

HOBBS OCD

SECRETARY'S POTASH

Form 3160-3
(March 2012)

JAN 29 2014

OCD Hobbs

FORM APPROVED
OMB No. 1004-0137
Expires October 31, 2014

RECEIVED

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

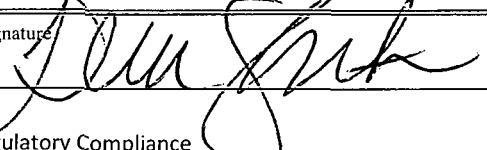
APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of Work: ☒ DRILL ☐ REENTER		5. Lease Serial No. NM14794, NM029702 (State Min)
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. Maduro Unit - NM-70984X
3a. Address 600 N. Marienfeld St. Ste. 600 Midland Tx 79701		8. Lease Name and Well No. Maduro Unit #10H
3b. Phone No. (include area code) 432-571-7800		9. API Well No. 30-025- 41639
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At Surface 330' FNL & 1980' FWL, Sec. 29, 19S, 33E Horizontal Bone Spring test At proposed prod. Zone 2310' FNL & 1980' FWL, Sec. 32, 19S, 33E		10. Field and Pool, or Exploratory Gem; Bone Spring
14. Distance in miles and direction from nearest town or post office* Approx. 26 miles W from Hobbs, NM		11. Sec., T. R. M. or Blk. and Survey or Area 29-19S-33E
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 NM014794= 400 Acres; NM029702=120 acres	17. Spacing Unit dedicated to this well 200
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 920' to #9H	19. Proposed Depth 17,074' MD 9,900' TVD	20. BLM/BIA Bond No. on File NM2575; NMB000835
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3598' GR	22. Approximate date work will start* 07.15.13	23. Estimated duration 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:

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

25. Signature 	Name (Printed/Typed) Terri Stathem	Date 1.24.13
Title Regulatory Compliance		
Approved By (Signature) /s/ Jesse J. Juen	Name (Printed/Typed)	Date JAN - 9 2014
Title 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.

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.

(Continued on page 2)

* (Instructions on page 2)

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

Capitan Controlled Water Basin

FEB 03 2014

Application to Drill
Maduro Unit #10H
 Cimarex Energy Co.
 UL: C, Sec. 29, 19S, 33E
 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 & 1980' FWL, Sec. 29, 19S, 33E
 BHL 2310' FNL & 1980' FWL, Sec. 32, 19S, 33E
- 2 Elevation above sea level: 3598' 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: 17,074' MD 9,900' TVD
- 6 Estimated tops of geological markers:

Formation	Est. Top	Bearing
Rustler	1260	NA
T. of Salt	1350	NA
B. of Salt	2665	NA
Capital Reef	3450	NA
Seven Rivers	4150	NA
Delware Sands	5300	Hydrocarbons
Bone Spring	7890	Hydrocarbons
1st BSS	9000	Hydrocarbons
2nd BSS	9650	Hydrocarbons
3rd BS Carbonate	10920	Hydrocarbons

- 7 Possible mineral bearing formation:
 Shown above

7A OSE Ground Water estimated depth: 200'

- 8 Casing Program:

See COA all these changes per Terri Statham 9/12/13

Casing Depth From (ft)	Casing Setting Depth (ft) MD	Casing Setting Depth (ft) TVD	Open Hole Size (inches)	Casing Size (inches)	Casing Weight (lb/ft)	Casing Grade	Thread	Condition	SI Surface Pressure & BHP (psig)	Mud Weight (ppg)	Collapse SF (1.125)	Burst SF (1.125)	Cumulative Air Weight (lbs)	Tension SF (1.6)
Surface														
0'	1285'	1285'	20	16	84	J-55	BT&C	New	578	8.4	2.51	5.2	107940	12.3
Intermediate 1														
0'	2890'	2880'	14 3/4	11 3/4	34	J-55	ST&C	New	1260	10	1.17	2.4	131600	3.6
Intermediate 2 *														
0'	5450'	5450'	10 5/8	8 5/8	32	J-55	ST&C	New	2453	8.4	1.67	1.6	174400	2.1
Production														
0'	9696'	9696'	7 7/8	5 1/2	17	P-110	LT&C	New	2277	9	1.65	4.7	168300	2.6
9696'	17074'	9900'	7 7/8	5 1/2	17	P-110	BT&C	New	4455	9	1.61	2.4	3468	157.4

Note: Intermediate Casing has a DV Tool/ ACP set @ 2850 ft +/- 100'

Will select a suitable seat for ACP based on drilling recorder rate of penetration, above the lost circulation zone.

Casing Design Criteria and Casing Loading Assumptions:

Surface, Intermediate #1, and Production Casing:

- Tension: A 1.6 design factor without effects of buoyancy.
- Collapse: A 1.125 design factor with full internal evacuation.
- Burst: A 1.125 design with a surface pressure equal to the fracture gradient at setting depth less gas gradient to surface.

Intermediate #2 Casing:

- Tension: A 1.6 design factor without effects of buoyancy.
- Collapse: A 1.125 design factor based on an internal evacuation equal to 1/3 of the TVD of the next hole section.
- Burst: A 1.125 design with a surface pressure equal to the fracture gradient at setting depth less gas gradient to surface.

Drilling Plan
Maduro Unit #10H
 Cimarex Energy Co.
 UL: C, Sec. 29, 19S, 33E
 Lea County, NM

9 Cementing Program:

Surface	Sacks	Yield (cuft/sx)	Weight (ppg)	Cubic Feet	Cement Blend
Tail	1960	1.34	14.8	2624	Class C + LCM
TOC: 0' 160% Excess Centralizers per Onshore Order 2.III.B.1f					

Intermediate 1	Sacks	Yield (cuft/sx)	Weight (ppg)	Cubic Feet	Cement Blend
Lead	910	1.88	12.9	1703	35:65 (poz/C) + Salt + Bentonite + LCM + retarder
Tail	340	1.34	14.8	455	Class C + retarder + LCM
TOC: 0' 144% Excess					

Intermediate 2	Stage #1				
	Sacks	Yield (cuft/sx)	Weight (ppg)	Cubic Feet	Cement Blend
Lead	590	1.88	12.9	1105	35:65 (poz/C) + Salt + Bentonite + LCM + retarder
Tail	300	1.34	14.8	400	Class C + retarder + LCM
TOC: 2850' 3070' 124% Excess					

	Stage #2				
	Sacks	Yield (cuft/sx)	Weight (ppg)	Cubic Feet	Cement Blend
Lead	480	1.88	12.9	899	35:65 (poz/C) + Salt + Bentonite + LCM + retarder
Tail	200	1.34	14.8	264	Class C + retarder + LCM
TOC: 0' 0% Excess					

Production	Sacks	Yield (cuft/sx)	Weight (ppg)	Cubic Feet	Cement Blend
Lead	819	2.4	11.9	1965	35:65 (poz/H) + salt + Sodium Metasilicate + Bentonite + Fluid Loss + Dispersant + LCM + Retarder
Tail	2228	1.24	14.5	2763	50:50 (poz/H) + Bentonite + Salt + Fluid Loss + Dispersant + LCM + Retarder

Cement volumes will be adjusted depending on hole size.

TOC: 1500' 83% Excess No centralizers planned in the lateral section. 1 every other jt from EOC to KOP. 1 every 4th joint from KOP to 500' inside previous casing.

