

HOBBS OCD

OCD Hobbs

ATS-11-210

JUL 15 2011

Form 3160-3
(April 2004)

RECEIVED

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

FORM APPROVED
OMB No 1004-0137
Expires March 31, 20075 Lease Serial No. **546**
NM-40276, NM-32591
6 If Indian, Allottee or Tribe Name1a Type of Work ☒ DRILL ☐ REENTER

7 If Unit or CA Agreement, Name and No

North Maduro Federal Unit

1b Type of Well ☒ Oil Well ☐ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone8 Lease Name and Well No **<300536>**
North Maduro Federal Unit No. 5

2. Name of Operator

Cimarex Energy Co. of Colorado

9 API Well No.

30-025- **4-D187**

3a Address

600 N. Marienfeld St., Ste. 600; Midland, TX 79701

3b. Phone No (include area code)

432-571-7800

10 Field and Pool, or Exploratory

Tonto; Bone Spring, South **<59476>**

4 Location of Well (Report location clearly and in accordance with any State requirements. *)

At Surface

660 FSL & 330 FEL

Unit P

At proposed prod Zone

660 FSL & 330 FWL **4 m** Horizontal Bone Spring test

20-19S-33E

14 Distance in miles and direction from nearest town or post office*

12 County or Parish

Lea

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

NM-40276 - 120 acres

NM-32591 - 200 acres

17 Spacing Unit dedicated to this well

S2S2 160 acres

18 Distance from proposed location*
to nearest well, drilling, completed,
applied for, on this lease, ft

2310'

19. Proposed Depth

MD 14403'

TVD 9990'

20. BLM/BIA Bond No on File

NM-2575

21 Elevations (Show whether DF, KDB, RT, GL, etc)

3608' GR

22 Approximate date work will start*

06.15.11

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
2. A Drilling Plan
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)

4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above)
5. Operator Certification
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

02.17.11

Title

Manager Operations Administration

Approved By (Signature)

James A. Ames

Name (Printed/Typed)

CARLSBAD FIELD OFFICE

Date

JUL - 8 2011

Title

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 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)

Capitan Controlled Water Basin

KE 07/19/11SEE ATTACHED FOR
CONDITIONS OF APPROVALApproval Subject to General Requirements
& Special Stipulations Attached

Application to Drill
North Maduro Federal Unit No. 5
 Cimarex Energy Co. of Colorado
 Unit P, Section 20
 T19S-R33E, 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 660 FSL & 330 FEL
 BHL 660 FSL & 330 FWL

- 2 Elevation above sea level: 3608' 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 14403' TVD 9990'

- 6 Estimated tops of geological markers:

Rustler	1240'	Delaware	5300'
T. Salt	1350'	Bone Spring	7770'
B. Salt	2665'	FBSS	8920'
Yates	3138'	SBSS	9650'
Queen	4147'		

- 7 Possible mineral bearing formation:
 Bone Spring Oil

8 Proposed Mud Circulating System:

Depth	Mud Wt	Visc	Fluid Loss	Type Mud
0' to 1300' 1360'	8.4 - 8.6	28	NC	FW
1300' to 5200' 5100'	10.0	30-32	NC	Brine water
5200' to 14403'	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.

8a. Proposed drilling Plan

Drill 8 3/4" hole to KOP @ 9615 and kick off to drill and drill through the curve to lateral TD @ 14403. Run and cement 5 1/2" 17# P-110 LTC from 0-9515 (100' above KOP), BTC from 9515-10057 (EOC), and LTC from 10057-14403 (TD).

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 T19S-R33E, Lea County, NM

9 Casing & Cementing Program:

String	Hole Size	Depth	Casing OD	Weight	Collar	Grade
<i>2</i> Surface	17½"	0' to 1360 1300'	New 13½"	48#	STC	H-40
<i>4</i> Intermediate	12¼"	0' to 5100 5200'	New 9½"	40#	LTC	N-80
Production	8¾"	0' to 14403'	New 5½"	17#	LTC/ 8 7	P-110

10 Cementing:

Surface

Lead: 836 sk Class C + 4% D20, 1% S001, 0.2% D46, 0.125 lb/sk D130, 12.9 ppg, 1.96 yeild, 10.84 gal/s
 Tail: 237 sk Class C + 0.125 lb/sk D130, 14.8 ppg 1.33 yld, 6.35 gal/sk (100% Excess)

TOC Surface Centralizers per Onshore Order 2.III.B.1f

Intermediate

Lead: 719 sks 35:65 Poz:C + 5% D44, 6% D20, 0.2% D46, 1% D112, 2lb/sk D42, 0.125 lb/sk D130, 12.6 ppg, 2.04 ft3/sk, 11.28 gal/sk
 Tail: 438 sks C + 0.2% D13, 14.8 pg, 1.33 ft3/sk, 6.35 gal/sk (25% Excess)

TOC Surface

Production

Lead: 520 sks 11.8 ppg 50:50 Poz:H with 5% Salt, 10% D20, 0.125 lb/sk D130, 1% D112, 0.2% D46, 11.8 ppg, 2.59 ft3/sk
 Tail: 200 sks 13 ppg PVL with 0.2% D167, 1.3% Salt, 2% D174, 0.2% D46, 0.3% D800, 13ppg, yield 1.43 ft3/sk, 7.44 gal/sk (Excess 25%)

Centralizers every 3rd joint in lateral and curve to provide adequate cement coverage every 100' unless lateral doglegs require greater spacing between centralizers.

