

AS-11-205

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SECRETARY'S POTASH

Form 3160-3
(April 2004)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of Work ☒ DRILL ☐ REENTER		5. Lease Serial No NM-0144698
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	3b Phone No (include area code) 432-571-7800	8 Lease Name and Well No. Superior Federal No. 12 H
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At Surface 330 FNL & 1980 FEL At proposed prod Zone 330 FSL & 1980 FEL Horizontal Bone Spring test		9 API Well No. 30-015- 39334
14 Distance in miles and direction from nearest town or post office*		10 Field and Pool, or Exploratory Parkway; Bone Spring
		11. Sec , T, R, M or Blk. and Survey or Area 1-20S-29E
		12 County or Parish Eddy
		13 State NM
15 Distance from proposed* location to nearest property or lease line, ft (Also to nearest drig unit line if any) 330'	16 No of acres in lease 1743.54	17 Spacing Unit dedicated to this well W2E2 160.21
18 Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft 1420'	19 Proposed Depth Pilot Hole 8550 MD 12738 TVD 8300	20 BLM/BIA Bond No on File NM-2575
21 Elevations (Show whether DF, KDB, RT, GL, etc) 3327' GR	22 Approximate date work will start* 03.31.11	23. Estimated duration 30-35 days
24. Attachments		

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

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

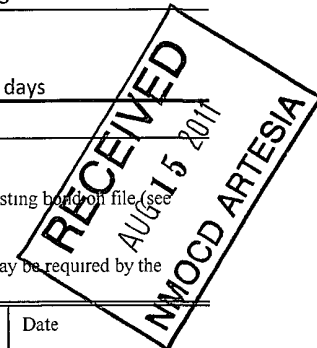
25. Signature Zeno Farris	Name (Printed/Typed) Zeno Farris	Date 01.11.11
Title Manager Operations Administration		
Approved By (Signature) /s/ Robert A. Casias	Name (Printed/Typed)	Date AUG 4 2011
Title acting STATE DIRECTOR	Office NM STATE OFFICE	

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

Title 18 U.S.S 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)



APPROVAL FOR TWO YEARS

(Signature)

Capitan Controlled Water Basin

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

Approval Subject to General Requirements
& Special Stipulations Attached

Application to Drill
Superior Federal No. 12
 Cimarex Energy Co. of Colorado
 Unit B, Section 1
 T20S-R29E, Eddy 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 & 1980 FEL
 BHL 330 FSL & 1980 FEL
- 2 Elevation above sea level: 3327' GR
- 3 Geologic name of surface formation: Quaternary Alluvium Deposits
- 4 Drilling tools and associated equipment: Conventional rotary drilling rig using fluid as a circulating medium for solids removal.

5 Proposed drilling depth: Pilot Hole 8550 MD 12738 TVD 8300

6 Estimated tops of geological markers:

Rustler	174'
T. Salt	415'
B. Salt	750'
Yates	1150'
7 Rivers/Capitan	1700'
Delaware Sands	3500'
Bone Spring	6120'
FBSS	7460'
SBSS	8150'

7 Possible mineral bearing formation:

Bone Spring Oil

8 Proposed Mud Circulating System:

Depth	Mud Wt	Visc	Fluid Loss	Type Mud
0' to 320' 240'	8.4 - 8.6	28	NC	FW
320' to 1600' 1400'	10.0	30-32	NC	Brine water
1600' to 3435'	8.4 - 8.8	28	NC	FW
3435' to 12738'	8.4	28-32	NC	2% KCl

Sufficient mud materials will be kept on location at all times in order to combat lost circulation or unexpected kicks. In order to run DSTs, open hole logs, and casing, the viscosity and water loss may have to be adjusted in order to meet these needs.

Proposed drilling Plan

After drilling and setting surface 1 & 2 and intermediate casing, drill to vertical TD 8550' and log. Set kick off plug from 7885-8550' with 270 sx Prem Plus H (15.8, 1.19) and kick off @ 7945' and drill to TD @ 12738.' Run 5½" 17# P-110 LTC from 0-12738.'