10 Pressure Control Equipment:

Exhibit "E-1"

BOP Systems will meet the requirements of BLM Onshore Order #2 (Section III.A) per the pressure rating of the system.

16" Surface csg, a 2M Annular preventer will be installed.

11-3/4" & 8-5/8" Intermediate #1 & #2 a 3M system will be installed (Blind Rams & Pipe Rams & Annular Preventer).

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. Rotating head will be installed as needed.

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 2000 psi high on the surface casing and 250 psi low and 2000 psi high on the intermediate #1 casing and 250 psi low and 3000 psi high on the intermediate #2 casing. Annular preventer testing: will be tested to 250 psi low and 1000 psi high on the surface and intermediate #1 casing; 250 psi low and 1500 psi high on the intermediate #2 casing.

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 (please see Exhibit F, F-1, F-2, F-3). 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.

See
COA

See COA

11 Proposed Mud Circulating System:

Depth			Mud Wt	Visc	Fluid Loss	Type Mud
0'	to	1285'	8.4	28	NC	FW Spud Mud
1285'	to	2800'	10	30-32	NC	Brine water
2800'	to	5450'	8.3	30-32	NC	FW
5450'	to	17074'	9	30-32	NC	FW/Cut 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.

The Mud Monitoring System is an electronic Pason System satisfying requirements of Onshore Order 1.

12 Proposed Drilling Plan

Pilot Hole TD: No Pilot Hole

KOP: 9,696'

EOC: 10017'

Set Surface and Intermediate casing strings. Drill production hole to KOP. Continue drilling lateral through the curve to TD. Run prod casing & cement.

13 Testing, Logging and Coring Program:

- A. Mud logging program: 2 man unit from 2205 to TD
- B. Electric logging program: CNL / LDT / CAL / GR, DLL / GR -- Inter. Csg to TD
CNL / GR -- Surf to Inter. Csg
- C. No DSTs or cores are planned at this time.
- D. CBL w/ CCL from as far as gravity will let it fall to TOC

14 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

4455 psi

Estimated BHT

160°

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

Drilling expected to take : **35 days**

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

16 Other Facets of Operations:

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

Bone Spring pay will be perforated and stimulated.

The proposed well will be tested and potentialized as **Oil**

See COA



Cimarex Energy Co.

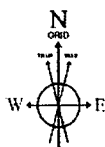
Location: Lea County, NM
Field: (Maduro) Sec 29, T19S, R33E
Facility: Maduro Unit No. 10H

Slot: No. 10H SHL
Well: No. 10H
Wellbore: No. 10H PWB



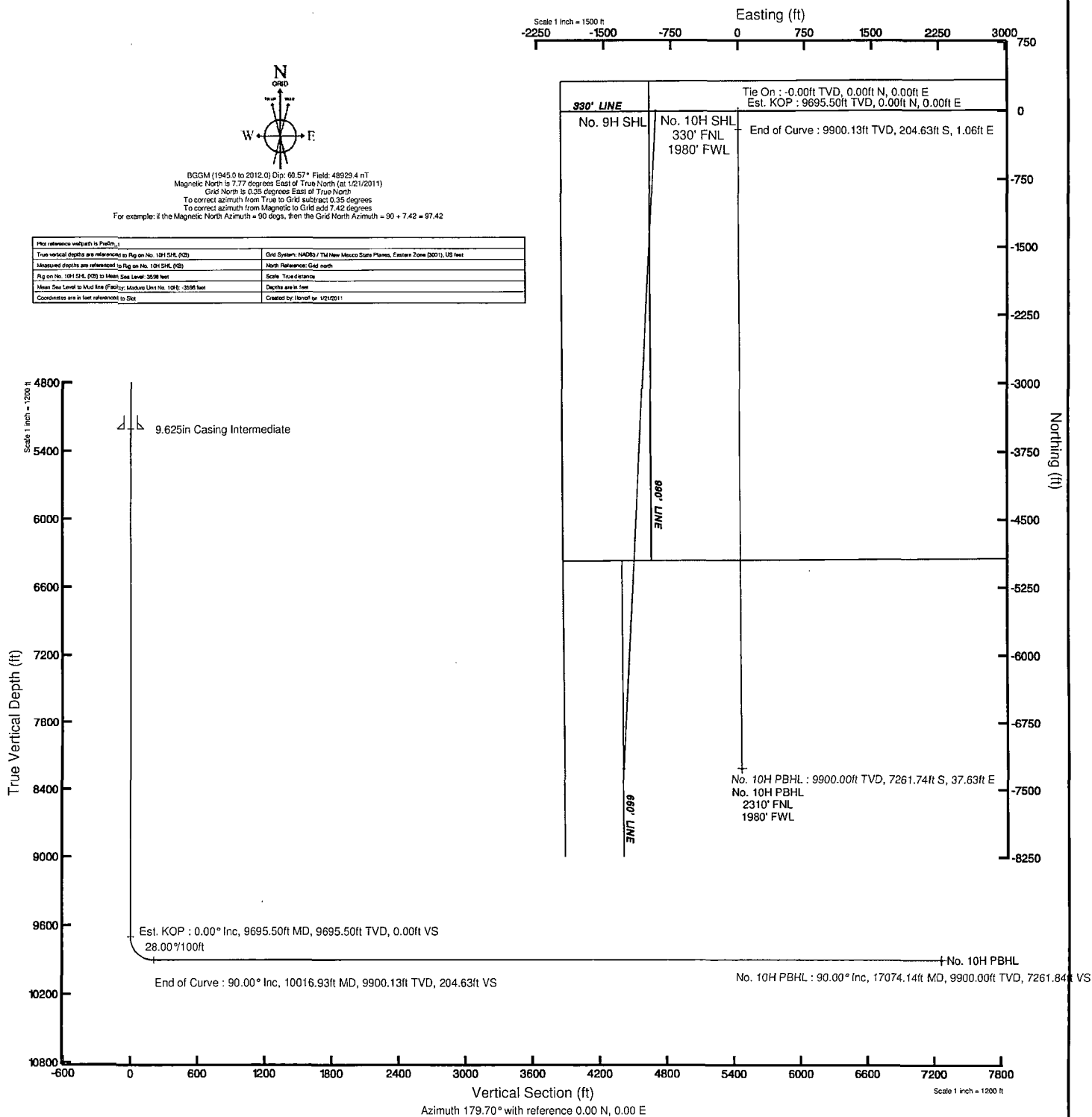
Well Profile Data

Design Comment	MD (ft)	Inc (°)	Az (°)	TVD (ft)	Local N (ft)	Local E (ft)	DLS (°/100ft)	VS (ft)
Tie On	0.00	0.000	179.703	0.00	0.00	0.00	0.00	0.00
Est. KOP	9695.50	0.000	179.703	9695.50	0.00	0.00	0.00	0.00
End of Curve	10016.93	90.001	179.703	9900.13	-204.63	1.06	28.00	204.63
No. 10H PBHL	17074.14	90.001	179.703	9900.00	-7261.74	37.63	0.00	7261.84



BGGM (1945.0 to 2012.0) Dip: 60.57° Field: 48929.4 nT
Magnetic North is 7.77 degrees East of True North (at 1/21/2011)
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