TOC 5000'

see COA

According to the State Engineer, average depth to groundwater is 177. Fresh water zones will be protected by setting 13½" casing at 1300 and cementing to surface. Hydrocarbon zones will be protected by setting 9½" casing at 5200 and cementing to surface, and by setting 5 1/2" casing at 14403 and cementing to 5000.

<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 13½" 5000 PSI working pressure B.O.P. 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 below 6000.' A kelly cock will be installed and maintained in operable condition and a drill string safety valve in the open position will be available on the rig floor. Mud-Gas separator will be utilized if drilling in potential H2S area.

BOP unit will be hydraulically operated. BOP will be nipped up and operated at least once a day while drilling and the blind rams will be operated when out of hole during trips. No abnormal pressure or temperature is expected while drilling. From the base of the surface pipe through the running of production casing, the well will be equipped with a 5000 psi BOP system 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 P, Section 20
T19S-R33E, Lea County, NM

- 12 Testing, Logging and Coring Program: *See COA*
- A. Mud logging program: 2 man unit from 5200 to TD
 - B. Electric logging program: CNL / LDT / CAL / GR, DLL / CAL / GR
 - C. No DSTs or cores are planned at this time.

13 Potential Hazards:

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

Estimated BHP **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.

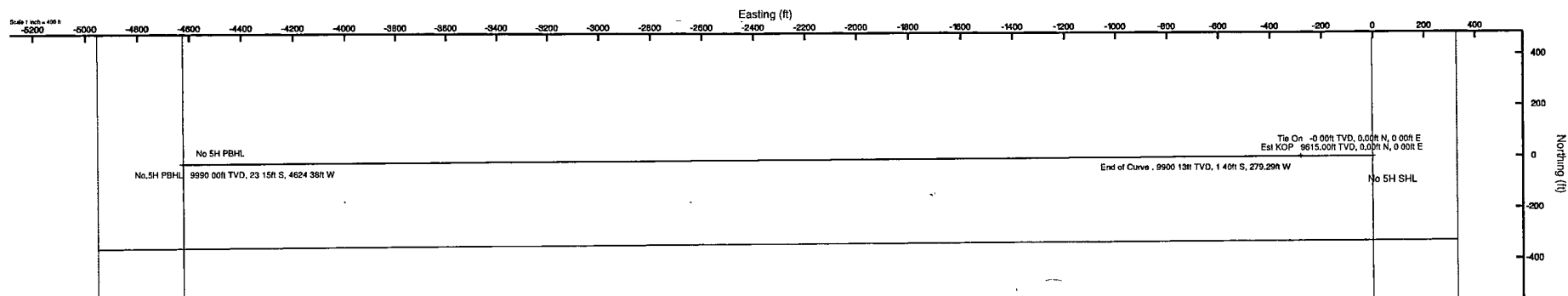
Location Lea County, NM
Field (N Maduro), T19S, R33E
Facility North Maduro Unit Com No.5H

Slot No.5H SHL
Well No.5H
Wellbore No.5H PWB

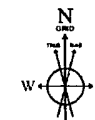


Well Profile Data

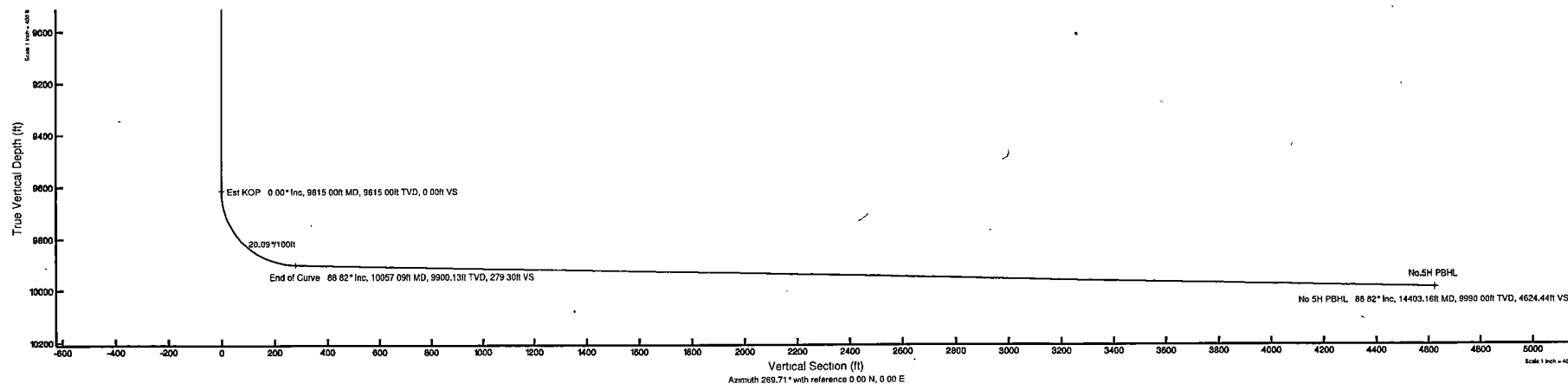
Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	0.00	0.000	269.713	0.00	0.00	0.00	0.00	0.00
Est KOP	9615.00	0.000	269.713	9615.00	0.00	0.00	0.00	0.00
End of Curve	10057.09	88.815	269.713	9900.13	-1.40	-279.29	20.09	279.30
No.5H PBHL	14403.16	88.815	269.713	9990.00	-23.15	-4624.38	0.00	4624.44