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 T20S-R29E, Eddy County, NM

9 Casing & Cementing Program:

See COA

String	Hole Size	Depth	Casing OD	Weight	Collar	Grade
Surface 1	26"	0' to 240 320'	New 20"	94#	BTC	J/K-55
Surface 2	17½"	0' to 1410 1600'	New 13⅝"	61#	BTC	J-55
Intermediate	12¼"	0' to 3435'	New 9⅝"	40#	LTC	J/K-55
Production	8¾"	0' to 12738'	New 5½"	17#	LTC	P-110

10 Cementing:

See COA

Surface 1 1850 sx Halcem C + 2% CaCl 14.8ppg 1.35 yield 400% Excess
TOC Surface Centralizers per Onshorder 2.III.B.1.f

Surface 2 Lead: 715 sx EconoCem + 5% salt + 5 lbm gilsonite 13.5ppg 1.75yield 70% Excess
 Tail: 300 sx HalCem + 2% CaCl 14.8ppg 1.35 yield 10% excess
TOC Surface

Intermediate Lead: 635 sx EconoCem + 5% salt + 5 lbm gilsonite 12.9ppg 1.85yield 70% Excess
 Tail: 145 sx HalCem + 1% CaCl 14.8ppg 1.34 yield 10% excess
TOC Surface

Production Lead: 465 sx EconoCem - H + 0.2 % HR-601 2.44 11.9ppg 2.44yield 50% Excess
 Tail: 1315 sx Versacem - H + 0.5% Halad(R)-344 + 0.4% CFR-3 + 1 lbm/sk salt + 0.1% HR-601 14.5ppg
 1.22 yield 25% excess

TOC 3000' Centralizers every 3rd joint in lateral to provide adequate cement coverage every 100' unless
See COA lateral doglegs require greater spacing between centralizers.

Depth to ground water, according to the State Engineer, is 57.' Fresh water zones will be protected by setting 20" casing at 320' and cementing to surface. Fresh water Capitan Reef will be protected by setting 13⅝" casing at 1600' and 9 5/8" casing at 3435' cementing to surface. Hydrocarbon zones will be protected by setting 5½" casing at 12738' and cementing to 3000.'

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

11 Pressure control Equipment:

Exhibit "E". A 13⅝" 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.

See COA

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 20" surface pipe the well will be equipped with a 2M diverter system. (See Exhibit "E-1"). From the base of the 13 3/8" casing through the running of 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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Unit B, Section 1
T20S-R29E, Eddy County, NM

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

- A. Mud logging program: 2 man unit from 3435 to TD
- B. Electric logging program: CNL / LDT / CAL / GR, DLL / CAL / GR
- C. No DSTs or cores are planned at this time.

13 Potential Hazards:

No abnormal pressures or temperatures are expected. In accordance with Onshore Order 6, Cimarex does not anticipate that there will be enough H₂S from the surface to the Bone Spring formations to meet the BLM's minimum requirements for the submission of an "H₂S Drilling Operation Plan" or "Public Protection Plan" for the drilling and completion of this well. Since we have an H₂S Safety package on all wells, attached is an "H₂S Drilling Operations Plan." Adequate flare lines will be installed off the mud / gas separator where gas may be flared safely. All personnel will be familiar with all aspects of safe operation of equipment being used.

Estimated BHP **3000 psi** Estimated BHT **130°**

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

Drilling expected to take 30-35 days

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

15 Other Facets of Operations:

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

Bone Spring pay will be perforated and stimulated.

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



Cimarex Energy Co.

Location Eddy County, NM
Field (Superior) Sec 1, T20S, R29E
Facility Superior Fed No 12H

Slot: No 12H SHL
Well: No 12H
Wellbore: No 12H PWB



Well Profile Data

Design Comment	MD (ft)	Inc (°)	As (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°100ft)	VS (ft)
Tie On	0.00	0.000	179.895	0.00	0.00	0.00	0.00	0.00
Est KOP	7945.00	0.000	179.895	7945.00	0.00	0.00	0.00	0.00
End of Curve	8388.17	89.078	179.895	8230.02	-289.47	0.51	20.10	280.47
No 12H PBHL	12737.74	89.078	179.895	8300.00	-4629.46	8.50	0.00	4629.47

Plot reference wellpath is Prelim 1

True vertical depths are referenced to Rig on No 12H SHL (RT)

Measured depths are referenced to Rig on No 12H SHL (RT)

Rig on No 12H SHL (RT) to Mean Sea Level 3327 feet

Mean Sea Level to Mud line (Facility Superior Fed No 12H) -3327 feet

Coordinates are in feet referenced to Slot

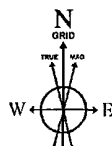
Grid System: NAD83 / TM New Mexico State Planes, Eastern Zone (3001), US feet

