

HOBBS OCD  
Form 100-3  
(March 2012)  
APR 17 2013  
RECEIVED

HOBBS OCD

APR 17 2013

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OCD Hobbs  
MAR 18 2013  
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FORM APPROVED  
OMB No. 1004-0137  
Expires October 31, 2014

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5a. Type of work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. NM-0392082A	
5b. Type of Well: <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other <input checked="" type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		6. If Indian, Allottee or Tribe Name	
2. Name of Operator <i>Cimrex Energy Co. of Colorado</i>		7. If Unit or CA Agreement, Name and No.	
3a. Address <i>600 N. Marienfeld, Ste 600 Midland, TX 79701</i>		8. Lease Name and Well No. <i>Hallertau 4 Federal 2H &lt;39100&gt;</i>	
3b. Phone No. (include area code) <i>432-571-7800</i>		9. API Well No. <i>30-025-41119</i>	
4. Location of Well (Report location clearly and in accordance with any State requirements.)* At surface <i>330' FNL &amp; 1650' FWL</i> At proposed prod. zone <i>330' FSL &amp; 1980' FWL</i>		10. Field and Pool or Exploratory <i>Wildcat Bone Spring; Jennings; Upper Shale</i>	
14. Distance in miles and direction from nearest town or post office* <i>29 miles west of Jal, NM</i>		11. Sec., T. R. M. or Blk. and Survey or Area <i>4-26S-32E &lt;97038&gt;</i>	
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) <i>330'</i>		12. County or Parish <i>Lea County</i>	
16. No. of acres in lease <i>1400.49</i>		13. State <i>NM</i>	
17. Spacing Unit dedicated to this well <i>160</i>		18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. <i>330'</i>	
19. Proposed Depth <i>MD 13657 TVD 9085' Pilot Hole 9900'</i>		20. BLM/BIA Bond No. on file <i>NM2575; NMB000835</i>	
21. Elevations (Show whether DF, KDB, RT, GL, etc.) <i>3314' GR</i>		22. Approximate date work will start* <i>01/25/2013</i>	
		23. Estimated duration <i>25-30 days</i>	

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No.1, must 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 must be filed with the appropriate Forest Service Office). | 6. Such other site specific information and/or plans as may be required by the BLM.             |

25. Signature <i>Paula Brunson</i>	Name (Printed/Typed) <i>Paula Brunson</i>	Date <i>10/04/2012</i>
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Title *Regulatory Analyst*

Approved by (Signature) <i>/s/ Don Peterson</i>	Name (Printed/Typed) <i>/s/ Don Peterson</i>	Date <b>MAR 15 2013</b>
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Title *CARLSBAD FIELD OFFICE* Office *FIELD MANAGER*

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.

(Continued on page 2)

\*(Instructions on page 2)

Carlsbad Controlled Water Basin

*Ka  
04/17/13*

SEE ATTACHED FOR  
CONDITIONS OF APPROVAL

Approval Subject to General Requirements  
& Special Stipulations Attached

APR 18 2013

**Drilling Plan**  
**Hallertau 4 Federal 2H**  
 Cimarex Energy Co. of Colorado  
~~Lot 3~~, Section 4  
 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' FNL & 1650' FWL  
 BHL 330' FSL & 1980' FWL
- 2 **Elevation above sea level:** 3314' 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 13657' TVD 9085' Pilot Hole 9900'
- 6 **Estimated tops of geological markers:**

Water	275'	
Rustler	1146'	
Top Salt	1700'	
Base Salt	4315	
Bell Canyon	4525'	Possible oil
Cherry Canyon	5680'	
Brushy Canyon	8385'	
Bone Spring	8580'	
Bone Spring "A" Shale	8685'	
Bone Spring "B" Carb	9125'	Possible oil
Bone Spring "C" Shale	9260'	Possible oil
1st Bone Spring SS	9580'	
Pilot Hole TD	9900'	

7 **Proposed Mud Circulating System:**

Depth		Mud Wt	Visc	Fluid Loss	Type Mud
0'	to <del>1230'</del> 1196'	8.4 - 8.6	28	NC	FW
1196'	to 4500'	10.0	30-32	NC	Brine water
4500'	to 13657'	8.4-9.5	30-32	NC	FW and brine, 2%KCL in the lateral

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 drilling and setting surface and intermediate casing, drill 7 7/8" or 8 3/4" hole to 9900' and log. Pump 30 bbls MUDPUSHII 12 ppg, followed by 422 sks Type H cement, D080 (Dispersant) 0.080 gal/sk, D177 (Retarder) 0.045 gal/sk 17.5 ppg yield 0.95 & 0% excess from 9900' to 8799'. Set whipstock and kick off 7 7/8" or 8 3/4" lateral @ 8799' and drill to TD @ 13657' MD, 9085' TVD. Run 5 1/2" casing and cement per plan.

**Drilling Plan**  
**Hallertau 4 Federal 2H**  
 Cimarex Energy Co. of Colorado  
 Lot 3, Section 4  
 T26S-R32E, Lea County, NM

**8 Casing & Cementing Program:**

*see COA*

String	Hole Size	Depth	230	Casing OD	Weight	Collar	Grade
Surface	17 1/2"	0'	to 1196'	New 13 3/8"	48#	STC	H-40
Intermediate	12 1/4"	0'	to 3400'	New 9 5/8"	36#	LTC	J-55
Intermediate	12 1/4"	3400'	to 4500'	New 9 5/8"	40#	LTC	J-55
Production	8 3/4" or 7 7/8"	0'	to 8799'	New 5 1/2"	17#	LTC	P-110
Production	8 3/4" or 7 7/8"	8799'	to 13657'	New 5 1/2"	17#	BTC	P-110

**9 Cementing:**

Surface	Sacks	Yield (cuft/sx)	Weight (ppg)	Cubic Feet	Cement Blend
Lead	760	1.75	13.5	1329	Class C + Bentonite + Calcium Chloride + LCM
Tail	155	1.34	14.8	208	Class C + LCM

TOC: Surface 85% Excess Centralizers per Onshore Order 2.III.B.1f

Intermediate	Sacks	Yield (cuft/sx)	Weight (ppg)	Cubic Feet	Cement Blend
Lead	1002	1.88	12.9	1883	35:65 (poz/C) + Salt + Bentonite + LCM + retarder
Tail	263	1.34	14.8	353	Class C + retarder + LCM

TOC: Surface 80% Excess

Note: Casing will be kept filled with liquid/mud while running casing in hole *see COA*

*see COA*

Production	Sacks	Yield (cuft/sx)	Weight (ppg)	Cubic Feet	Cement Blend
Lead	378	2.4	11.9	908	35:65 (poz/H) + salt + Sodium Metasilicate + Bentonite + Fluid Loss + Dispersant + LCM + Retarder
Tail	936	1.24	14.5	1160	50:50 (poz/H) + Bentonite + Salt + Fluid Loss + Dispersant + LCM + Retarder

Cement volumes will be adjusted depending on hole size.