Plot reference wellpath is Prelim_1	
True vertical depths are referenced to Rig on No.5H SHL (RT)	Grid System NAD83 / TM New Mexico State Planes, Eastern Zone (3001), US feet
Measured depths are referenced to Rig on No.5H SHL (RT)	North Reference Grid north
Rig on No.5H SHL (RT) to Mean Sea Level 0 feet	Scale True distance
Mean Sea Level to Mud line (Facility North Maduro Unit Com No.5H) 0 feet	Depths are in feet
Coordinates are in feet referenced to Slot	Created by gomeoscr on 1/14/2011



SGDM (1945 to 2012) Dip 69.57° Field 48861.7 ft
Magnetic North is 7.77 degrees East of True North (at 1/14/2011)
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 7.42 degrees
For example if the Magnetic North Azimuth = 90 degs, then the Grid North Azimuth = 90 + 7.42 = 97.42





Planned Wellpath Report

Prelim_1
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INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No.5H SHL
Area	Lea County, NM	Well	No.5H
Field	(N Maduro) , T19S, R33E	Wellbore	No.5H PWB
Facility	North Maduro Unit Com No.5H		

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	0.999956	Report Generated	1/14/2011 at 3:19:16 PM
Convergence at slot	0.35° East	Database/Source file	WA Midland/No.5H_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	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W
Facility Reference Pt			743128.20	597303.00	32°38'25.162"N	103°40'40.007"W
Field Reference Pt			738568.60	601242.10	32°39'04.414"N	103°41'33.052"W

WELLPATH DATUM

Calculation method	Minimum curvature	Rig on No.5H SHL (RT) to Facility Vertical Datum	0.00ft
Horizontal Reference Pt	Slot	Rig on No.5H SHL (RT) to Mean Sea Level	0.00ft
Vertical Reference Pt	Rig on No.5H SHL (RT)	Facility Vertical Datum to Mud Line (Facility)	0.00ft
MD Reference Pt	Rig on No.5H SHL (RT)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	269.71°



Planned Wellpath Report

Prelim_1
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Facility	North Maduro Unit Com No.5H		

WELLPATH DATA (148 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	269.713	0.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	Tie On
100.00†	0.000	269.713	100.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
200.00†	0.000	269.713	200.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
300.00†	0.000	269.713	300.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
400.00†	0.000	269.713	400.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
500.00†	0.000	269.713	500.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
600.00†	0.000	269.713	600.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
700.00†	0.000	269.713	700.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
800.00†	0.000	269.713	800.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
900.00†	0.000	269.713	900.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
1000.00†	0.000	269.713	1000.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
1100.00†	0.000	269.713	1100.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
1200.00†	0.000	269.713	1200.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
1300.00†	0.000	269.713	1300.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
1400.00†	0.000	269.713	1400.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
1500.00†	0.000	269.713	1500.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
1600.00†	0.000	269.713	1600.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
1700.00†	0.000	269.713	1700.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
1800.00†	0.000	269.713	1800.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
1900.00†	0.000	269.713	1900.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
2000.00†	0.000	269.713	2000.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
2100.00†	0.000	269.713	2100.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
2200.00†	0.000	269.713	2200.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
2300.00†	0.000	269.713	2300.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
2400.00†	0.000	269.713	2400.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
2500.00†	0.000	269.713	2500.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
2600.00†	0.000	269.713	2600.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
2700.00†	0.000	269.713	2700.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
2800.00†	0.000	269.713	2800.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
2900.00†	0.000	269.713	2900.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
3000.00†	0.000	269.713	3000.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
3100.00†	0.000	269.713	3100.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
3200.00†	0.000	269.713	3200.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
3300.00†	0.000	269.713	3300.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
3400.00†	0.000	269.713	3400.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
3500.00†	0.000	269.713	3500.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
3600.00†	0.000	269.713	3600.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
3700.00†	0.000	269.713	3700.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
3800.00†	0.000	269.713	3800.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
3900.00†	0.000	269.713	3900.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
4000.00†	0.000	269.713	4000.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
4100.00†	0.000	269.713	4100.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
4200.00†	0.000	269.713	4200.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
4300.00†	0.000	269.713	4300.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
4400.00†	0.000	269.713	4400.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	



Planned Wellpath Report

Prelim 1
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INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No.5H SHL
Area	Lea County, NM	Well	No.5H
Field	(N Maduro) , T19S, R33E	Wellbore	No.5H PWB
Facility	North Maduro Unit Com No.5H		