Plot reference wellpath is Profile 1	Grid System: NAD83 / T19 New Mexico State Plane, Eastern Zone (NAD83), US feet
True vertical depths are referenced to Rig on No. 10H SHL (KOP)	North Reference: Grid north
Measured depths are referenced to Rig on No. 10H SHL (KOP)	Scale: True distance
Rig on No. 10H SHL (KOP) to Mean Sea Level: 3596 feet	Depths are in feet
Mean Sea Level to Mud line (Facility: Maduro Unit No. 10H): 3596 feet	Coordinates are in feet referenced to State
	Created by: lbruff on: 1/21/2011





Planned Wellpath Report

Prelim_1

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REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 10H SHL
Area	Lea County, NM	Well	No. 10H
Field	(Maduro) Sec 29, T19S,R33E	Wellbore	No. 10H PWB
Facility	Maduro Unit No. 10H		

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	Florroll
Scale	0.999954	Report Generated	1/21/2011 at 3:05:06 PM
Convergence at slot	0.35° East	Database/Source file	WellArchitect DB/No._10H_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	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W
Facility Reference Pt			740158.00	596298.20	32°38'15.400"N	103°41'14.814"W
Field Reference Pt			739238.20	596293.80	32°38'15.412"N	103°41'25.571"W

WELLPATH DATUM

Calculation method	Minimum curvature	Rig on No. 10H SHL (KB) to Ground Level	0.00ft
Horizontal Reference Pt	Slot	Rig on No. 10H SHL (KB) to Mean Sea Level	3598.00ft
Vertical Reference Pt	Rig on No. 10H SHL (KB)	Ground Level to Mud Line (Facility)	0.00ft
MD Reference Pt	Rig on No. 10H SHL (KB)	Section Origin	N 0.00, E 0.00 ft
Field Vertical Reference	Mean Sea Level	Section Azimuth	179.70°



Planned Wellpath Report

Prelim_1
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REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 10H SHL
Area	Lea County, NM	Well	No. 10H
Field	(Maduro) Sec 29, T19S,R33E	Wellbore	No. 10H PWB
Facility	Maduro Unit No. 10H		

WELLPATH DATA (174 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	179.703	0.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	Tie On
100.00†	0.000	179.703	100.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
200.00†	0.000	179.703	200.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
300.00†	0.000	179.703	300.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
400.00†	0.000	179.703	400.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
500.00†	0.000	179.703	500.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
600.00†	0.000	179.703	600.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
700.00†	0.000	179.703	700.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
800.00†	0.000	179.703	800.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
900.00†	0.000	179.703	900.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
1000.00†	0.000	179.703	1000.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
1100.00†	0.000	179.703	1100.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
1200.00†	0.000	179.703	1200.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
1300.00†	0.000	179.703	1300.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
1400.00†	0.000	179.703	1400.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
1500.00†	0.000	179.703	1500.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
1600.00†	0.000	179.703	1600.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
1700.00†	0.000	179.703	1700.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
1800.00†	0.000	179.703	1800.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
1900.00†	0.000	179.703	1900.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
2000.00†	0.000	179.703	2000.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
2100.00†	0.000	179.703	2100.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
2200.00†	0.000	179.703	2200.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
2300.00†	0.000	179.703	2300.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
2400.00†	0.000	179.703	2400.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
2500.00†	0.000	179.703	2500.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
2600.00†	0.000	179.703	2600.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
2700.00†	0.000	179.703	2700.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
2800.00†	0.000	179.703	2800.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
2900.00†	0.000	179.703	2900.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
3000.00†	0.000	179.703	3000.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
3100.00†	0.000	179.703	3100.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
3200.00†	0.000	179.703	3200.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
3300.00†	0.000	179.703	3300.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
3400.00†	0.000	179.703	3400.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
3500.00†	0.000	179.703	3500.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
3600.00†	0.000	179.703	3600.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
3700.00†	0.000	179.703	3700.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
3800.00†	0.000	179.703	3800.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
3900.00†	0.000	179.703	3900.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
4000.00†	0.000	179.703	4000.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
4100.00†	0.000	179.703	4100.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
4200.00†	0.000	179.703	4200.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
4300.00†	0.000	179.703	4300.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
4400.00†	0.000	179.703	4400.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	



Planned Wellpath Report

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REFERENCE WELLPATH IDENTIFICATION			
Operator	Cimarex Energy Co.	Slot	No. 10H SHL
Area	Lea County, NM	Well	No. 10H
Field	(Maduro) Sec 29, T19S,R33E	Wellbore	No. 10H PWB
Facility	Maduro Unit No. 10H		

WELLPATH DATA (174 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	179.703	4500.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
4600.00†	0.000	179.703	4600.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
4700.00†	0.000	179.703	4700.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
4800.00†	0.000	179.703	4800.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
4900.00†	0.000	179.703	4900.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
5000.00†	0.000	179.703	5000.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
5100.00†	0.000	179.703	5100.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
5200.00†	0.000	179.703	5200.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
5300.00†	0.000	179.703	5300.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
5400.00†	0.000	179.703	5400.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
5500.00†	0.000	179.703	5500.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
5600.00†	0.000	179.703	5600.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
5700.00†	0.000	179.703	5700.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
5800.00†	0.000	179.703	5800.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
5900.00†	0.000	179.703	5900.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
6000.00†	0.000	179.703	6000.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
6100.00†	0.000	179.703	6100.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
6200.00†	0.000	179.703	6200.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
6300.00†	0.000	179.703	6300.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
6400.00†	0.000	179.703	6400.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
6500.00†	0.000	179.703	6500.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
6600.00†	0.000	179.703	6600.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
6700.00†	0.000	179.703	6700.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
6800.00†	0.000	179.703	6800.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
6900.00†	0.000	179.703	6900.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
7000.00†	0.000	179.703	7000.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
7100.00†	0.000	179.703	7100.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
7200.00†	0.000	179.703	7200.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
7300.00†	0.000	179.703	7300.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
7400.00†	0.000	179.703	7400.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
7500.00†	0.000	179.703	7500.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
7600.00†	0.000	179.703	7600.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
7700.00†	0.000	179.703	7700.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
7800.00†	0.000	179.703	7800.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
7900.00†	0.000	179.703	7900.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
8000.00†	0.000	179.703	8000.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
8100.00†	0.000	179.703	8100.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
8200.00†	0.000	179.703	8200.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
8300.00†	0.000	179.703	8300.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
8400.00†	0.000	179.703	8400.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
8500.00†	0.000	179.703	8500.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
8600.00†	0.000	179.703	8600.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
8700.00†	0.000	179.703	8700.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
8800.00†	0.000	179.703	8800.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
8900.00†	0.000	179.703	8900.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	



Planned Wellpath Report

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REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 10H SHL
Area	Lea County, NM	Well	No. 10H
Field	(Maduro) Sec 29, T19S,R33E	Wellbore	No. 10H PWB
Facility	Maduro Unit No. 10H		