TOC: 4,000' 25% Excess No centralizers planned in the lateral section. 1 every jt from EOC to KOP. 1 every 4th joint from KOP to 500' inside previous casing.

*see COA*

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

**10 Pressure Control Equipment:**

Exhibit "E". A 13 1/2" 5000 PSI working pressure BOP, tested to 3000 psi on the surface casing and 5000 psi on the intermediate, 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.

BOP unit will be hydraulically operated. BOP will be installed 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.

BOPS will be tested by an independent service company to 250 psi low and 3000 psi high on the surface casing and 250 psi low and 5000 psi high on the intermediate. Hydril will be tested to 250 psi low and 1500 psi high on the surface and 250 psi low and 2500 psi high on the intermediate casing.

*see COA*

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  
**Hallertau 4 Federal 2H**  
Cimarex Energy Co. of Colorado  
~~Lot 3, Section 4~~  
T26S-R32E, Lea County, NM

**11 Testing, Logging and Coring Program:**

- A. Mud logging program: 2 man unit from 4505 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.

**12 Potential Hazards:**

No abnormal pressures or temperatures are expected. In accordance with Onshore Order 6, Cimarex does not anticipate that there will be enough H<sub>2</sub>S from the surface to the Bone Spring formations to meet the BLM's minimum requirements for the submission of an "H<sub>2</sub>S Drilling Operation Plan" or "Public Protection Plan" for the drilling and completion of this well. Since we have an H<sub>2</sub>S Safety package on all wells, attached is an "H<sub>2</sub>S 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      4455 psi      Estimated BHT      130°

**13 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.

**14 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 potentialied as      **an oil well.**



# Cimarex Energy Co.

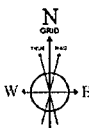
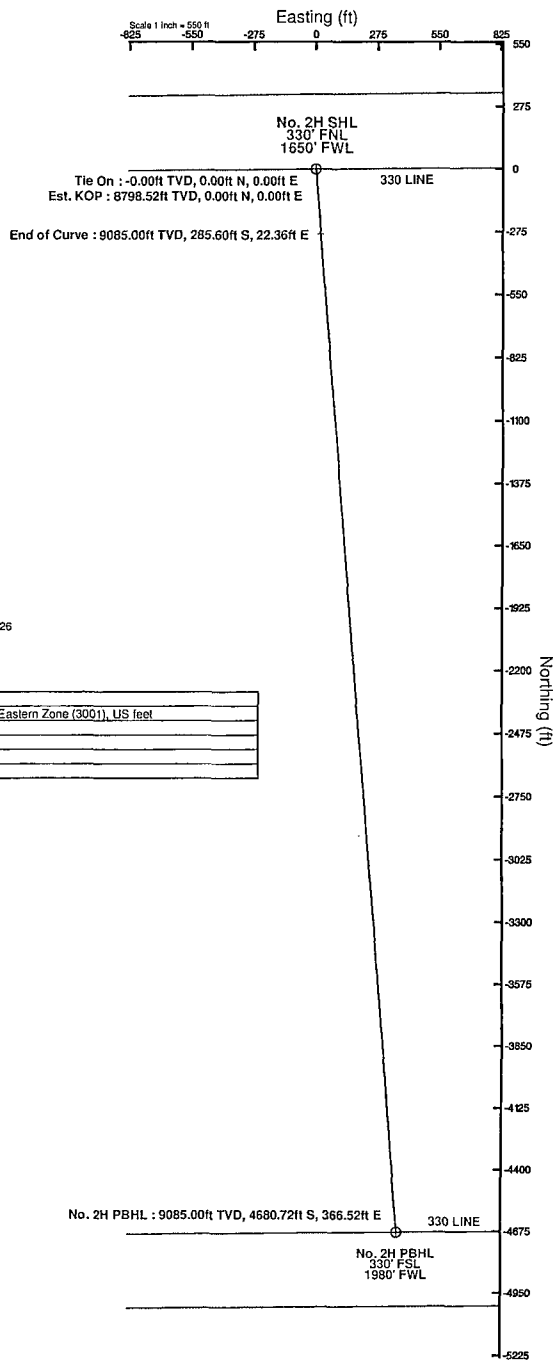
Location: Lea County, NM  
 Field: (Hallertau) Sec 4, T26S, R32E  
 Facility: Hallertau 4 Federal

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



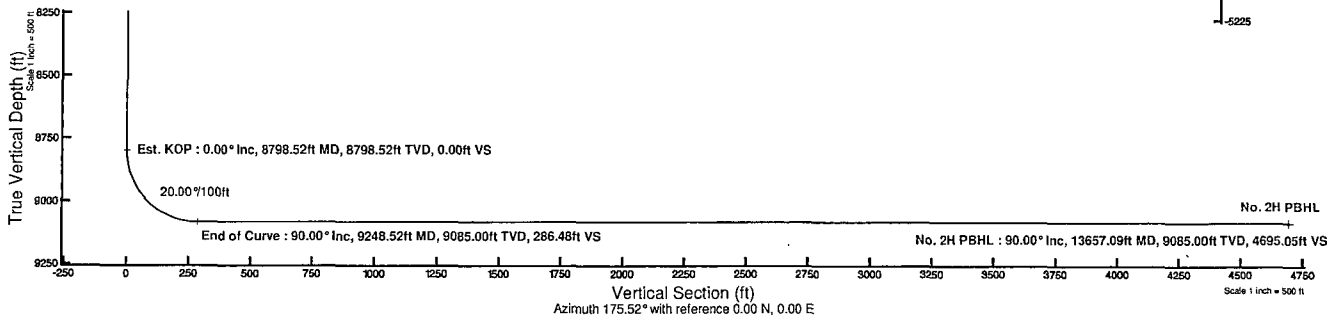
## Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	0.00	0.000	175.523	0.00	0.00	0.00	0.00	0.00
Est. KOP	8798.52	0.000	175.523	8798.52	0.00	0.00	0.00	0.00
End of Curve	9248.52	90.000	175.523	9085.00	-285.60	22.36	20.00	286.48
No. 2H PBHL	13657.09	90.000	175.523	9085.00	-4680.72	366.52	0.00	4695.05