WELLPATH DATA (148 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	269.713	4500.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
4600.00†	0.000	269.713	4600.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
4700.00†	0.000	269.713	4700.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
4800.00†	0.000	269.713	4800.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
4900.00†	0.000	269.713	4900.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
5000.00†	0.000	269.713	5000.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
5100.00†	0.000	269.713	5100.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
5200.00†	0.000	269.713	5200.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
5300.00†	0.000	269.713	5300.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
5400.00†	0.000	269.713	5400.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
5500.00†	0.000	269.713	5500.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
5600.00†	0.000	269.713	5600.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
5700.00†	0.000	269.713	5700.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
5800.00†	0.000	269.713	5800.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
5900.00†	0.000	269.713	5900.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
6000.00†	0.000	269.713	6000.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
6100.00†	0.000	269.713	6100.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
6200.00†	0.000	269.713	6200.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
6300.00†	0.000	269.713	6300.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
6400.00†	0.000	269.713	6400.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
6500.00†	0.000	269.713	6500.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
6600.00†	0.000	269.713	6600.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
6700.00†	0.000	269.713	6700.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
6800.00†	0.000	269.713	6800.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
6900.00†	0.000	269.713	6900.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
7000.00†	0.000	269.713	7000.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
7100.00†	0.000	269.713	7100.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
7200.00†	0.000	269.713	7200.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
7300.00†	0.000	269.713	7300.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
7400.00†	0.000	269.713	7400.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
7500.00†	0.000	269.713	7500.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
7600.00†	0.000	269.713	7600.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
7700.00†	0.000	269.713	7700.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
7800.00†	0.000	269.713	7800.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
7900.00†	0.000	269.713	7900.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
8000.00†	0.000	269.713	8000.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
8100.00†	0.000	269.713	8100.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
8200.00†	0.000	269.713	8200.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
8300.00†	0.000	269.713	8300.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
8400.00†	0.000	269.713	8400.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
8500.00†	0.000	269.713	8500.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
8600.00†	0.000	269.713	8600.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
8700.00†	0.000	269.713	8700.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
8800.00†	0.000	269.713	8800.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
8900.00†	0.000	269.713	8900.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	



Planned Wellpath Report

Prelim_1
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REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No.5H SHL
Area	Lea County, NM	Well	No.5H
Field	(N Maduro) , T19S, R33E	Wellbore	No.5H PWB
Facility	North Maduro Unit Com No.5H		