North Reference: Grid north

Scale: True distance

Depths are in feet

Created by: gormasor on 1/8/2011

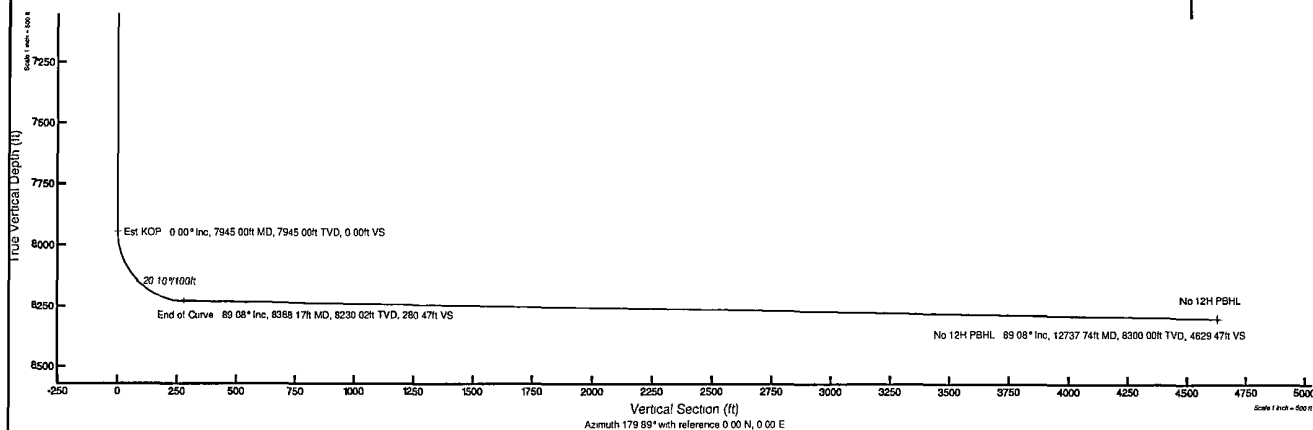
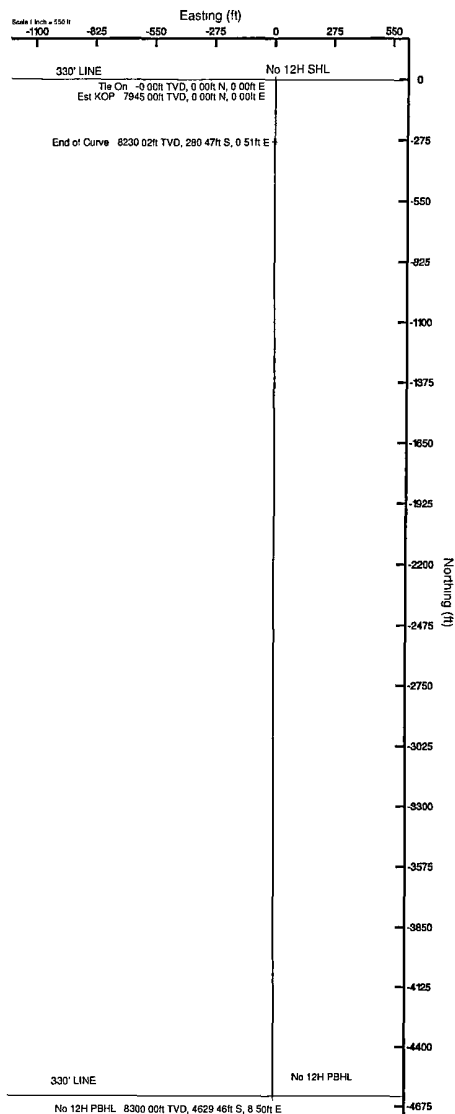


BGGM (1945.0 to 2012.0) Dip: 60.49° Field: 48975.2 nT
Magnetic North is 7.94 degrees East of True North (at 1/7/2011)
Grid North is 0.17 degrees East of True North

To correct azimuth from True to Grid subtract 0.17 degrees

To correct azimuth from Magnetic to Grid add 7.77 degrees

For example if the Magnetic North Azimuth = 90 degs, then the Grid North Azimuth = 90 + 7.77 = 97.77





Planned Wellpath Report

Prelim_1

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INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No.12H SHL
Area	Eddy County, NM	Well	No.12H
Field	(Superior) Sec 1, T20S, R29E	Wellbore	No.12H PWB
Facility	Superior Fed No.12H		

REPORT SETUP INFORMATION

Projection System	NAD83 / TM New Mexico State Planes, Eastern Zone (3001), US feet	Software System	WellArchitect® 2.0
North Reference	Grid	User	Gomeoscr
Scale	0.999919	Report Generated	1/8/2011 at 11:52:03 AM
Convergence at slot	0.17° East	Database/Source file	WA Midland/No.12H_PWB.xml

WELLPATH LOCATION

	Local coordinates		Grid coordinates		Geographic coordinates	
	North[ft]	East[ft]	Easting[USft]	Northing[USft]	Latitude	Longitude
Slot Location	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W
Facility Reference Pt			635890.80	585352.80	32°36'31.720"N	104°01'34.555"W
Field Reference Pt			633140.30	585364.20	32°36'31.910"N	104°02'06.711"W