BGGM (1945.0 to 2012.0) Dip: 60.02° Field: 48497.4 nT  
 Magnetic North is 7.61 degrees East of True North (at 11/28/2011)  
 Grid North is 0.35 degrees East of True North  
 To correct azimuth from True to Grid subtract 0.35 degrees  
 To correct azimuth from Magnetic to Grid add 7.26 degrees  
 For example: If the Magnetic North Azimuth = 90 degs, then the Grid North Azimuth = 90 + 7.26 = 97.26

Plot reference wellpath is Prelim: 1	
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: 3314 feet	Scale: True distance
Mean Sea Level to Mud line (At Slot: No. 2H SHL): 0 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by: calphik on 11/28/2011





# Planned Wellpath Report

Prelim\_1  
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REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 2H SHL
Area	Lea County, NM	Well	No. 2H
Field	(Hallertau) Sec 4, T26S, R32E	Wellbore	No. 2H PWB
Facility	Hallertau 4 Federal		

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	0.999956	Report Generated	11/28/2011 at 10:52:59 AM
Convergence at slot	0.35° 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	-26.82	-3014.31	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W
Facility Reference Pt			745669.47	393012.62	32°04'43.514"N	103°40'25.012"W
Field Reference Pt			745669.47	393012.62	32°04'43.514"N	103°40'25.012"W

WELLPATH DATUM			
Calculation method	Minimum curvature	Rig on No. 2H SHL (KB) to GL	3314.00ft
Horizontal Reference Pt	Slot	Rig on No. 2H SHL (KB) to Mean Sea Level	3314.00ft
Vertical Reference Pt	Rig on No. 2H SHL (KB)	Rig on No. 2H SHL (KB) to Mud Line at Slot (No. 2H SHL)	3314.00ft
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	175.52°



# Planned Wellpath Report

Prelim\_1

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## REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 2H SHL
Area	Lea County, NM	Well	No. 2H
Field	(Hallertau) Sec 4, T26S, R32E	Wellbore	No. 2H PWB
Facility	Hallertau 4 Federal		

## WELLPATH DATA (143 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	175.523	0.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	Tie On
100.00†	0.000	175.523	100.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
200.00†	0.000	175.523	200.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
300.00†	0.000	175.523	300.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
400.00†	0.000	175.523	400.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
500.00†	0.000	175.523	500.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
600.00†	0.000	175.523	600.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
700.00†	0.000	175.523	700.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
800.00†	0.000	175.523	800.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
900.00†	0.000	175.523	900.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
1000.00†	0.000	175.523	1000.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
1100.00†	0.000	175.523	1100.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
1200.00†	0.000	175.523	1200.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
1300.00†	0.000	175.523	1300.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
1400.00†	0.000	175.523	1400.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
1500.00†	0.000	175.523	1500.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
1600.00†	0.000	175.523	1600.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
1700.00†	0.000	175.523	1700.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
1800.00†	0.000	175.523	1800.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
1900.00†	0.000	175.523	1900.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
2000.00†	0.000	175.523	2000.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
2100.00†	0.000	175.523	2100.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
2200.00†	0.000	175.523	2200.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
2300.00†	0.000	175.523	2300.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
2400.00†	0.000	175.523	2400.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
2500.00†	0.000	175.523	2500.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
2600.00†	0.000	175.523	2600.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
2700.00†	0.000	175.523	2700.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
2800.00†	0.000	175.523	2800.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
2900.00†	0.000	175.523	2900.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
3000.00†	0.000	175.523	3000.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
3100.00†	0.000	175.523	3100.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
3200.00†	0.000	175.523	3200.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
3300.00†	0.000	175.523	3300.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
3400.00†	0.000	175.523	3400.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
3500.00†	0.000	175.523	3500.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
3600.00†	0.000	175.523	3600.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
3700.00†	0.000	175.523	3700.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
3800.00†	0.000	175.523	3800.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
3900.00†	0.000	175.523	3900.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
4000.00†	0.000	175.523	4000.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
4100.00†	0.000	175.523	4100.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
4200.00†	0.000	175.523	4200.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
4300.00†	0.000	175.523	4300.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
4400.00†	0.000	175.523	4400.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"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	(Hallertau) Sec 4, T26S, R32E	Wellbore	No. 2H PWB
Facility	Hallertau 4 Federal		

## WELLPATH DATA (143 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	175.523	4500.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
4525.00†	0.000	175.523	4525.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	Delaware
4600.00†	0.000	175.523	4600.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
4700.00†	0.000	175.523	4700.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
4800.00†	0.000	175.523	4800.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
4900.00†	0.000	175.523	4900.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
5000.00†	0.000	175.523	5000.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
5100.00†	0.000	175.523	5100.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
5200.00†	0.000	175.523	5200.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
5300.00†	0.000	175.523	5300.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
5400.00†	0.000	175.523	5400.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
5500.00†	0.000	175.523	5500.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
5600.00†	0.000	175.523	5600.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
5700.00†	0.000	175.523	5700.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
5800.00†	0.000	175.523	5800.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
5900.00†	0.000	175.523	5900.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
6000.00†	0.000	175.523	6000.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
6100.00†	0.000	175.523	6100.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
6200.00†	0.000	175.523	6200.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
6300.00†	0.000	175.523	6300.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
6400.00†	0.000	175.523	6400.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
6500.00†	0.000	175.523	6500.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
6600.00†	0.000	175.523	6600.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
6700.00†	0.000	175.523	6700.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
6800.00†	0.000	175.523	6800.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
6900.00†	0.000	175.523	6900.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
7000.00†	0.000	175.523	7000.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
7100.00†	0.000	175.523	7100.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
7200.00†	0.000	175.523	7200.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
7300.00†	0.000	175.523	7300.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
7400.00†	0.000	175.523	7400.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
7500.00†	0.000	175.523	7500.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
7600.00†	0.000	175.523	7600.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
7700.00†	0.000	175.523	7700.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
7800.00†	0.000	175.523	7800.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
7900.00†	0.000	175.523	7900.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
8000.00†	0.000	175.523	8000.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
8100.00†	0.000	175.523	8100.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
8200.00†	0.000	175.523	8200.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
8300.00†	0.000	175.523	8300.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
8400.00†	0.000	175.523	8400.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
8500.00†	0.000	175.523	8500.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
8580.00†	0.000	175.523	8580.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	Bone Spring
8600.00†	0.000	175.523	8600.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
8685.00†	0.000	175.523	8685.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	Bone Spring A Shale





