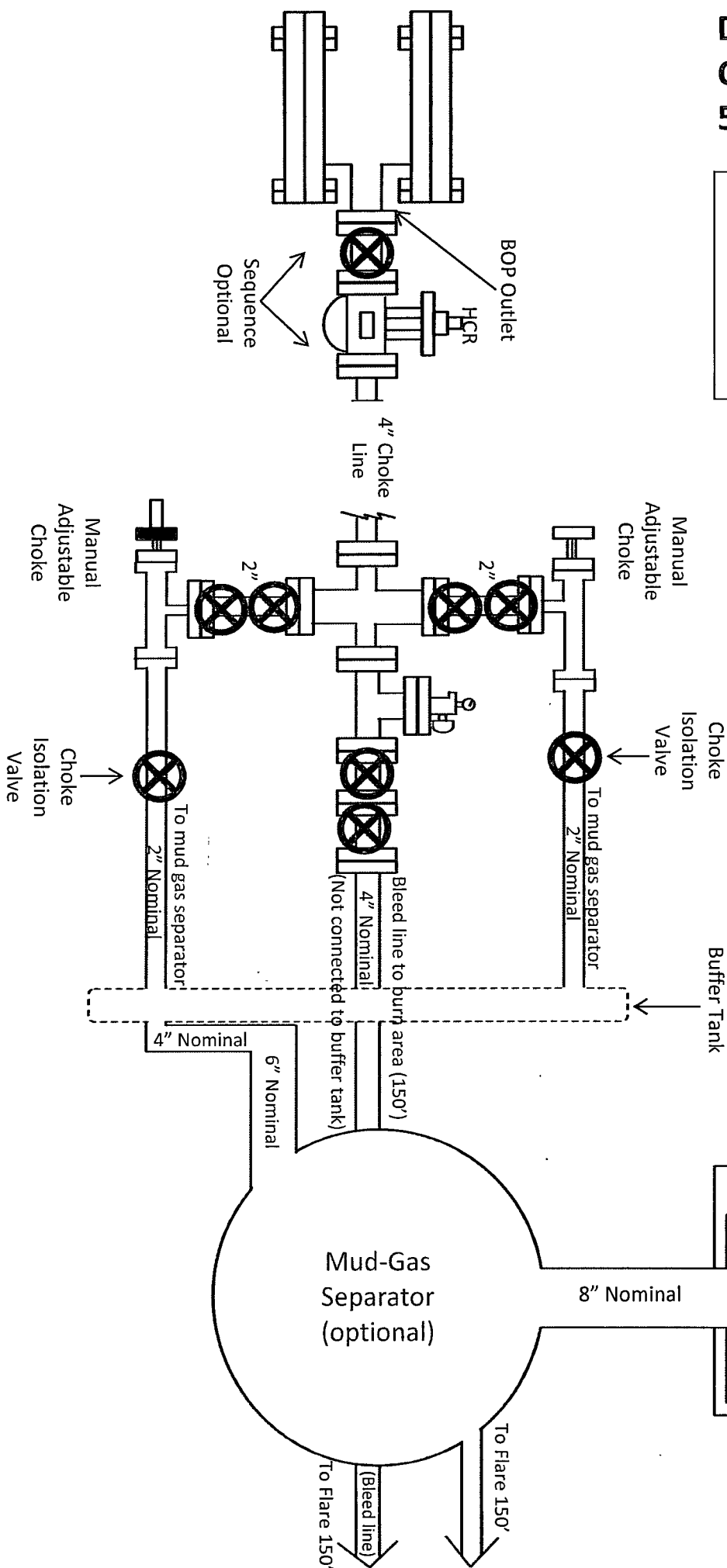
Cimarex Energy Co. of Colorado

5-26S-32E

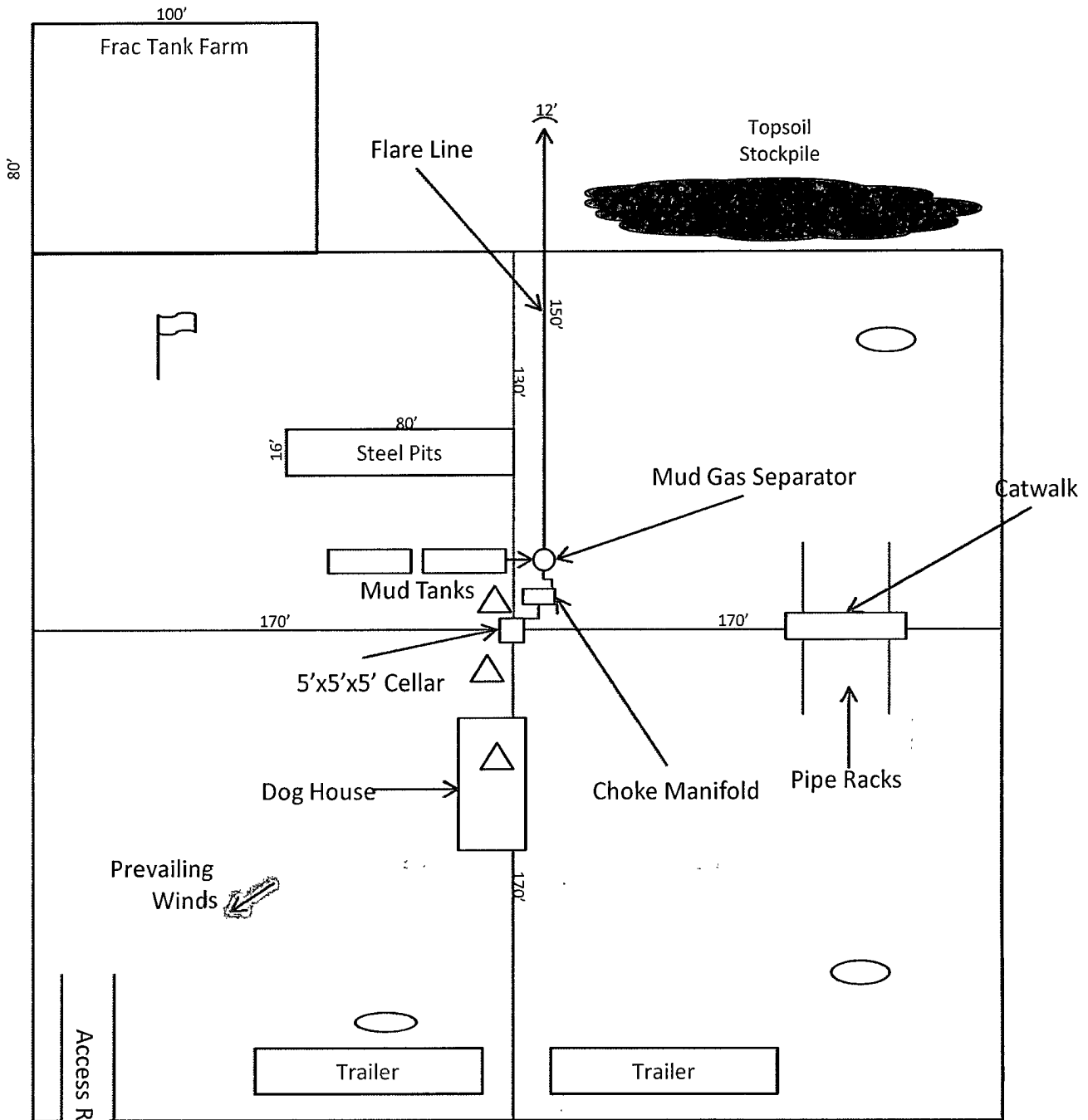
SHL 330 FSL & 1980 FWL

BHL 330 FNL & 1980 FWL

Lea County, NM



Key 880



Wind Direction Indicators
(wind sock or streamers)

H2S Monitors
(alarms at bell nipple and shale shaker)

Briefing Areas



1" = 50'

Exhibit D – Rig Diagram
Hallertau 5 Federal 3H
 Cimarex Energy Co. of Colorado
 5-26S-32E
 SHL 330 FSL & 1980 FWL
 BHL 330 FNL & 1980 FWL
 Lea County, NM