WELLPATH DATUM

Calculation method	Minimum curvature	Rig on No.12H SHL (RT) to Facility Vertical Datum	0.00ft
Horizontal Reference Pt	Slot	Rig on No.12H SHL (RT) to Mean Sea Level	3327.00ft
Vertical Reference Pt	Rig on No.12H SHL (RT)	Facility Vertical Datum to Mud Line (Facility)	0.00ft
MD Reference Pt	Rig on No.12H SHL (RT)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	179.89°



Planned Wellpath Report

Prelim 1

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REFERENCE WELLPATH IDENTIFICATION			
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Area	Eddy County, NM	Well	No.12H
Field	(Superior) Sec 1, T20S, R29E	Wellbore	No.12H PWB
Facility	Superior Fed No.12H		

WELLPATH DATA (131 stations) † = interpolated/extrapolated station												
MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	DLS [°/100ft]	Comments
0.00	0.000	179.895	0.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	Tie On
100.00†	0.000	179.895	100.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
200.00†	0.000	179.895	200.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
300.00†	0.000	179.895	300.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
400.00†	0.000	179.895	400.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
500.00†	0.000	179.895	500.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
600.00†	0.000	179.895	600.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
700.00†	0.000	179.895	700.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
800.00†	0.000	179.895	800.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
900.00†	0.000	179.895	900.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
1000.00†	0.000	179.895	1000.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
1100.00†	0.000	179.895	1100.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
1200.00†	0.000	179.895	1200.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
1300.00†	0.000	179.895	1300.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
1400.00†	0.000	179.895	1400.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
1500.00†	0.000	179.895	1500.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
1600.00†	0.000	179.895	1600.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
1700.00†	0.000	179.895	1700.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
1800.00†	0.000	179.895	1800.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
1900.00†	0.000	179.895	1900.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
2000.00†	0.000	179.895	2000.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
2100.00†	0.000	179.895	2100.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
2200.00†	0.000	179.895	2200.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
2300.00†	0.000	179.895	2300.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
2400.00†	0.000	179.895	2400.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
2500.00†	0.000	179.895	2500.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
2600.00†	0.000	179.895	2600.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
2700.00†	0.000	179.895	2700.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
2800.00†	0.000	179.895	2800.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
2900.00†	0.000	179.895	2900.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
3000.00†	0.000	179.895	3000.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
3100.00†	0.000	179.895	3100.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
3200.00†	0.000	179.895	3200.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
3300.00†	0.000	179.895	3300.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
3400.00†	0.000	179.895	3400.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
3500.00†	0.000	179.895	3500.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
3600.00†	0.000	179.895	3600.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
3700.00†	0.000	179.895	3700.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
3800.00†	0.000	179.895	3800.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
3900.00†	0.000	179.895	3900.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
4000.00†	0.000	179.895	4000.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
4100.00†	0.000	179.895	4100.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
4200.00†	0.000	179.895	4200.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
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4400.00†	0.000	179.895	4400.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	



Planned Wellpath Report

Prelim 1

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INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No.12H SHL
Area	Eddy County, NM	Well	No.12H
Field	(Superior) Sec 1, T20S, R29E	Wellbore	No.12H PWB
Facility	Superior Fed No.12H		