# 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	(Hallertau) Sec 4, T26S, R32E	Wellbore	No. 2H PWB
Facility	Hallertau 4 Federal		

## WELLPATH DATA (143 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
8700.00†	0.000	175.523	8700.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	
8798.52	0.000	175.523	8798.52	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	0.00	Est. KOP
8800.00†	0.296	175.523	8800.00	0.00	0.00	0.00	742655.30	392985.80	32°04'43.430"N	103°41'00.046"W	20.00	
8900.00†	20.296	175.523	8897.89	17.79	-17.73	1.39	742656.69	392968.07	32°04'43.254"N	103°41'00.031"W	20.00	
9000.00†	40.296	175.523	8983.80	67.98	-67.77	5.31	742660.61	392918.03	32°04'42.759"N	103°40'59.989"W	20.00	
9100.00†	60.296	175.523	9047.36	144.52	-144.08	11.28	742666.58	392841.73	32°04'42.003"N	103°40'59.925"W	20.00	
9200.00†	80.296	175.523	9080.90	238.19	-237.46	18.59	742673.89	392748.35	32°04'41.079"N	103°40'59.847"W	20.00	
9248.52	90.000	175.523	9085.00	286.48	-285.60	22.36	742677.66	392700.21	32°04'40.602"N	103°40'59.806"W	20.00	End of Curve
9300.00†	90.000	175.523	9085.00	337.96	-336.93	26.38	742681.68	392648.89	32°04'40.094"N	103°40'59.763"W	0.00	
9400.00†	90.000	175.523	9085.00	437.96	-436.62	34.19	742689.49	392549.20	32°04'39.107"N	103°40'59.679"W	0.00	
9500.00†	90.000	175.523	9085.00	537.96	-536.32	42.00	742697.29	392449.51	32°04'38.120"N	103°40'59.596"W	0.00	
9600.00†	90.000	175.523	9085.00	637.96	-636.01	49.80	742705.10	392349.82	32°04'37.133"N	103°40'59.512"W	0.00	
9700.00†	90.000	175.523	9085.00	737.96	-735.71	57.61	742712.91	392250.13	32°04'36.146"N	103°40'59.428"W	0.00	
9800.00†	90.000	175.523	9085.00	837.96	-835.40	65.41	742720.71	392150.44	32°04'35.159"N	103°40'59.344"W	0.00	
9900.00†	90.000	175.523	9085.00	937.96	-935.10	73.22	742728.52	392050.75	32°04'34.172"N	103°40'59.261"W	0.00	
10000.00†	90.000	175.523	9085.00	1037.96	-1034.79	81.03	742736.32	391951.06	32°04'33.185"N	103°40'59.177"W	0.00	
10100.00†	90.000	175.523	9085.00	1137.96	-1134.49	88.83	742744.13	391851.37	32°04'32.198"N	103°40'59.093"W	0.00	
10200.00†	90.000	175.523	9085.00	1237.96	-1234.18	96.64	742751.94	391751.68	32°04'31.211"N	103°40'59.010"W	0.00	
10300.00†	90.000	175.523	9085.00	1337.96	-1333.87	104.45	742759.74	391651.99	32°04'30.224"N	103°40'58.926"W	0.00	
10400.00†	90.000	175.523	9085.00	1437.96	-1433.57	112.25	742767.55	391552.30	32°04'29.237"N	103°40'58.842"W	0.00	
10500.00†	90.000	175.523	9085.00	1537.96	-1533.26	120.06	742775.35	391452.61	32°04'28.250"N	103°40'58.758"W	0.00	
10600.00†	90.000	175.523	9085.00	1637.96	-1632.96	127.87	742783.16	391352.92	32°04'27.264"N	103°40'58.675"W	0.00	
10700.00†	90.000	175.523	9085.00	1737.96	-1732.65	135.67	742790.97	391253.23	32°04'26.277"N	103°40'58.591"W	0.00	
10800.00†	90.000	175.523	9085.00	1837.96	-1832.35	143.48	742798.77	391153.54	32°04'25.290"N	103°40'58.507"W	0.00	
10900.00†	90.000	175.523	9085.00	1937.96	-1932.04	151.29	742806.58	391053.85	32°04'24.303"N	103°40'58.423"W	0.00	
11000.00†	90.000	175.523	9085.00	2037.96	-2031.74	159.09	742814.39	390954.16	32°04'23.316"N	103°40'58.340"W	0.00	
11100.00†	90.000	175.523	9085.00	2137.96	-2131.43	166.90	742822.19	390854.47	32°04'22.329"N	103°40'58.256"W	0.00	
11200.00†	90.000	175.523	9085.00	2237.96	-2231.13	174.71	742830.00	390754.78	32°04'21.342"N	103°40'58.172"W	0.00	
11300.00†	90.000	175.523	9085.00	2337.96	-2330.82	182.51	742837.80	390655.09	32°04'20.355"N	103°40'58.088"W	0.00	
11400.00†	90.000	175.523	9085.00	2437.96	-2430.52	190.32	742845.61	390555.40	32°04'19.368"N	103°40'58.005"W	0.00	
11500.00†	90.000	175.523	9085.00	2537.96	-2530.21	198.12	742853.42	390455.70	32°04'18.381"N	103°40'57.921"W	0.00	
11600.00†	90.000	175.523	9085.00	2637.96	-2629.91	205.93	742861.22	390356.01	32°04'17.394"N	103°40'57.837"W	0.00	
11700.00†	90.000	175.523	9085.00	2737.96	-2729.60	213.74	742869.03	390256.32	32°04'16.407"N	103°40'57.753"W	0.00	
11800.00†	90.000	175.523	9085.00	2837.96	-2829.30	221.54	742876.83	390156.63	32°04'15.420"N	103°40'57.670"W	0.00	
11900.00†	90.000	175.523	9085.00	2937.96	-2928.99	229.35	742884.64	390056.94	32°04'14.433"N	103°40'57.586"W	0.00	
12000.00†	90.000	175.523	9085.00	3037.96	-3028.69	237.16	742892.45	389957.25	32°04'13.446"N	103°40'57.502"W	0.00	
12100.00†	90.000	175.523	9085.00	3137.96	-3128.38	244.96	742900.25	389857.56	32°04'12.459"N	103°40'57.419"W	0.00	
12200.00†	90.000	175.523	9085.00	3237.96	-3228.08	252.77	742908.06	389757.87	32°04'11.472"N	103°40'57.335"W	0.00	
12300.00†	90.000	175.523	9085.00	3337.96	-3327.77	260.58	742915.86	389658.18	32°04'10.485"N	103°40'57.251"W	0.00	
12400.00†	90.000	175.523	9085.00	3437.96	-3427.47	268.38	742923.67	389558.49	32°04'09.498"N	103°40'57.167"W	0.00	
12500.00†	90.000	175.523	9085.00	3537.96	-3527.16	276.19	742931.48	389458.80	32°04'08.511"N	103°40'57.084"W	0.00	
12600.00†	90.000	175.523	9085.00	3637.96	-3626.86	284.00	742939.28	389359.11	32°04'07.524"N	103°40'57.000"W	0.00	
12700.00†	90.000	175.523	9085.00	3737.96	-3726.55	291.80	742947.09	389259.42	32°04'06.537"N	103°40'56.916"W	0.00	
12800.00†	90.000	175.523	9085.00	3837.96	-3826.25	299.61	742954.89	389159.73	32°04'05.550"N	103°40'56.832"W	0.00	
12900.00†	90.000	175.523	9085.00	3937.96	-3925.94	307.42	742962.70	389060.04	32°04'04.563"N	103°40'56.749"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	(Hallertau) Sec 4, T26S, R32E	Wellbore	No. 2H PWB
Facility	Hallertau 4 Federal		