WELLPATH DATA (148 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
9000.00†	0.000	269.713	9000.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
9100.00†	0.000	269.713	9100.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
9200.00†	0.000	269.713	9200.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
9300.00†	0.000	269.713	9300.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
9400.00†	0.000	269.713	9400.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
9500.00†	0.000	269.713	9500.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
9600.00†	0.000	269.713	9600.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	
9615.00	0.000	269.713	9615.00	0.00	0.00	0.00	743128.20	597303.00	32°38'25.162"N	103°40'40.007"W	0.00	Est KOP
9700.00†	17.076	269.713	9698.75	12.57	-0.06	-12.57	743115.63	597302.94	32°38'25.162"N	103°40'40.154"W	20.09	
9800.00†	37.167	269.713	9787.30	57.93	-0.29	-57.93	743070.28	597302.71	32°38'25.163"N	103°40'40.684"W	20.09	
9900.00†	57.256	269.713	9854.88	130.94	-0.66	-130.94	742997.27	597302.34	32°38'25.164"N	103°40'41.538"W	20.09	
10000.00†	77.347	269.713	9893.27	222.72	-1.12	-222.72	742905.49	597301.89	32°38'25.165"N	103°40'42.612"W	20.09	
10057.09	88.815	269.713	9900.13	279.30	-1.40	-279.29	742848.92	597301.60	32°38'25.165"N	103°40'43.273"W	20.09	End of Curve
10100.00†	88.815	269.713	9901.02	322.20	-1.61	-322.20	742806.02	597301.39	32°38'25.166"N	103°40'43.775"W	0.00	
10200.00†	88.815	269.713	9903.09	422.18	-2.11	-422.18	742706.04	597300.89	32°38'25.167"N	103°40'44.944"W	0.00	
10300.00†	88.815	269.713	9905.16	522.16	-2.61	-522.15	742606.07	597300.39	32°38'25.168"N	103°40'46.113"W	0.00	
10400.00†	88.815	269.713	9907.23	622.14	-3.11	-622.13	742506.10	597299.89	32°38'25.169"N	103°40'47.283"W	0.00	
10500.00†	88.815	269.713	9909.29	722.12	-3.62	-722.11	742406.13	597299.39	32°38'25.170"N	103°40'48.452"W	0.00	
10600.00†	88.815	269.713	9911.36	822.10	-4.12	-822.09	742306.15	597298.88	32°38'25.172"N	103°40'49.621"W	0.00	
10700.00†	88.815	269.713	9913.43	922.07	-4.62	-922.06	742206.18	597298.38	32°38'25.173"N	103°40'50.790"W	0.00	
10800.00†	88.815	269.713	9915.50	1022.05	-5.12	-1022.04	742106.21	597297.88	32°38'25.174"N	103°40'51.959"W	0.00	
10900.00†	88.815	269.713	9917.56	1122.03	-5.62	-1122.02	742006.23	597297.38	32°38'25.175"N	103°40'53.128"W	0.00	
11000.00†	88.815	269.713	9919.63	1222.01	-6.12	-1221.99	741906.26	597296.88	32°38'25.176"N	103°40'54.298"W	0.00	
11100.00†	88.815	269.713	9921.70	1321.99	-6.62	-1321.97	741806.29	597296.38	32°38'25.177"N	103°40'55.467"W	0.00	
11200.00†	88.815	269.713	9923.77	1421.97	-7.12	-1421.95	741706.32	597295.88	32°38'25.178"N	103°40'56.636"W	0.00	
11300.00†	88.815	269.713	9925.83	1521.95	-7.62	-1521.93	741606.34	597295.38	32°38'25.179"N	103°40'57.805"W	0.00	
11400.00†	88.815	269.713	9927.90	1621.92	-8.12	-1621.90	741506.37	597294.88	32°38'25.180"N	103°40'58.974"W	0.00	
11500.00†	88.815	269.713	9929.97	1721.90	-8.62	-1721.88	741406.40	597294.38	32°38'25.182"N	103°41'00.143"W	0.00	
11600.00†	88.815	269.713	9932.04	1821.88	-9.12	-1821.86	741306.43	597293.88	32°38'25.183"N	103°41'01.313"W	0.00	
11700.00†	88.815	269.713	9934.11	1921.86	-9.62	-1921.84	741206.45	597293.38	32°38'25.184"N	103°41'02.482"W	0.00	
11800.00†	88.815	269.713	9936.17	2021.84	-10.12	-2021.81	741106.48	597292.88	32°38'25.185"N	103°41'03.651"W	0.00	
11900.00†	88.815	269.713	9938.24	2121.82	-10.62	-2121.79	741006.51	597292.38	32°38'25.186"N	103°41'04.820"W	0.00	
12000.00†	88.815	269.713	9940.31	2221.80	-11.12	-2221.77	740906.53	597291.88	32°38'25.187"N	103°41'05.989"W	0.00	
12100.00†	88.815	269.713	9942.38	2321.78	-11.62	-2321.75	740806.56	597291.38	32°38'25.188"N	103°41'07.159"W	0.00	
12200.00†	88.815	269.713	9944.44	2421.75	-12.12	-2421.72	740706.59	597290.88	32°38'25.189"N	103°41'08.328"W	0.00	
12300.00†	88.815	269.713	9946.51	2521.73	-12.62	-2521.70	740606.62	597290.38	32°38'25.190"N	103°41'09.497"W	0.00	
12400.00†	88.815	269.713	9948.58	2621.71	-13.12	-2621.68	740506.64	597289.88	32°38'25.191"N	103°41'10.666"W	0.00	
12500.00†	88.815	269.713	9950.65	2721.69	-13.63	-2721.66	740406.67	597289.38	32°38'25.192"N	103°41'11.835"W	0.00	
12600.00†	88.815	269.713	9952.72	2821.67	-14.13	-2821.63	740306.70	597288.87	32°38'25.194"N	103°41'13.004"W	0.00	
12700.00†	88.815	269.713	9954.78	2921.65	-14.63	-2921.61	740206.72	597288.37	32°38'25.195"N	103°41'14.174"W	0.00	
12800.00†	88.815	269.713	9956.85	3021.63	-15.13	-3021.59	740106.75	597287.87	32°38'25.196"N	103°41'15.343"W	0.00	
12900.00†	88.815	269.713	9958.92	3121.60	-15.63	-3121.56	740006.78	597287.37	32°38'25.197"N	103°41'16.512"W	0.00	
13000.00†	88.815	269.713	9960.99	3221.58	-16.13	-3221.54	739906.81	597286.87	32°38'25.198"N	103°41'17.681"W	0.00	
13100.00†	88.815	269.713	9963.05	3321.56	-16.63	-3321.52	739806.83	597286.37	32°38'25.199"N	103°41'18.850"W	0.00	
13200.00†	88.815	269.713	9965.12	3421.54	-17.13	-3421.50	739706.86	597285.87	32°38'25.200"N	103°41'20.020"W	0.00	



Planned Wellpath Report

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INTEQ

REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No.5H SHL
Area	Lea County, NM	Well	No.5H
Field	(N Maduro) , T19S, R33E	Wellbore	No.5H PWB
Facility	North Maduro Unit Com No.5H		