WELLPATH DATA (174 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	179.703	9000.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
9100.00†	0.000	179.703	9100.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
9200.00†	0.000	179.703	9200.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
9300.00†	0.000	179.703	9300.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
9400.00†	0.000	179.703	9400.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
9500.00†	0.000	179.703	9500.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
9600.00†	0.000	179.703	9600.00	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	
9695.50	0.000	179.703	9695.50	0.00	0.00	0.00	740158.00	596298.20	32°38'15.400"N	103°41'14.814"W	0.00	Est. KOP
9700.00†	1.260	179.703	9700.00	0.05	-0.05	0.00	740158.00	596298.15	32°38'15.399"N	103°41'14.814"W	28.00	
9800.00†	29.260	179.703	9795.52	-26.11	-26.11	0.41	740158.14	596272.09	32°38'15.142"N	103°41'14.814"W	28.00	
9900.00†	57.260	179.703	9867.62	93.96	-93.96	0.49	740158.49	596204.25	32°38'14.470"N	103°41'14.815"W	28.00	
10000.00†	85.260	179.703	9899.43	187.72	-187.72	0.97	740158.97	596110.49	32°38'13.543"N	103°41'14.816"W	28.00	
10016.93	90.001	179.703	9900.13	204.63	-204.63	1.06	740159.06	596093.58	32°38'13.375"N	103°41'14.816"W	28.00	End of Curve
10100.00†	90.001	179.703	9900.13	287.70	-287.70	1.49	740159.49	596010.52	32°38'12.553"N	103°41'14.817"W	0.00	
10200.00†	90.001	179.703	9900.12	387.70	-387.69	2.01	740160.01	595910.52	32°38'11.564"N	103°41'14.818"W	0.00	
10300.00†	90.001	179.703	9900.12	487.70	-487.69	2.53	740160.53	595810.53	32°38'10.574"N	103°41'14.819"W	0.00	
10400.00†	90.001	179.703	9900.12	587.70	-587.69	3.05	740161.05	595710.54	32°38'09.585"N	103°41'14.820"W	0.00	
10500.00†	90.001	179.703	9900.12	687.70	-687.69	3.56	740161.56	595610.54	32°38'08.596"N	103°41'14.821"W	0.00	
10600.00†	90.001	179.703	9900.12	787.70	-787.69	4.08	740162.08	595510.55	32°38'07.606"N	103°41'14.822"W	0.00	
10700.00†	90.001	179.703	9900.12	887.70	-887.69	4.60	740162.60	595410.55	32°38'06.617"N	103°41'14.823"W	0.00	
10800.00†	90.001	179.703	9900.11	987.70	-987.69	5.12	740163.12	595310.56	32°38'05.627"N	103°41'14.824"W	0.00	
10900.00†	90.001	179.703	9900.11	1087.70	-1087.68	5.64	740163.64	595210.57	32°38'04.638"N	103°41'14.825"W	0.00	
11000.00†	90.001	179.703	9900.11	1187.70	-1187.68	6.15	740164.15	595110.57	32°38'03.648"N	103°41'14.826"W	0.00	
11100.00†	90.001	179.703	9900.11	1287.70	-1287.68	6.67	740164.67	595010.58	32°38'02.659"N	103°41'14.827"W	0.00	
11200.00†	90.001	179.703	9900.11	1387.70	-1387.68	7.19	740165.19	594910.59	32°38'01.669"N	103°41'14.828"W	0.00	
11300.00†	90.001	179.703	9900.10	1487.70	-1487.68	7.71	740165.71	594810.59	32°38'00.680"N	103°41'14.829"W	0.00	
11400.00†	90.001	179.703	9900.10	1587.70	-1587.68	8.23	740166.23	594710.60	32°37'59.690"N	103°41'14.831"W	0.00	
11500.00†	90.001	179.703	9900.10	1687.70	-1687.68	8.75	740166.74	594610.60	32°37'58.701"N	103°41'14.832"W	0.00	
11600.00†	90.001	179.703	9900.10	1787.70	-1787.68	9.26	740167.26	594510.61	32°37'57.712"N	103°41'14.833"W	0.00	
11700.00†	90.001	179.703	9900.10	1887.70	-1887.67	9.78	740167.78	594410.62	32°37'56.722"N	103°41'14.834"W	0.00	
11800.00†	90.001	179.703	9900.10	1987.70	-1987.67	10.30	740168.30	594310.62	32°37'55.733"N	103°41'14.835"W	0.00	
11900.00†	90.001	179.703	9900.09	2087.70	-2087.67	10.82	740168.82	594210.63	32°37'54.743"N	103°41'14.836"W	0.00	
12000.00†	90.001	179.703	9900.09	2187.70	-2187.67	11.34	740169.34	594110.63	32°37'53.754"N	103°41'14.837"W	0.00	
12100.00†	90.001	179.703	9900.09	2287.70	-2287.67	11.85	740169.85	594010.64	32°37'52.764"N	103°41'14.838"W	0.00	
12200.00†	90.001	179.703	9900.09	2387.70	-2387.67	12.37	740170.37	593910.65	32°37'51.775"N	103°41'14.839"W	0.00	
12300.00†	90.001	179.703	9900.09	2487.70	-2487.67	12.89	740170.89	593810.65	32°37'50.785"N	103°41'14.840"W	0.00	
12400.00†	90.001	179.703	9900.08	2587.70	-2587.66	13.41	740171.41	593710.66	32°37'49.796"N	103°41'14.841"W	0.00	
12500.00†	90.001	179.703	9900.08	2687.70	-2687.66	13.93	740171.93	593610.66	32°37'48.807"N	103°41'14.842"W	0.00	
12600.00†	90.001	179.703	9900.08	2787.70	-2787.66	14.45	740172.44	593510.67	32°37'47.817"N	103°41'14.843"W	0.00	
12700.00†	90.001	179.703	9900.08	2887.70	-2887.66	14.96	740172.96	593410.68	32°37'46.828"N	103°41'14.844"W	0.00	
12800.00†	90.001	179.703	9900.08	2987.70	-2987.66	15.48	740173.48	593310.68	32°37'45.838"N	103°41'14.845"W	0.00	
12900.00†	90.001	179.703	9900.08	3087.70	-3087.66	16.00	740174.00	593210.69	32°37'44.849"N	103°41'14.846"W	0.00	
13000.00†	90.001	179.703	9900.07	3187.70	-3187.66	16.52	740174.52	593110.70	32°37'43.859"N	103°41'14.847"W	0.00	
13100.00†	90.001	179.703	9900.07	3287.70	-3287.66	17.04	740175.04	593010.70	32°37'42.870"N	103°41'14.848"W	0.00	
13200.00†	90.001	179.703	9900.07	3387.70	-3387.65	17.55	740175.55	592910.71	32°37'41.880"N	103°41'14.849"W	0.00	



Planned Wellpath Report

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REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 10H SHL
Area	Lea County, NM	Well	No. 10H
Field	(Maduro) Sec 29, T19S,R33E	Wellbore	No. 10H PWB
Facility	Maduro Unit No. 10H		