## WELLPATH DATA (143 stations) † = interpolated/extrapolated station

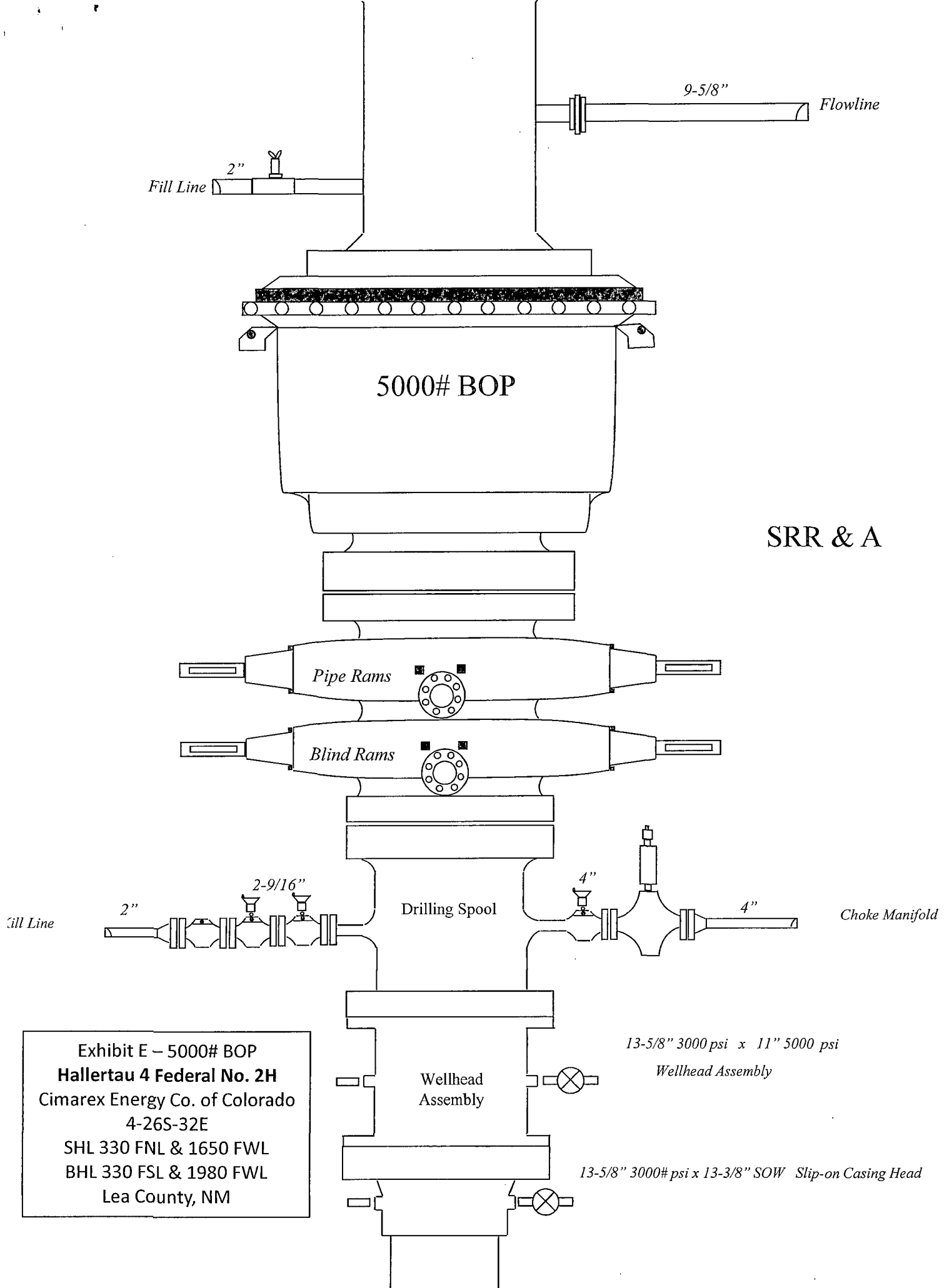
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [US ft]	Grid North [US ft]	Latitude	Longitude	DLS [°/100ft]	Comments
13000.00†	90.000	175.523	9085.00	4037.96	-4025.64	315.22	742970.51	388960.35	32°04'03.576"N	103°40'56.665"W	0.00	
13100.00†	90.000	175.523	9085.00	4137.96	-4125.33	323.03	742978.31	388860.66	32°04'02.589"N	103°40'56.581"W	0.00	
13200.00†	90.000	175.523	9085.00	4237.96	-4225.02	330.83	742986.12	388760.97	32°04'01.602"N	103°40'56.498"W	0.00	
13300.00†	90.000	175.523	9085.00	4337.96	-4324.72	338.64	742993.93	388661.28	32°04'00.615"N	103°40'56.414"W	0.00	
13400.00†	90.000	175.523	9085.00	4437.96	-4424.41	346.45	743001.73	388561.59	32°03'59.628"N	103°40'56.330"W	0.00	
13500.00†	90.000	175.523	9085.00	4537.96	-4524.11	354.25	743009.54	388461.90	32°03'58.641"N	103°40'56.246"W	0.00	
13600.00†	90.000	175.523	9085.00	4637.96	-4623.80	362.06	743017.34	388362.21	32°03'57.655"N	103°40'56.163"W	0.00	
13657.09	90.000	175.523	9085.00	4695.05	-4680.72	366.52	743021.80	388305.30	32°03'57.091"N	103°40'56.115"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	13657.09	9085.00	-4680.72	366.52	743021.80	388305.30	32°03'57.091"N	103°40'56.115"W	point