WELLPATH DATA (148 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
13300.00†	88.815	269.713	9967.19	3521.52	-17.63	-3521.47	739606.89	597285.37	32°38'25.201"N	103°41'21.189"W	0.00	
13400.00†	88.815	269.713	9969.26	3621.50	-18.13	-3621.45	739506.92	597284.87	32°38'25.202"N	103°41'22.358"W	0.00	
13500.00†	88.815	269.713	9971.33	3721.48	-18.63	-3721.43	739406.94	597284.37	32°38'25.203"N	103°41'23.527"W	0.00	
13600.00†	88.815	269.713	9973.39	3821.45	-19.13	-3821.41	739306.97	597283.87	32°38'25.204"N	103°41'24.696"W	0.00	
13700.00†	88.815	269.713	9975.46	3921.43	-19.63	-3921.38	739207.00	597283.37	32°38'25.205"N	103°41'25.865"W	0.00	
13800.00†	88.815	269.713	9977.53	4021.41	-20.13	-4021.36	739107.02	597282.87	32°38'25.206"N	103°41'27.035"W	0.00	
13900.00†	88.815	269.713	9979.60	4121.39	-20.63	-4121.34	739007.05	597282.37	32°38'25.207"N	103°41'28.204"W	0.00	
14000.00†	88.815	269.713	9981.66	4221.37	-21.13	-4221.32	738907.08	597281.87	32°38'25.208"N	103°41'29.373"W	0.00	
14100.00†	88.815	269.713	9983.73	4321.35	-21.63	-4321.29	738807.11	597281.37	32°38'25.209"N	103°41'30.542"W	0.00	
14200.00†	88.815	269.713	9985.80	4421.33	-22.13	-4421.27	738707.13	597280.87	32°38'25.210"N	103°41'31.711"W	0.00	
14300.00†	88.815	269.713	9987.87	4521.30	-22.63	-4521.25	738607.16	597280.37	32°38'25.211"N	103°41'32.880"W	0.00	
14400.00†	88.815	269.713	9989.93	4621.28	-23.14	-4621.23	738507.19	597279.87	32°38'25.212"N	103°41'34.050"W	0.00	
14403.16	88.815	269.713	9990.00†	4624.44	-23.15	-4624.38	738504.03	597279.85	32°38'25.212"N	103°41'34.087"W	0.00	No.5H PBHL

HOLE & CASING SECTIONS Ref Wellbore: No.5H 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 Open Hole	0.00	4800.00	4800.00	0.00	4800.00	0.00	0.00	0.00	0.00
8.75in Open Hole	4800.00	14403.16	9603.16	4800.00	NA	0.00	0.00	NA	NA

TARGETS									
Name	MD [ft]	TVD [ft]	North [ft]	East [ft]	Grid East [srv ft]	Grid North [srv ft]	Latitude	Longitude	Shape
1) No.5H PBHL	14403.16	9990.00	-23.15	-4624.38	738504.03	597279.85	32°38'25.212"N	103°41'34.087"W	point

SURVEY PROGRAM Ref Wellbore: No.5H PWB Ref Wellpath: Prelim_1				
Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
0.00	14403.16	NaviTrak (Standard)		No.5H PWB