WELLPATH DATA (174 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†	90.001	179.703	9900.07	3487.70	-3487.65	18.07	740176.07	592810.71	32°37'40.891"N	103°41'14.850"W	0.00	
13400.00†	90.001	179.703	9900.07	3587.70	-3587.65	18.59	740176.59	592710.72	32°37'39.901"N	103°41'14.851"W	0.00	
13500.00†	90.001	179.703	9900.06	3687.70	-3687.65	19.11	740177.11	592610.73	32°37'38.912"N	103°41'14.853"W	0.00	
13600.00†	90.001	179.703	9900.06	3787.70	-3787.65	19.63	740177.63	592510.73	32°37'37.923"N	103°41'14.854"W	0.00	
13700.00†	90.001	179.703	9900.06	3887.70	-3887.65	20.14	740178.14	592410.74	32°37'36.933"N	103°41'14.855"W	0.00	
13800.00†	90.001	179.703	9900.06	3987.70	-3987.65	20.66	740178.66	592310.74	32°37'35.944"N	103°41'14.856"W	0.00	
13900.00†	90.001	179.703	9900.06	4087.70	-4087.64	21.18	740179.18	592210.75	32°37'34.954"N	103°41'14.857"W	0.00	
14000.00†	90.001	179.703	9900.06	4187.70	-4187.64	21.70	740179.70	592110.76	32°37'33.965"N	103°41'14.858"W	0.00	
14100.00†	90.001	179.703	9900.05	4287.70	-4287.64	22.22	740180.22	592010.76	32°37'32.975"N	103°41'14.859"W	0.00	
14200.00†	90.001	179.703	9900.05	4387.70	-4387.64	22.74	740180.73	591910.77	32°37'31.986"N	103°41'14.860"W	0.00	
14300.00†	90.001	179.703	9900.05	4487.70	-4487.64	23.25	740181.25	591810.77	32°37'30.996"N	103°41'14.861"W	0.00	
14400.00†	90.001	179.703	9900.05	4587.70	-4587.64	23.77	740181.77	591710.78	32°37'30.007"N	103°41'14.862"W	0.00	
14500.00†	90.001	179.703	9900.05	4687.70	-4687.64	24.29	740182.29	591610.79	32°37'29.017"N	103°41'14.863"W	0.00	
14600.00†	90.001	179.703	9900.04	4787.70	-4787.63	24.81	740182.81	591510.79	32°37'28.028"N	103°41'14.864"W	0.00	
14700.00†	90.001	179.703	9900.04	4887.70	-4887.63	25.33	740183.33	591410.80	32°37'27.039"N	103°41'14.865"W	0.00	
14800.00†	90.001	179.703	9900.04	4987.70	-4987.63	25.84	740183.84	591310.81	32°37'26.049"N	103°41'14.866"W	0.00	
14900.00†	90.001	179.703	9900.04	5087.70	-5087.63	26.36	740184.36	591210.81	32°37'25.060"N	103°41'14.867"W	0.00	
15000.00†	90.001	179.703	9900.04	5187.70	-5187.63	26.88	740184.88	591110.82	32°37'24.070"N	103°41'14.868"W	0.00	
15100.00†	90.001	179.703	9900.04	5287.70	-5287.63	27.40	740185.40	591010.82	32°37'23.081"N	103°41'14.869"W	0.00	
15200.00†	90.001	179.703	9900.03	5387.70	-5387.63	27.92	740185.92	590910.83	32°37'22.091"N	103°41'14.870"W	0.00	
15300.00†	90.001	179.703	9900.03	5487.70	-5487.63	28.44	740186.43	590810.84	32°37'21.102"N	103°41'14.871"W	0.00	
15400.00†	90.001	179.703	9900.03	5587.70	-5587.62	28.95	740186.95	590710.84	32°37'20.112"N	103°41'14.872"W	0.00	
15500.00†	90.001	179.703	9900.03	5687.70	-5687.62	29.47	740187.47	590610.85	32°37'19.123"N	103°41'14.873"W	0.00	
15600.00†	90.001	179.703	9900.03	5787.70	-5787.62	29.99	740187.99	590510.85	32°37'18.134"N	103°41'14.875"W	0.00	
15700.00†	90.001	179.703	9900.02	5887.70	-5887.62	30.51	740188.51	590410.86	32°37'17.144"N	103°41'14.876"W	0.00	
15800.00†	90.001	179.703	9900.02	5987.70	-5987.62	31.03	740189.03	590310.87	32°37'16.155"N	103°41'14.877"W	0.00	
15900.00†	90.001	179.703	9900.02	6087.70	-6087.62	31.54	740189.54	590210.87	32°37'15.165"N	103°41'14.878"W	0.00	
16000.00†	90.001	179.703	9900.02	6187.70	-6187.62	32.06	740190.06	590110.88	32°37'14.176"N	103°41'14.879"W	0.00	
16100.00†	90.001	179.703	9900.02	6287.70	-6287.61	32.58	740190.58	590010.88	32°37'13.186"N	103°41'14.880"W	0.00	
16200.00†	90.001	179.703	9900.02	6387.70	-6387.61	33.10	740191.10	589910.89	32°37'12.197"N	103°41'14.881"W	0.00	
16300.00†	90.001	179.703	9900.01	6487.70	-6487.61	33.62	740191.62	589810.90	32°37'11.207"N	103°41'14.882"W	0.00	
16400.00†	90.001	179.703	9900.01	6587.70	-6587.61	34.14	740192.13	589710.90	32°37'10.218"N	103°41'14.883"W	0.00	
16500.00†	90.001	179.703	9900.01	6687.70	-6687.61	34.65	740192.65	589610.91	32°37'09.228"N	103°41'14.884"W	0.00	
16600.00†	90.001	179.703	9900.01	6787.70	-6787.61	35.17	740193.17	589510.92	32°37'08.239"N	103°41'14.885"W	0.00	
16700.00†	90.001	179.703	9900.01	6887.70	-6887.61	35.69	740193.69	589410.92	32°37'07.250"N	103°41'14.886"W	0.00	
16800.00†	90.001	179.703	9900.00	6987.70	-6987.61	36.21	740194.21	589310.93	32°37'06.260"N	103°41'14.887"W	0.00	
16900.00†	90.001	179.703	9900.00	7087.70	-7087.60	36.73	740194.72	589210.93	32°37'05.271"N	103°41'14.888"W	0.00	
17000.00†	90.001	179.703	9900.00	7187.70	-7187.60	37.24	740195.24	589110.94	32°37'04.281"N	103°41'14.889"W	0.00	
17074.14	90.001	179.703	9900.00 ¹	7261.84	-7261.74	37.63	740195.63	589036.80	32°37'03.548"N	103°41'14.890"W	0.00	No. 10H PBHL



Planned Wellpath Report

Prelim_1

Page 6 of 6



INTEQ

REFERENCE WELLPATH IDENTIFICATION

Operator	Cimarex Energy Co.	Slot	No. 10H SHL
Area	Lea County, NM	Well	No. 10H
Field	(Maduro) Sec 29, T19S,R33E	Wellbore	No. 10H PWB
Facility	Maduro Unit No. 10H		

HOLE & CASING SECTIONS Ref Wellbore: No. 10H 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]
17.5in Open Hole	0.00	1380.00	1380.00	0.00	1380.00	0.00	0.00	0.00	0.00
13.375in Casing Surface	0.00	1380.00	1380.00	0.00	1380.00	0.00	0.00	0.00	0.00
12.25in Open Hole	0.00	5200.00	5200.00	0.00	5200.00	0.00	0.00	0.00	0.00
9.625in Casing Intermediate	0.00	5200.00	5200.00	0.00	5200.00	0.00	0.00	0.00	0.00
8.75in Open Hole	0.00	17075.00	17075.00	0.00	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. 10H PBHL	17074.14	9900.00	-7261.74	37.63	740195.63	589036.80	32°37'03.548"N	103°41'14.890"W	point

SURVEY PROGRAM Ref Wellbore: No. 10H PWB Ref Wellpath: Prelim_1

Start MD [ft]	End MD [ft]	Positional Uncertainty Model	Log Name/Comment	Wellbore
0.00	17074.14	NaviTrak (Standard)		No. 10H PWB