## SURVEY PROGRAM - Ref Wellbore: No. 2H PWB Ref Wellpath: Prelim\_1

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
3314.00	13657.09	NaviTrak (Standard)		No. 2H PWB



Fill Line 2"

9-5/8" Flowline

5000# BOP

SRR & A

Pipe Rams

Blind Rams

Drilling Spool

Choke Manifold

Sill Line

2-9/16"

4"

4"

Wellhead Assembly

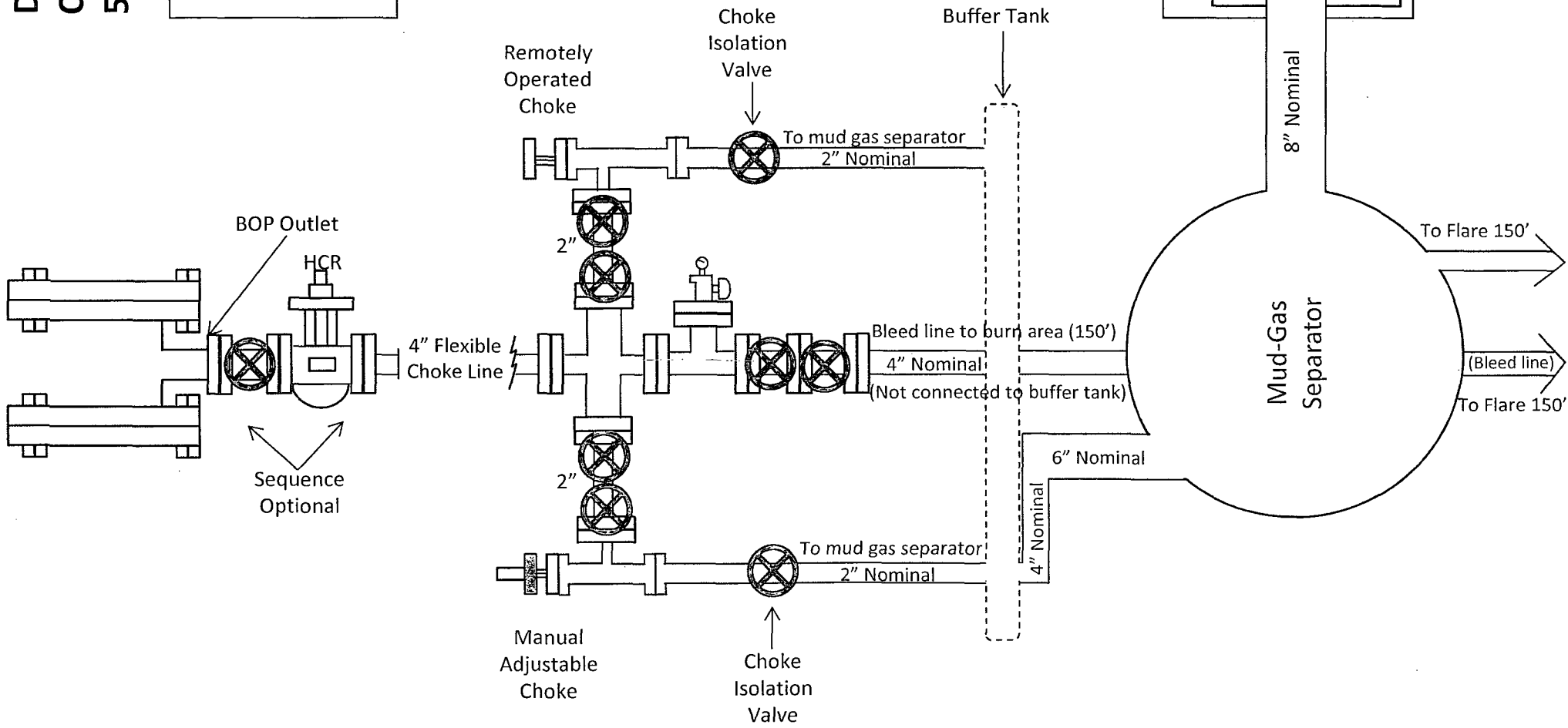
13-5/8" 3000 psi x 11" 5000 psi Wellhead Assembly

13-5/8" 3000# psi x 13-3/8" SOW Slip-on Casing Head

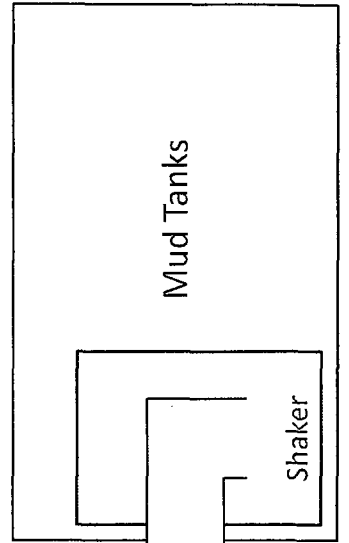
Exhibit E – 5000# BOP  
 Hallertau 4 Federal No. 2H  
 Cimarex Energy Co. of Colorado  
 4-26S-32E  
 SHL 330 FNL & 1650 FWL  
 BHL 330 FSL & 1980 FWL  
 Lea County, NM