WELLPATH DATA (131 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	DLS [°/100ft]	Comments
4500.00†	0.000	179.895	4500.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
4600.00†	0.000	179.895	4600.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
4700.00†	0.000	179.895	4700.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
4800.00†	0.000	179.895	4800.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
4900.00†	0.000	179.895	4900.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
5000.00†	0.000	179.895	5000.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
5100.00†	0.000	179.895	5100.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
5200.00†	0.000	179.895	5200.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
5300.00†	0.000	179.895	5300.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
5400.00†	0.000	179.895	5400.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
5500.00†	0.000	179.895	5500.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
5600.00†	0.000	179.895	5600.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
5700.00†	0.000	179.895	5700.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
5800.00†	0.000	179.895	5800.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
5900.00†	0.000	179.895	5900.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
6000.00†	0.000	179.895	6000.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
6100.00†	0.000	179.895	6100.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
6200.00†	0.000	179.895	6200.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
6300.00†	0.000	179.895	6300.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
6400.00†	0.000	179.895	6400.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
6500.00†	0.000	179.895	6500.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
6600.00†	0.000	179.895	6600.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
6700.00†	0.000	179.895	6700.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
6800.00†	0.000	179.895	6800.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
6900.00†	0.000	179.895	6900.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
7000.00†	0.000	179.895	7000.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
7100.00†	0.000	179.895	7100.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
7200.00†	0.000	179.895	7200.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
7300.00†	0.000	179.895	7300.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
7400.00†	0.000	179.895	7400.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
7500.00†	0.000	179.895	7500.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
7600.00†	0.000	179.895	7600.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
7700.00†	0.000	179.895	7700.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
7800.00†	0.000	179.895	7800.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
7900.00†	0.000	179.895	7900.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	
7945.00	0.000	179.895	7945.00	0.00	0.00	0.00	635890.80	585352.80	32°36'31.720"N	104°01'34.555"W	0.00	Est KOP
8000.00†	11.055	179.895	7999.66	5.29	-5.29	0.01	635890.81	585347.51	32°36'31.668"N	104°01'34.555"W	20.10	
8100.00†	31.155	179.895	8092.47	41.11	-41.11	0.08	635890.88	585311.69	32°36'31.313"N	104°01'34.555"W	20.10	
8200.00†	51.255	179.895	8167.32	106.65	-106.65	0.20	635891.00	585246.16	32°36'30.665"N	104°01'34.556"W	20.10	
8300.00†	71.355	179.895	8215.09	193.92	-193.92	0.36	635891.16	585158.90	32°36'29.801"N	104°01'34.557"W	20.10	
8388.17	89.078	179.895	8230.02	280.47	-280.47	0.51	635891.31	585072.36	32°36'28.945"N	104°01'34.558"W	20.10	End of Curve
8400.00†	89.078	179.895	8230.21	292.29	-292.29	0.54	635891.34	585060.53	32°36'28.828"N	104°01'34.558"W	0.00	
8500.00†	89.078	179.895	8231.82	392.28	-392.28	0.72	635891.52	584960.55	32°36'27.839"N	104°01'34.560"W	0.00	
8600.00†	89.078	179.895	8233.42	492.27	-492.26	0.90	635891.70	584860.58	32°36'26.849"N	104°01'34.561"W	0.00	
8700.00†	89.078	179.895	8235.03	592.25	-592.25	1.09	635891.89	584760.60	32°36'25.860"N	104°01'34.562"W	0.00	



Planned Wellpath Report

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REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No.12H SHL
Area	Eddy County, NM	Well	No.12H
Field	(Superior) Sec 1, T20S, R29E	Wellbore	No.12H PWB
Facility	Superior Fed No.12H		