SR & A

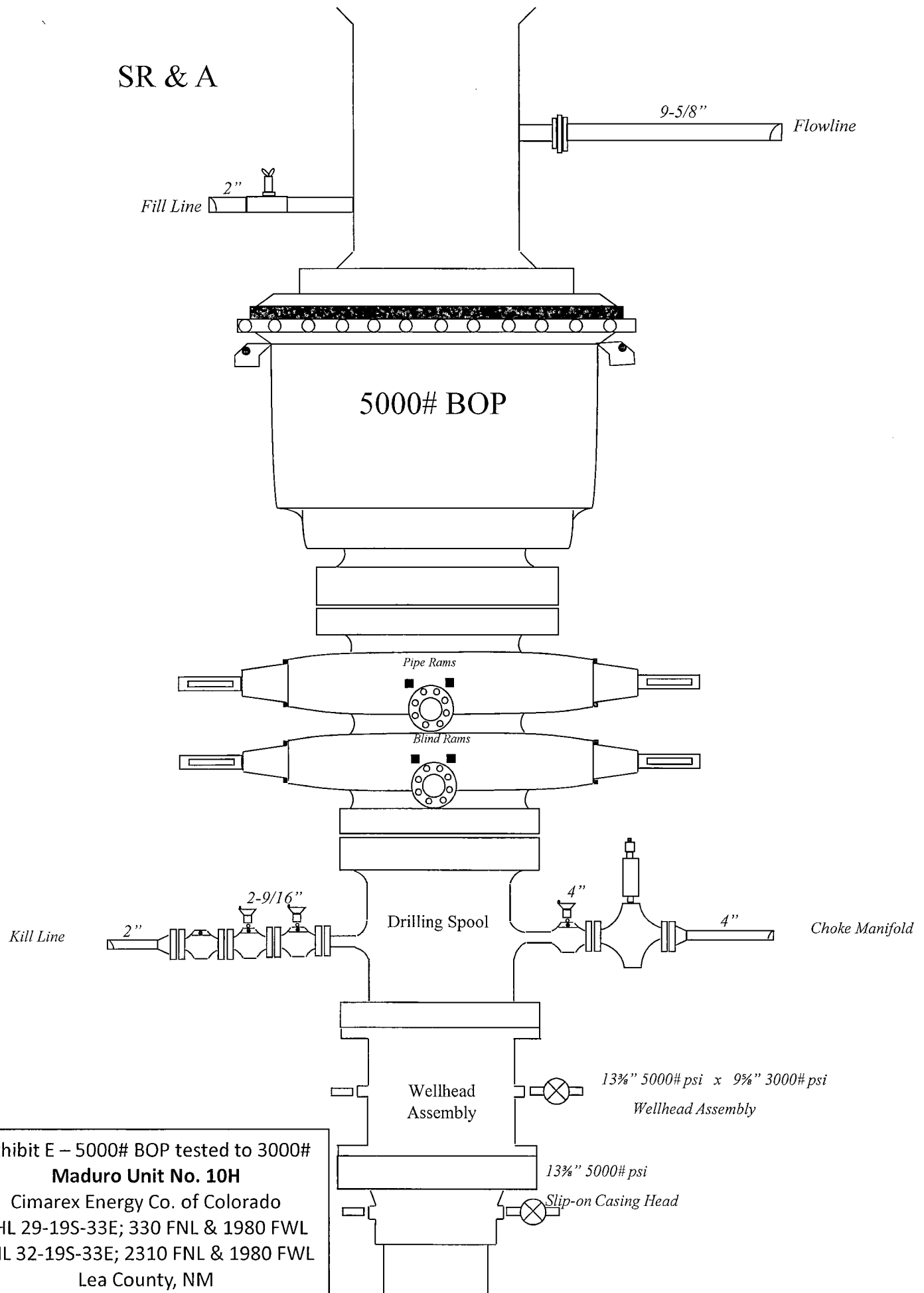


Exhibit E – 5000# BOP tested to 3000#

Maduro Unit No. 10H

Cimarex Energy Co. of Colorado

SHL 29-19S-33E; 330 FNL & 1980 FWL

BHL 32-19S-33E; 2310 FNL & 1980 FWL

Lea County, NM

Drilling Operations
Choke Manifold
5M Service

Exhibit E-1 – Choke Manifold Diagram

Maduro Unit No. 10H

Cimarex Energy Co. of Colorado
SHL 29-19S-33E; 330 FNL & 1980 FWL

BHL 32-19S-33E; 2310 FNL & 1980

FWL

Lea County, NM

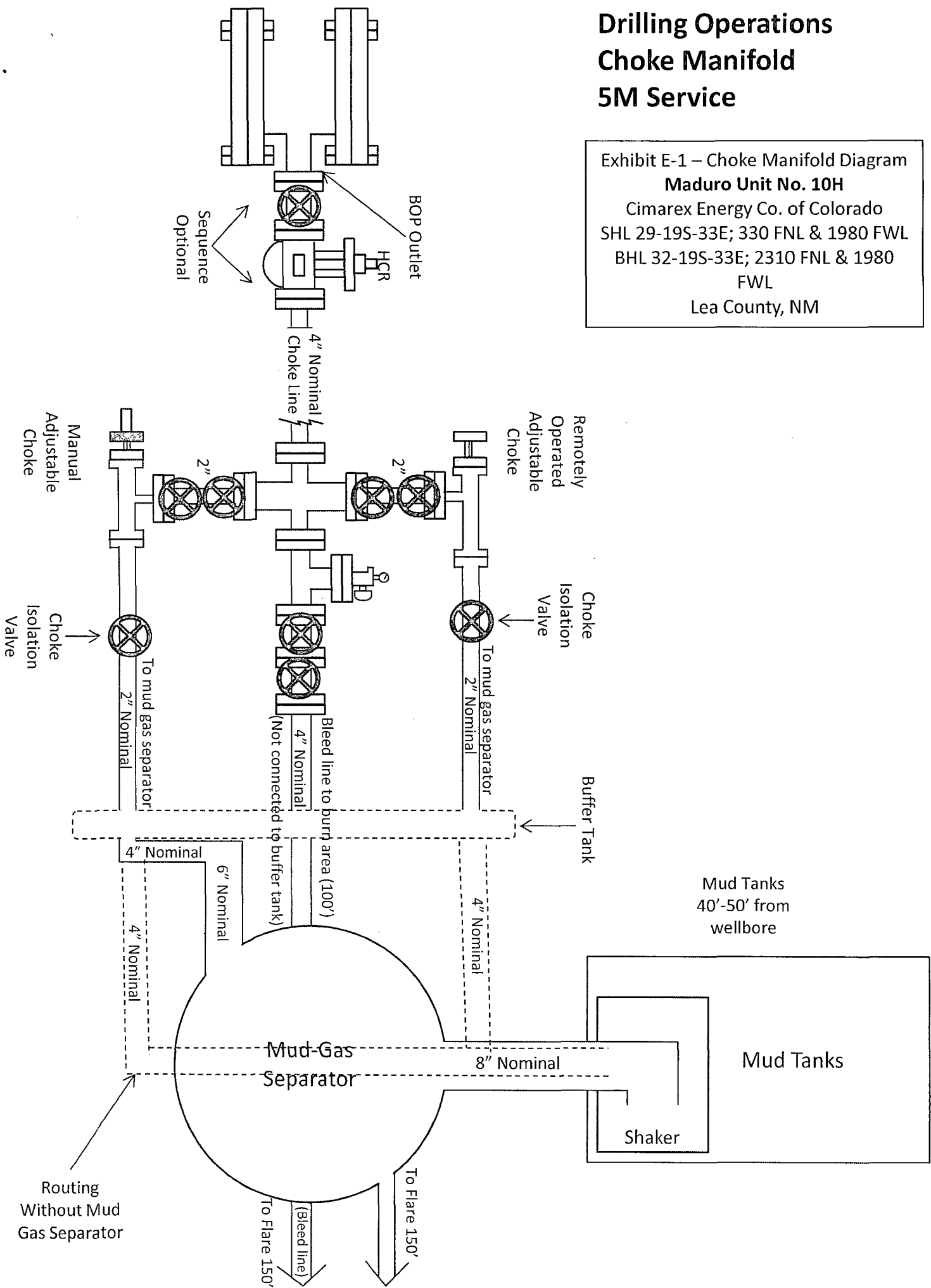


Exhibit F – Co-Flex Hose

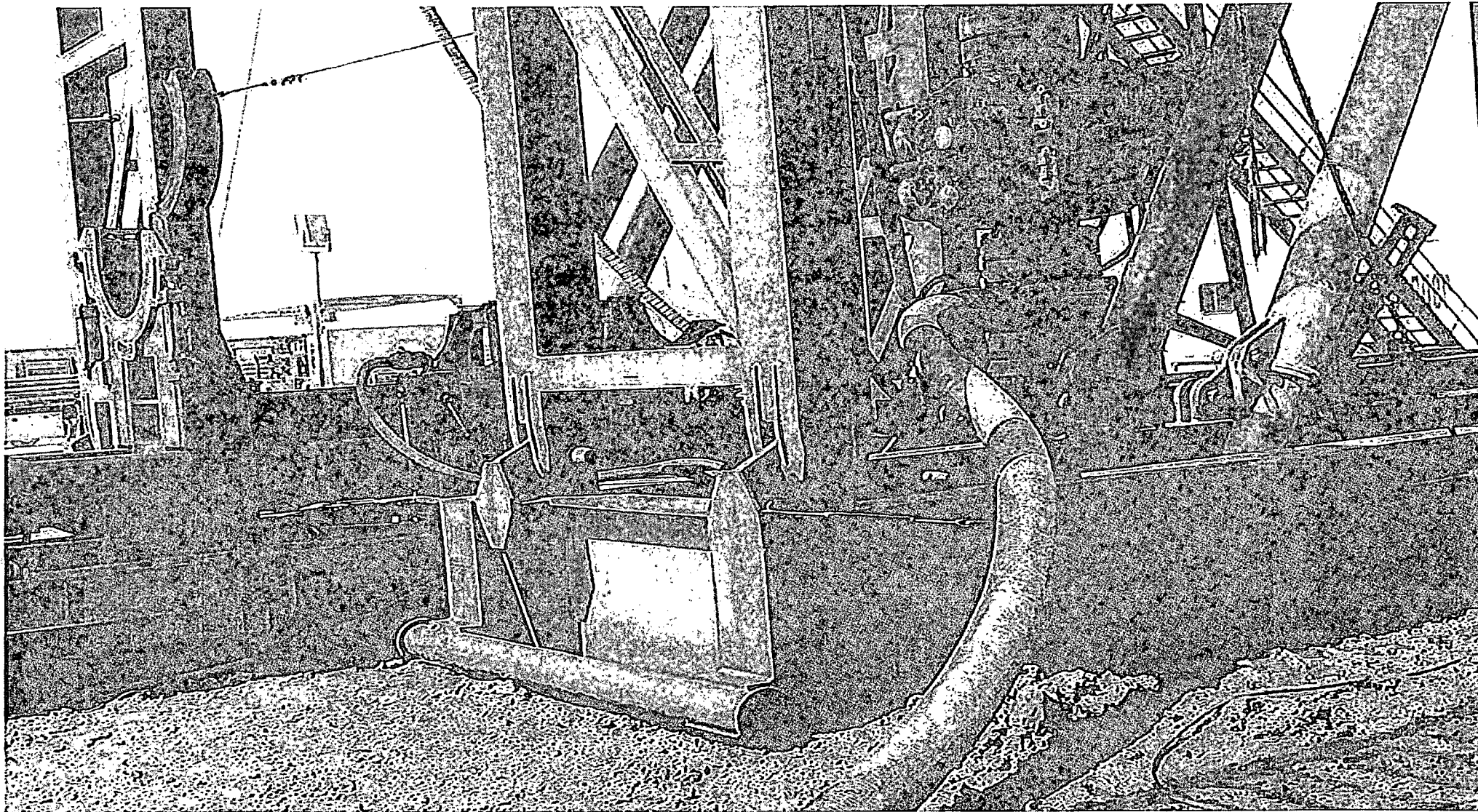
Maduro Unit No. 10H

Cimarex Energy Co. of Colorado

SHL 29-19S-33E; 330 FNL & 1980 FWL

BHL 32-19S-33E; 2310 FNL & 1980 FWL

Lea County, NM





Midwest Hose & Specialty, Inc.

Exhibit F-1 – Co-Flex Hose Hydrostatic Test

Maduro Unit No. 10H

Cimarex Energy Co. of Colorado