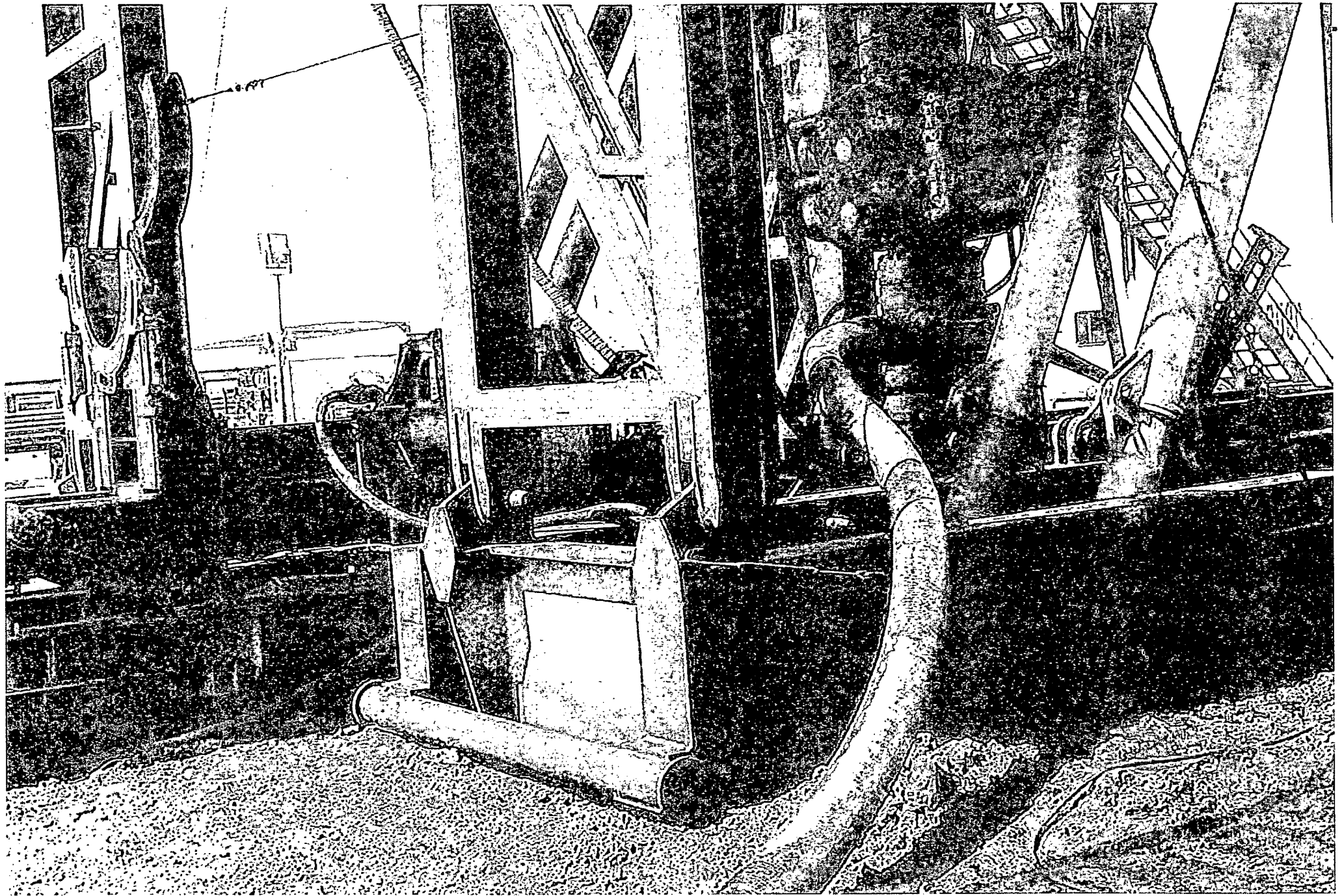
# Drilling Operations Choke Manifold 5M Service tested to 3M

Exhibit E-1 – Choke Manifold Diagram  
**Hallertau 4 Federal No. 2H**  
 Cimarex Energy Co. of Colorado  
 4-26S-32E  
 SHL 330 FNL & 1650 FWL  
 BHL 330 FSL & 1980 FWL  
 Lea County, NM



Mud Tanks  
40' from Rig







## Midwest Hose & Specialty, Inc.

### INTERNAL HYDROSTATIC TEST REPORT

<b>Customer:</b> Oderco Inc		<b>P.O. Number:</b> odyd-271	
<b>HOSE SPECIFICATIONS</b>			
<b>Type:</b> Stainless Steel Armor Choke & Kill Hose		<b>Hose Length:</b> 45'ft.	
<b>I.D.</b> 4 INCHES		<b>O.D.</b> 9 INCHES	
<b>WORKING PRESSURE</b> 10,000 PSI	<b>TEST PRESSURE</b> 15,000 PSI	<b>BURST PRESSURE</b> 0 PSI	
<b>COUPLINGS</b>			
<b>Stem Part No.</b> OKC OKC		<b>Ferrule No.</b> OKC OKC	
<b>Type of Coupling:</b> Swage-It			
<b>PROCEDURE</b>			
<i>Hose assembly pressure tested with water at ambient temperature.</i>			
<b>TIME HELD AT TEST PRESSURE</b> 15 MIN.		<b>ACTUAL BURST PRESSURE:</b> 0 PSI	
<b>Hose Assembly Serial Number:</b> 79793		<b>Hose Serial Number:</b> OKC	
<b>Comments:</b>			
<b>Date:</b> 3/8/2011	<b>Tested:</b> <i>A. James Jones</i>		<b>Approved:</b> <i>[Signature]</i>



Midwest Hose & Specialty, Inc.