SR & A

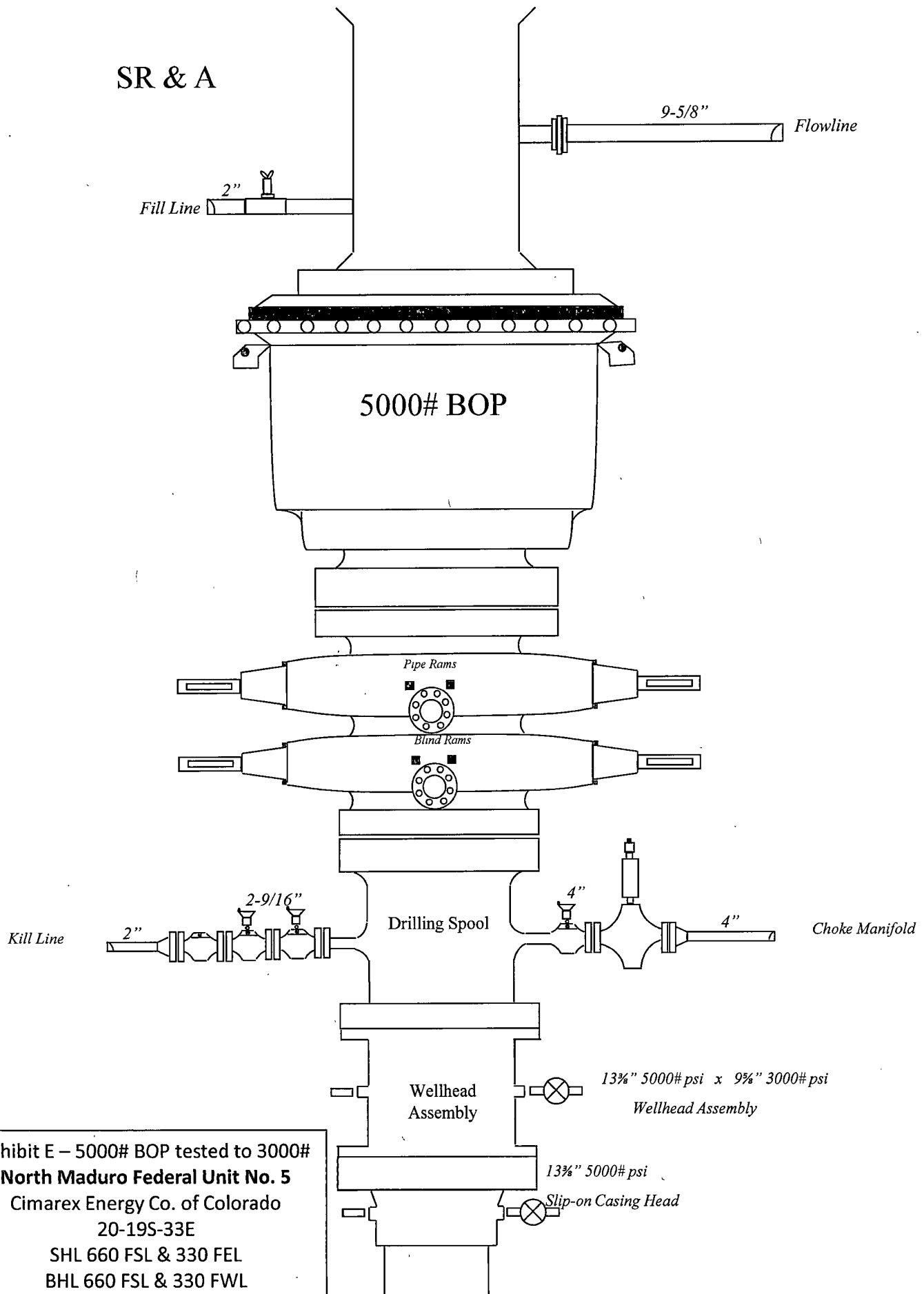
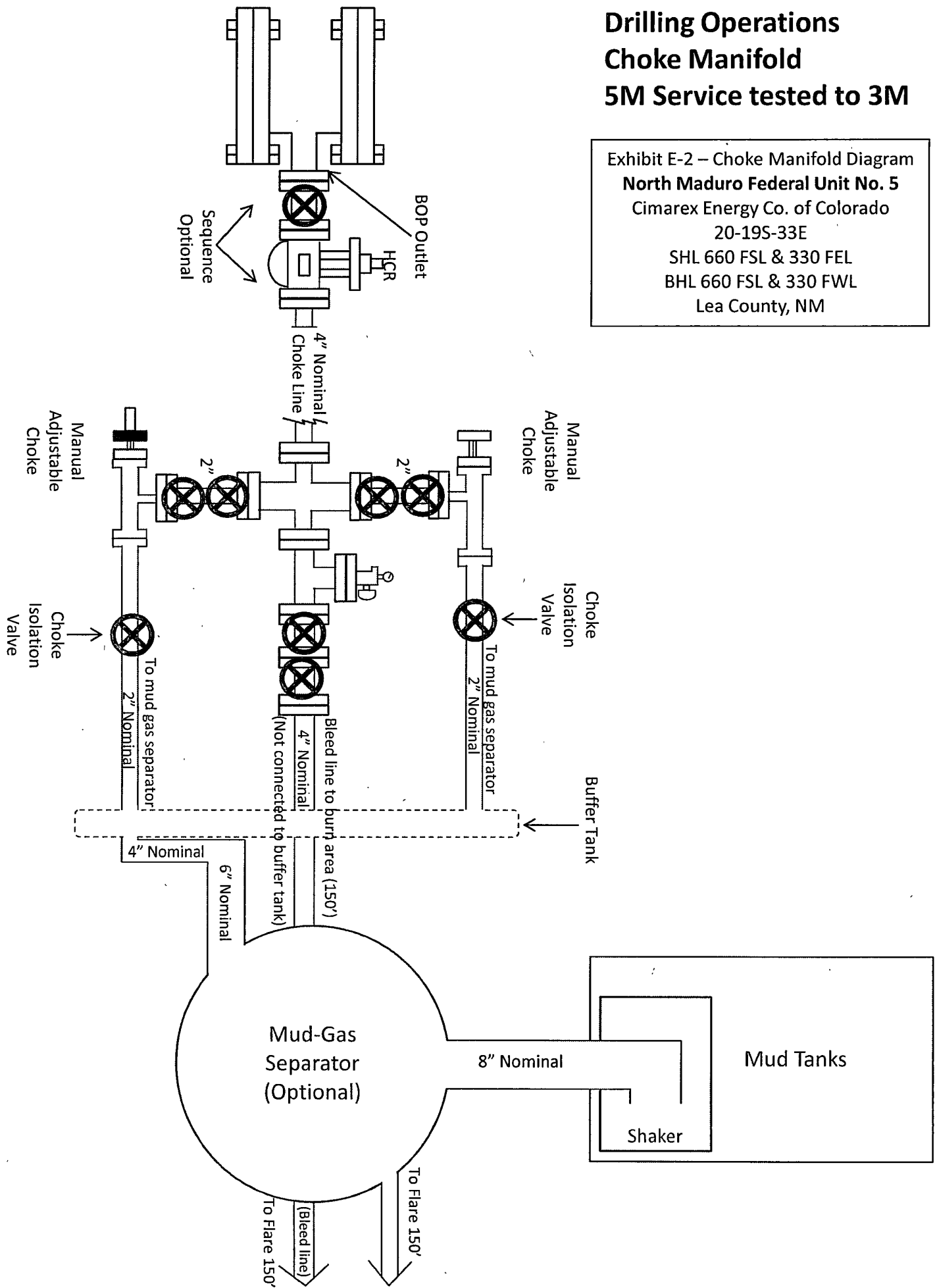
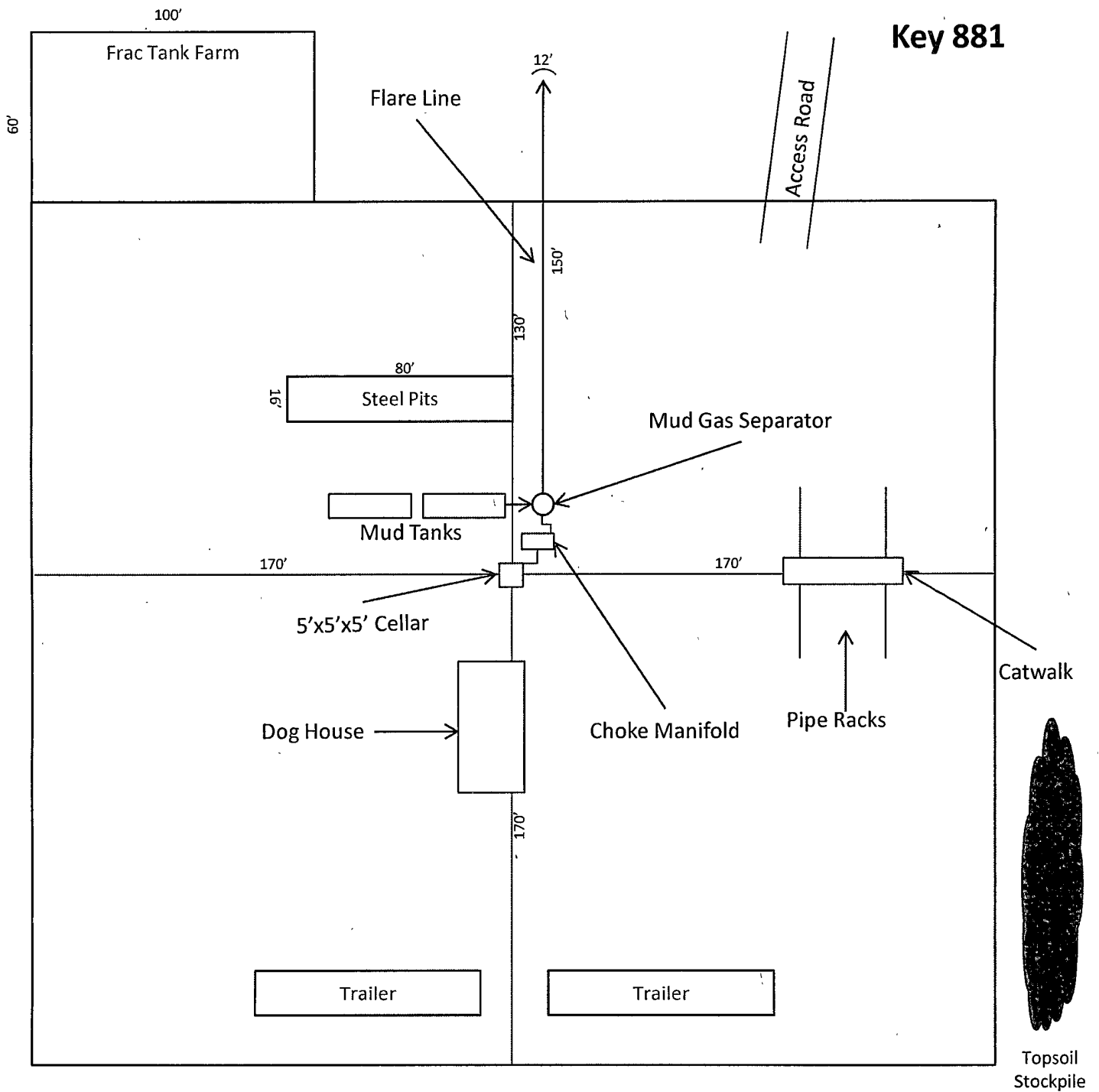


Exhibit E – 5000# BOP tested to 3000#
North Maduro Federal Unit No. 5
Cimarex Energy Co. of Colorado
20-19S-33E
SHL 660 FSL & 330 FEL
BHL 660 FSL & 330 FWL
Lea County, NM.

Drilling Operations
Choke Manifold
5M Service tested to 3M

Exhibit E-2 – Choke Manifold Diagram
North Maduro Federal Unit No. 5
Cimarex Energy Co. of Colorado
20-19S-33E
SHL 660 FSL & 330 FEL
BHL 660 FSL & 330 FWL
Lea County, NM





1"=50'



Exhibit D – Rig Diagram
North Maduro Federal Unit No. 5
 Cimarex Energy Co. of Colorado
 20-19S-33E
 SHL 660 FSL & 330 FEL
 BHL 660 FSL & 330 FWL
 Lea County, NM