SHL 29-19S-33E; 330 FNL & 1980 FWL

BHL 32-19S-33E; 2310 FNL & 1980 FWL

Lea County, NM

INTERNAL HYDROSTATIC TEST REPORT

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

Exhibit F-1 – Co-Flex Hose Hydrostatic Test
Maduro Unit No. 10H
 Cimarex Energy Co. of Colorado
 SHL 29-19S-33E; 330 FNL & 1980 FWL
 BHL 32-19S-33E; 2310 FNL & 1980 FWL
 Lea County, NM



**Midwest Hose
& Specialty, Inc.**

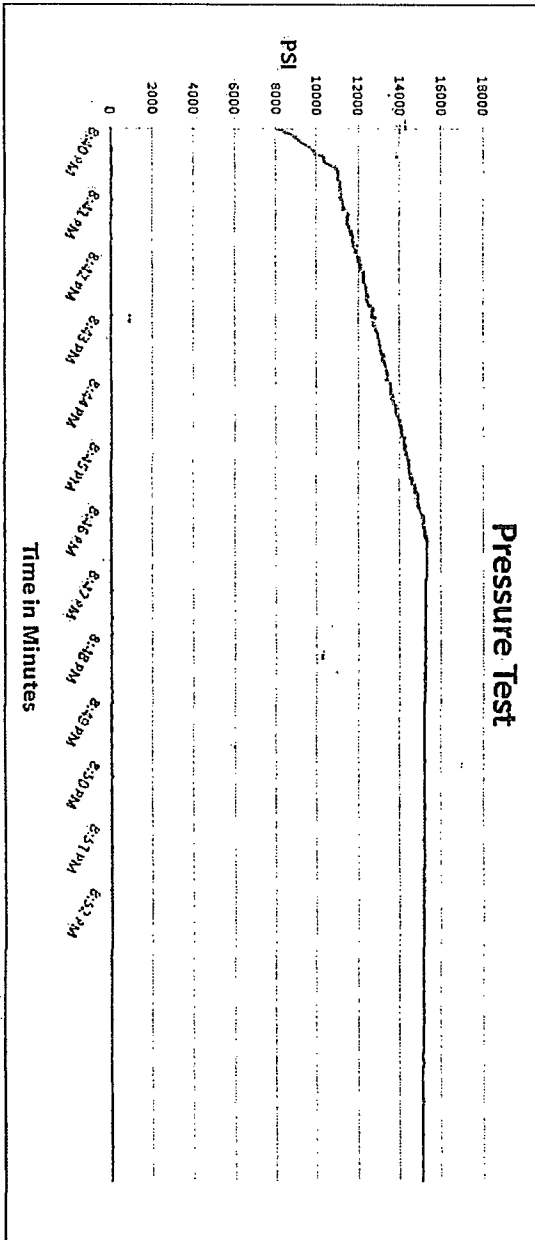
Internal Hydrostatic Test Graph

Customer: Houston

Pick Ticket #: 94260

March 3, 2011

Hose Specifications		Verification	
Hose Type	C&K	Length	45'
I.D.	4"	O.D.	6.09"
Working Pressure	10000 PSI	Burst Pressure	Standards Only/Multiple Applies
Type of Fittings	4 1/16 10K	Die Size	6.38"
Hose Serial #	5544	Countdown Method	Swage
Hose Assembly Serial #	79793	Final O.D.	6.25"