WELLPATH DATA (131 stations) † = interpolated/extrapolated station

MD [ft]	Inclination [°]	Azimuth [°]	TVD [ft]	Vert Sect [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	DLS [°/100ft]	Comments
8800.00†	89.078	179.895	8236.64	692.24	-692.24	1.27	635892.07	584660.62	32°36'24.871"N	104°01'34.563"W	0.00	
8900.00†	89.078	179.895	8238.25	792.23	-792.23	1.45	635892.25	584560.64	32°36'23.881"N	104°01'34.565"W	0.00	
9000.00†	89.078	179.895	8239.86	892.21	-892.21	1.64	635892.44	584460.66	32°36'22.892"N	104°01'34.566"W	0.00	
9100.00†	89.078	179.895	8241.47	992.20	-992.20	1.82	635892.62	584360.68	32°36'21.903"N	104°01'34.567"W	0.00	
9200.00†	89.078	179.895	8243.08	1092.19	-1092.19	2.01	635892.81	584260.70	32°36'20.913"N	104°01'34.568"W	0.00	
9300.00†	89.078	179.895	8244.69	1192.17	-1192.17	2.19	635892.99	584160.73	32°36'19.924"N	104°01'34.570"W	0.00	
9400.00†	89.078	179.895	8246.30	1292.16	-1292.16	2.37	635893.17	584060.75	32°36'18.935"N	104°01'34.571"W	0.00	
9500.00†	89.078	179.895	8247.91	1392.15	-1392.15	2.56	635893.36	583960.77	32°36'17.945"N	104°01'34.572"W	0.00	
9600.00†	89.078	179.895	8249.51	1492.14	-1492.13	2.74	635893.54	583860.79	32°36'16.956"N	104°01'34.573"W	0.00	
9700.00†	89.078	179.895	8251.12	1592.12	-1592.12	2.92	635893.72	583760.81	32°36'15.967"N	104°01'34.574"W	0.00	
9800.00†	89.078	179.895	8252.73	1692.11	-1692.11	3.11	635893.91	583660.83	32°36'14.977"N	104°01'34.576"W	0.00	
9900.00†	89.078	179.895	8254.34	1792.10	-1792.09	3.29	635894.09	583560.85	32°36'13.988"N	104°01'34.577"W	0.00	
10000.00†	89.078	179.895	8255.95	1892.08	-1892.08	3.47	635894.27	583460.88	32°36'12.999"N	104°01'34.578"W	0.00	
10100.00†	89.078	179.895	8257.56	1992.07	-1992.07	3.66	635894.46	583360.90	32°36'12.009"N	104°01'34.579"W	0.00	
10200.00†	89.078	179.895	8259.17	2092.06	-2092.05	3.84	635894.64	583260.92	32°36'11.020"N	104°01'34.581"W	0.00	
10300.00†	89.078	179.895	8260.78	2192.05	-2192.04	4.03	635894.82	583160.94	32°36'10.031"N	104°01'34.582"W	0.00	
10400.00†	89.078	179.895	8262.39	2292.03	-2292.03	4.21	635895.01	583060.96	32°36'09.041"N	104°01'34.583"W	0.00	
10500.00†	89.078	179.895	8264.00	2392.02	-2392.02	4.39	635895.19	582960.98	32°36'08.052"N	104°01'34.584"W	0.00	
10600.00†	89.078	179.895	8265.60	2492.01	-2492.00	4.58	635895.38	582861.00	32°36'07.063"N	104°01'34.586"W	0.00	
10700.00†	89.078	179.895	8267.21	2591.99	-2591.99	4.76	635895.56	582761.03	32°36'06.073"N	104°01'34.587"W	0.00	
10800.00†	89.078	179.895	8268.82	2691.98	-2691.98	4.94	635895.74	582661.05	32°36'05.084"N	104°01'34.588"W	0.00	
10900.00†	89.078	179.895	8270.43	2791.97	-2791.96	5.13	635895.93	582561.07	32°36'04.095"N	104°01'34.589"W	0.00	
11000.00†	89.078	179.895	8272.04	2891.95	-2891.95	5.31	635896.11	582461.09	32°36'03.106"N	104°01'34.590"W	0.00	
11100.00†	89.078	179.895	8273.65	2991.94	-2991.94	5.49	635896.29	582361.11	32°36'02.116"N	104°01'34.592"W	0.00	
11200.00†	89.078	179.895	8275.26	3091.93	-3091.92	5.68	635896.48	582261.13	32°36'01.127"N	104°01'34.593"W	0.00	
11300.00†	89.078	179.895	8276.87	3191.92	-3191.91	5.86	635896.66	582161.15	32°36'00.138"N	104°01'34.594"W	0.00	
11400.00†	89.078	179.895	8278.48	3291.90	-3291.90	6.04	635896.84	582061.17	32°35'59.148"N	104°01'34.595"W	0.00	
11500.00†	89.078	179.895	8280.09	3391.89	-3391.88	6.23	635897.03	581961.20	32°35'58.159"N	104°01'34.597"W	0.00	
11600.00†	89.078	179.895	8281.69	3491.88	-3491.87	6.41	635897.21	581861.22	32°35'57.170"N	104°01'34.598"W	0.00	
11700.00†	89.078	179.895	8283.30	3591.86	-3591.86	6.60	635897.39	581761.24	32°35'56.180"N	104°01'34.599"W	0.00	
11800.00†	89.078	179.895	8284.91	3691.85	-3691.84	6.78	635897.58	581661.26	32°35'55.191"N	104°01'34.600"W	0.00	
11900.00†	89.078	179.895	8286.52	3791.84	-3791.83	6.96	635897.76	581561.28	32°35'54.202"N	104°01'34.601"W	0.00	
12000.00†	89.078	179.895	8288.13	3891.83	-3891.82	7.15	635897.95	581461.30	32°35'53.212"N	104°01'34.603"W	0.00	
12100.00†	89.078	179.895	8289.74	3991.81	-3991.81	7.33	635898.13	581361.32	32°35'52.223"N	104°01'34.604"W	0.00	
12200.00†	89.078	179.895	8291.35	4091.80	-4091.79	7.51	635898.31	581261.35	32°35'51.234"N	104°01'34.605"W	0.00	
12300.00†	89.078	179.895	8292.96	4191.79	-4191.78	7.70	635898.50	581161.37	32°35'50.244"N	104°01'34.606"W	0.00	
12400.00†	89.078	179.895	8294.57	4291.77	-4291.77	7.88	635898.68	581061.39	32°35'49.255"N	104°01'34.608"W	0.00	
12500.00†	89.078	179.895	8296.17	4391.76	-4391.75	8.06	635898.86	580961.41	32°35'48.266"N	104°01'34.609"W	0.00	
12600.00†	89.078	179.895	8297.78	4491.75	-4491.74	8.25	635899.05	580861.43	32°35'47.276"N	104°01'34.610"W	0.00	
12700.00†	89.078	179.895	8299.39	4591.73	-4591.73	8.43	635899.23	580761.45	32°35'46.287"N	104°01'34.611"W	0.00	
12737.74	89.078	179.895	8300.00†	4629.47	-4629.46	8.50	635899.30	580723.72	32°35'45.914"N	104°01'34.612"W	0.00	No.12H PBHL



Planned Wellpath Report

Prelim_1
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INTEQ

REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No.12H SHL
Area	Eddy County, NM	Well	No.12H
Field	(Superior) Sec 1, T20S, R29E	Wellbore	No.12H PWB
Facility	Superior Fed No.12H		