# Internal Hydrostatic Test Graph

March 3, 2011

Customer: Houston

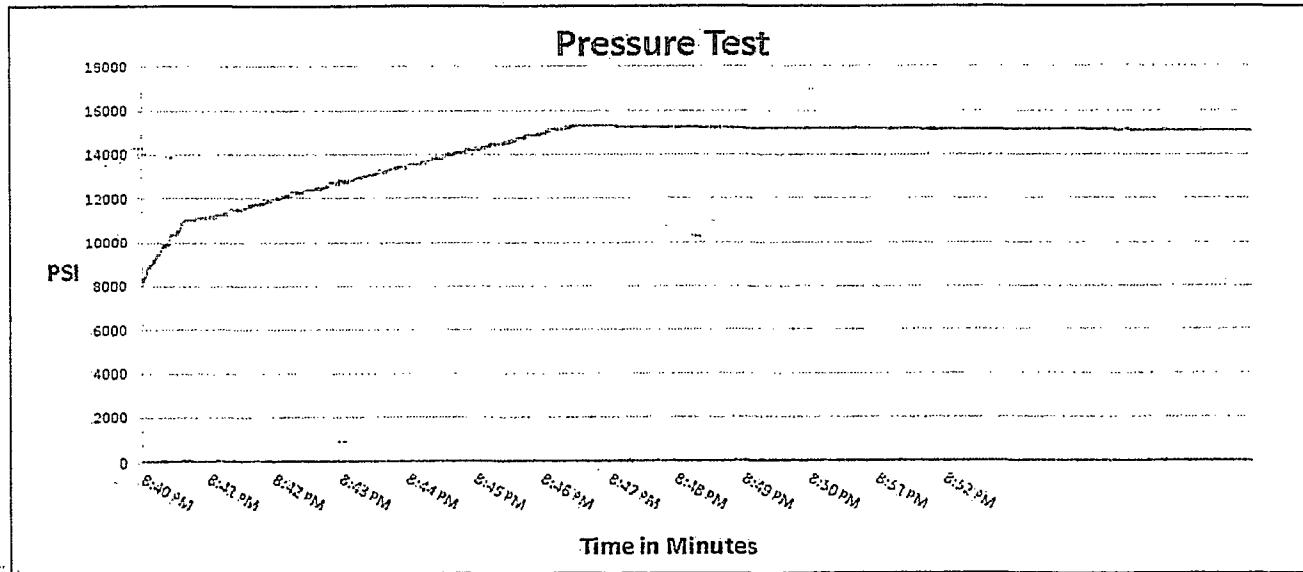
Pick Ticket #: 94260

### Hose Specifications

<u>Hose Type</u> C & K	<u>Length</u> 45'
<u>I.D.</u> 4"	<u>O.D.</u> 6.09"
<u>Working Pressure</u> 10000 PSI	<u>Burst Pressure</u> Standard Safety Multiplier Applies

### Verification

<u>Type of Fittings</u> 4 1/16 10K	<u>Coupling Method</u> Swage
<u>Die Size</u> 6.38"	<u>Final O.D.</u> 6.25"
<u>Hose Serial #</u> 5544	<u>Hose Assembly Serial #</u> 79793



<u>Test Pressure</u> 15000 PSI	<u>Time Held at Test Pressure</u> 11 Minutes	<u>Actual Burst Pressure</u> 15483 PSI
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Comments: Hose assembly pressure tested with water at ambient temperature.

Tested By: Zac McConnell

Approved By: Kim Thomas



## Midwest Hose & Specialty, Inc.

### Certificate of Conformity

Customer:

DEM

PO

ODYD-271

### SPECIFICATIONS

Sales Order

79793

Dated:

3/8/2011

We hereby certify that the material supplied for the referenced purchase order to be true according to the requirements of the purchase order and current industry standards

Supplier:  
Midwest Hose & Specialty, Inc.  
10640 Tanner Road  
Houston, Texas 77041

Comments:

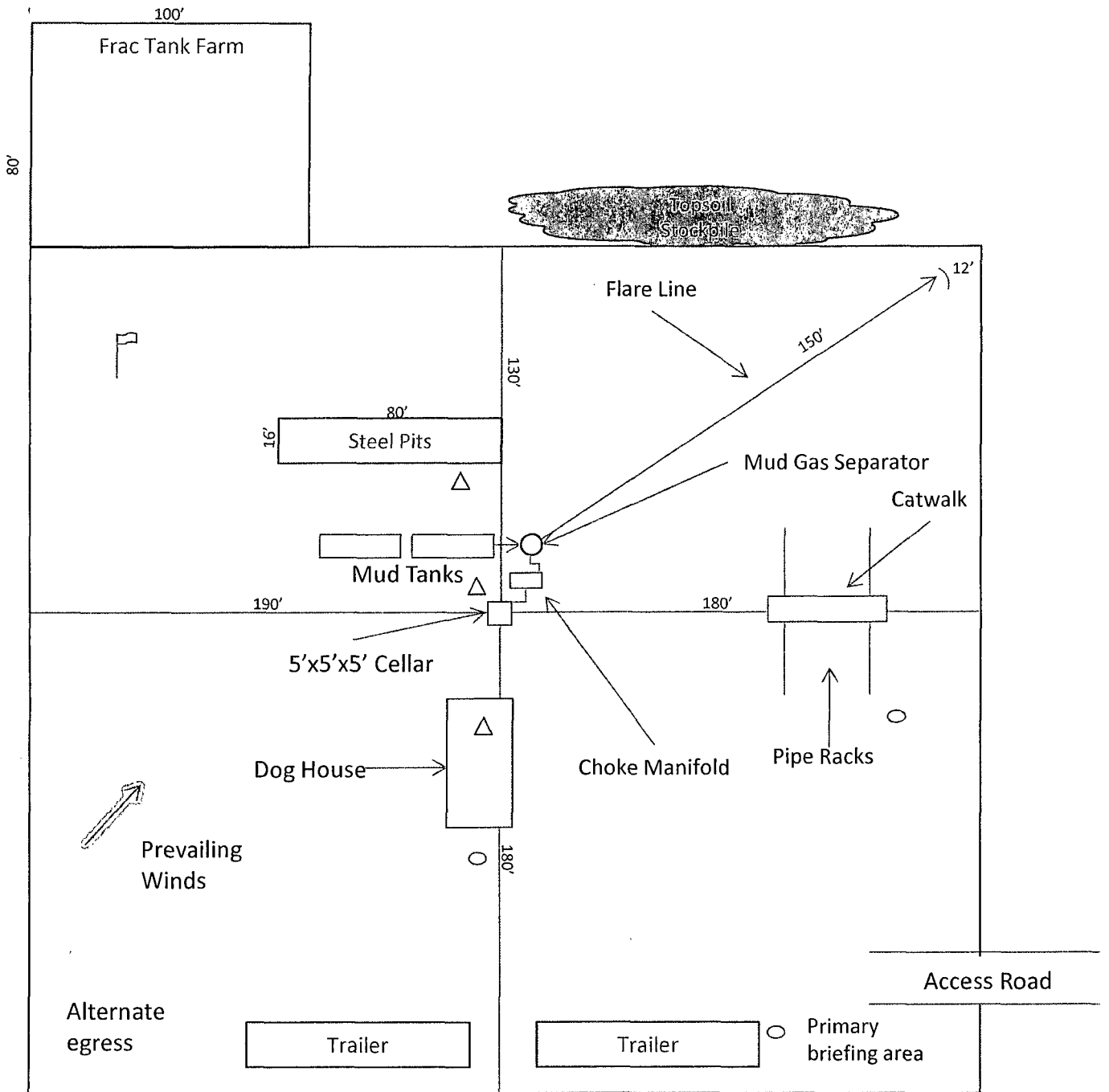
Approved:




*Janet Garcia*

Date:

3/8/2011





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

**Exhibit D – Rig Diagram**  
**Hallertau 4 Federal No. 2H**  
 Cimarex Energy Co. of Colorado  
 4-26S-32E  
 SHL 330 FNL & 1650 FWL  
 BHL 330 FSL & 1980 FWL  
 Lea County, NM