Comments: Hose assembly pressure tested with water at ambient temperature.

Tested By: Zac McConnell

Approved By: Kim Thomas

[Signature]

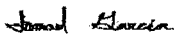
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Exhibit F-2 - Co-Flex Hose
Maduro Unit No. 10H
Cimarex Energy Co. of Colorado
SHL 29-19S-33E; 330 FNL & 1980 FWL
BHL 32-19S-33E; 2310 FNL & 1980 FWL
Lea County, NM



Midwest Hose & Specialty, Inc.

Certificate of Conformity

Customer:		PO
DEM		ODYD-271
SPECIFICATIONS		
Sales Order	Dated:	
79793	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:		Date:
		3/8/2011



Midwest Hose
& Specialty, Inc.

Exhibit F -3- Co-Flex Hose

Maduro Unit No. 10H

Cimarex Energy Co. of Colorado

SHL 29-19S-33E; 330 FNL & 1980 FWL

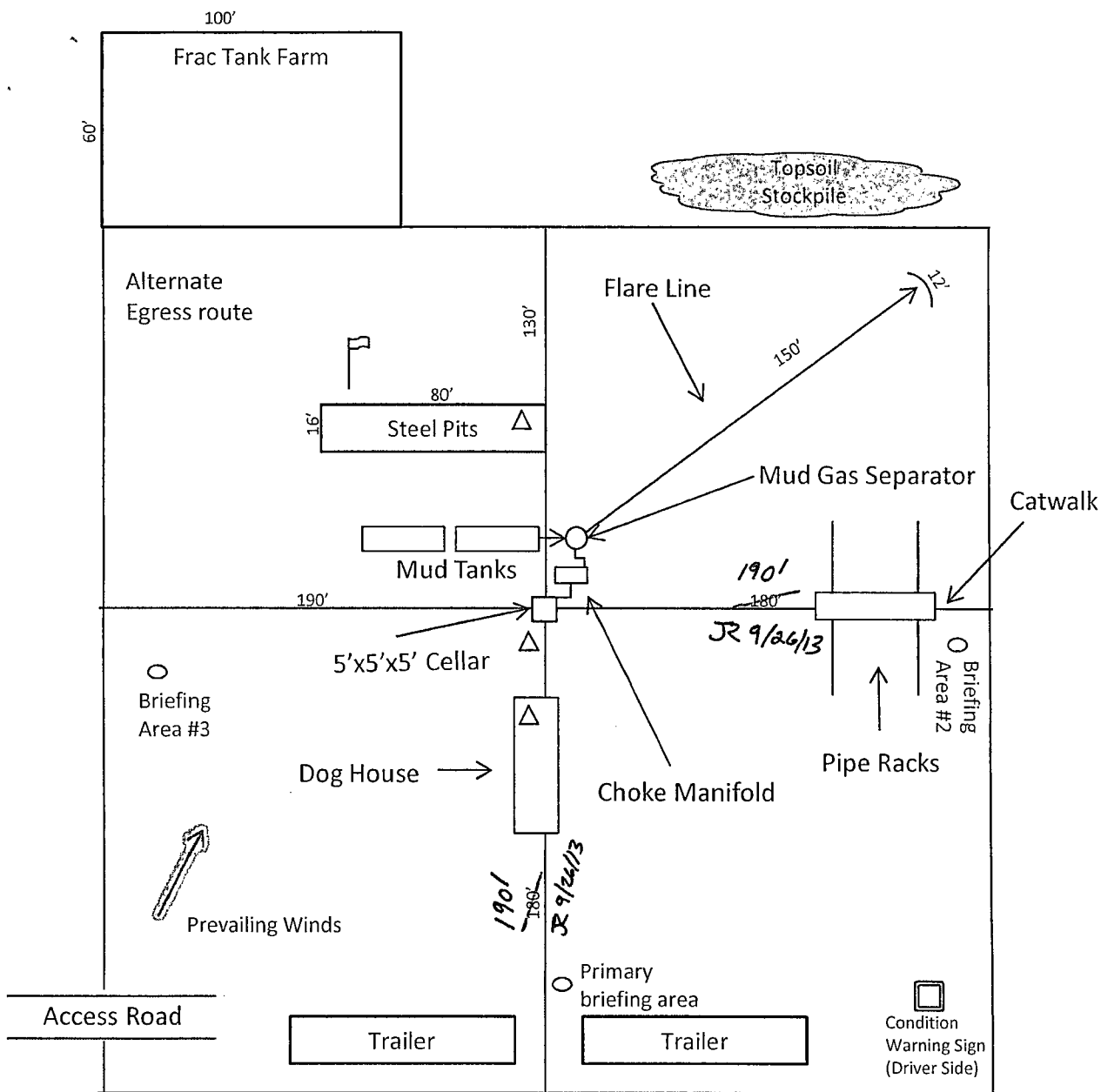
BHL 32-19S-33E; 2310 FNL & 1980 FWL

Lea County, NM

Specification Sheet Choke & Kill Hose

The Midwest Hose & Specialty Choke & Kill hose is manufactured with only premium components. The reinforcement cables, inner liner and cover are made of the highest quality material to handle the tough drilling applications of today's industry. The end connections are available with API flanges, API male threads, hubs, hammer unions or other special fittings upon request. Hose assembly is manufactured to API 7K. This assembly is wrapped with fire resistant vermiculite coated fiberglass insulation, rated at 2000 degrees with stainless steel armor cover.

Working Pressure:	5,000 or 10,000 psi working pressure
Test Pressure:	10,000 or 15,000 psi test pressure
Reinforcement:	Multiple steel cables
Cover:	Stainless Steel Armor
Inner Tube:	Petroleum resistant, Abrasion resistant
End Fitting:	API flanges, API male threads, threaded or butt weld hammer unions, unbolt and other special connections
Maximum Length:	110 Feet
ID:	2-1/2", 3", 3-1/2", 4"
Operating Temperature:	-22 deg F to +180 deg F (-30 deg C to +82 deg C)



Wind Direction Indicators
(wind sock or streamers)



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



Briefing Areas

N



Exhibit D – Rig Diagram

Maduro Unit No. 10H

Cimarex Energy Co. of Colorado

SHL 29-19S-33E; 330 FNL & 1980 FWL

BHL 32-19S-33E; 2310 FNL & 1980 FWL

Lea County, NM