HOLE & CASING SECTIONS Ref Wellbore: No.12H PWB Ref Wellpath: Prelim_1									
String/Diameter	Start MD [ft]	End MD [ft]	Interval [ft]	Start TVD [ft]	End TVD [ft]	Start N/S [ft]	Start E/W [ft]	End N/S [ft]	End E/W [ft]
9.625in Casing	0.00	3200.00	3200.00	0.00	3200.00	0.00	0.00	0.00	0.00
8.75in Open Hole	3200.00	12737.74	9537.74	3200.00	8300.00	0.00	0.00	-4629.46	8.50

TARGETS									
Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	Shape
1) No.12H PBHL	12737.74	8300.00	-4629.46	8.50	635899.30	580723.72	32°35'45.914"N	104°01'34.612"W	point
2nd Bone Spring									

SURVEY PROGRAM Ref Wellbore: No.12H PWB Ref Wellpath: Prelim_1				
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
0.00	12737.74	NaviTrak (Standard)		No.12H PWB

SR & A

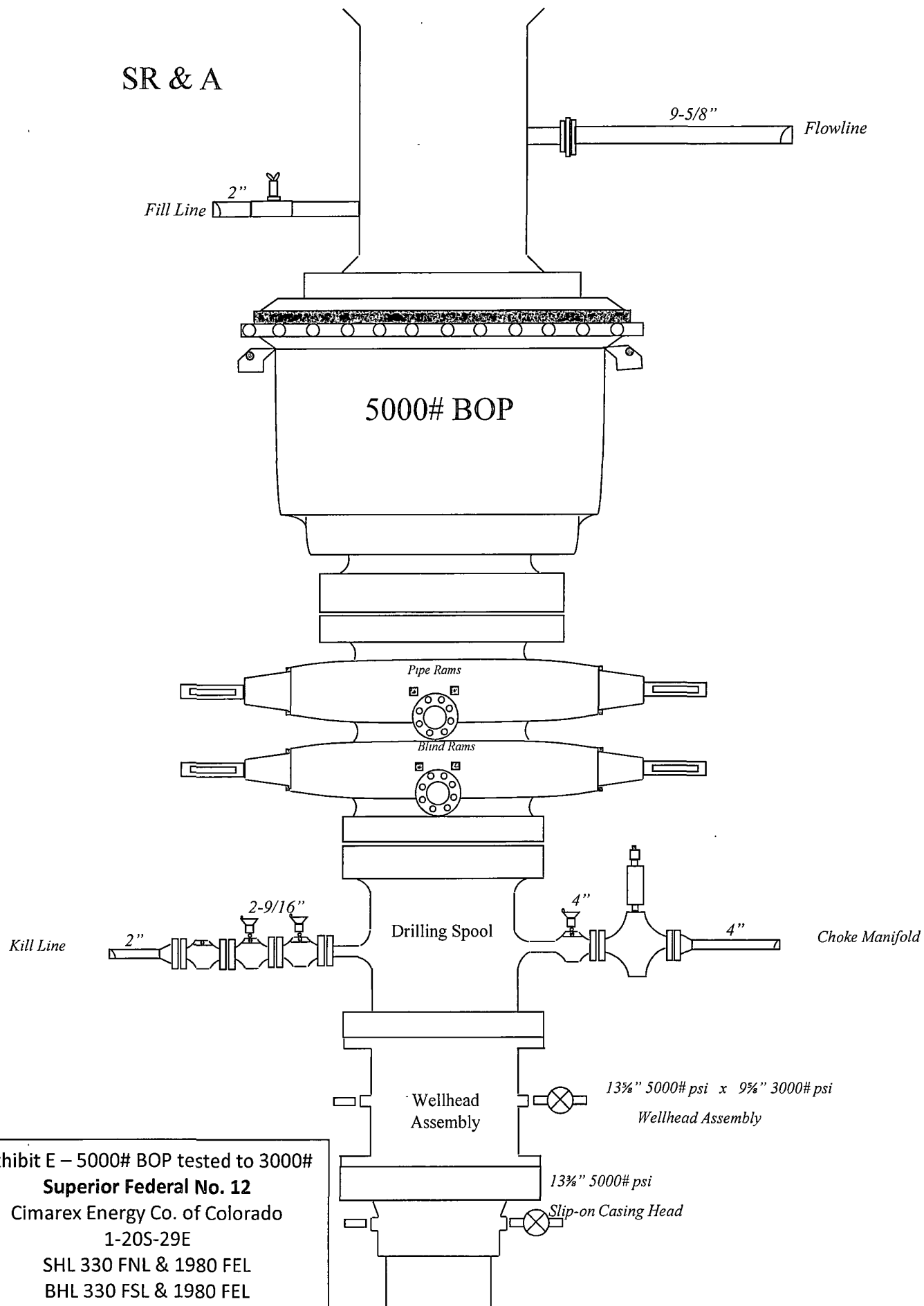


Exhibit E – 5000# BOP tested to 3000#
Superior Federal No. 12
Cimarex Energy Co. of Colorado
1-20S-29E
SHL 330 FNL & 1980 FEL
BHL 330 FSL & 1980 FEL
Eddy County, NM

20" Diverter System

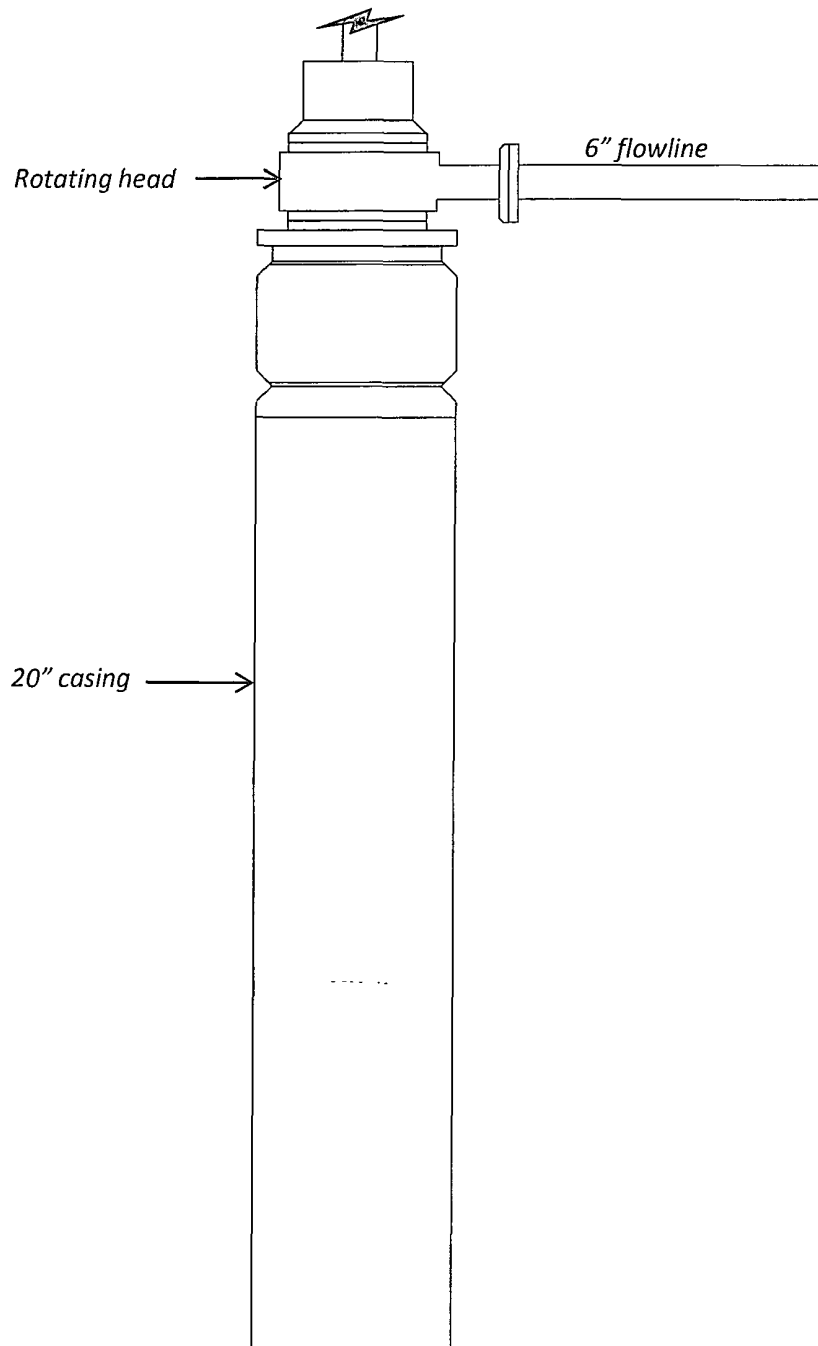


Exhibit E-1 – 20" Diverter System
Superior Federal No. 12
Cimarex Energy Co. of Colorado
1-20S-29E
SHL 330 FNL & 1980 FEL
BHL 330 FSL & 1980 FEL
Eddy County, NM

Drilling Operations Choke Manifold 5M Service tested to 3M

Exhibit E-2 – Choke Manifold Diagram

Superior Federal No. 12

Cimarex Energy Co. of Colorado

1-20S-29E

SHL 330 FNL & 1980 FEL

BHL 330 FSL & 1980 FEL

Eddy County, NM

