

OCD Hobbs

14-259

Form 3160-3
(March 2012)UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTFORM APPROVED
OMB No. 1004-0137
Expires October 31, 2014

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of Work



DRILL



REENTER

1b. Type of Well



Oil Well



Gas Well



Other



Single Zone



Multiple Zone

2. Name of Operator

Cimarex Energy Co. *OF COLORADO 162683*

3a. Address

600 N. Marienfield St. Ste. 600 Midland Tx 79071

3b. Phone No. (include area code)

432-571-7800

HOBBS OCD

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

At Surface 330' FNL & 850' FEL

At proposed prod. Zone 330' FSL & 440' FEL

Bone Spring

DEC 09 2014

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

Jal, NM is 31 miles to the southeast of location.

RECEIVED

5. Lease Serial No.
SHLABHL: NMNM05792

6. If Indian, Allottee or Tribe Name

7. If Unit or CA Agreement, Name and No.
Red Hills Unit - NM71019X8. Lease Name and Well No. *300545*
Red Hills Unit 21H

9. API Well No.

*30-023-42720*10. Field and Pool, or Exploratory *9797H**WILDCAT BONE SPRING*

11. Sec, T, R, M, or Blk. and Survey and Area

33, 25S, 33E

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

NMNM05792=680.00 acres

17. Spacing Unit dedicated to this well

160.00

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

895' to #20H

19. Proposed Depth

Pilot Hole TD: 10,300

13,680 MD

9,250 TVD

20. BLM/BIA Bond No. on File

NM2575; NMB000835

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

3343 GR

22. Approximate date work will start*

4/1/14

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)

Date

Terri Stathem

1/31/14

Title

Regulatory Compliance

Approved By (Signature)

Name (Printed/Typed)

Date

DEC 1 2014

Title

FIELD MANAGER

Office CARLSBAD FIELD OFFICE

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Conditions of approval, if any, are attached.

APPROVAL FOR TWO YEARS

Title 18 U.S.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)

Carlsbad Controlled Water Basin

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

DEC 10 2014

Application to Drill
Red Hills Unit 21H
Cimarex Energy Co.
UL: A, Sec. 33, 25S, 33E
LEA Co., 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 & 850' FEL

BHL 330' FSL & 440' FEL

2. Elevation Above Sea Level: 3,343' 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: 13,680 MD 9,250 TVD Pilot Hole TD: 10,300

6. Estimated Tops of Geological Markers:

Formation	Est Top	Bearing
Rustler	975'	N/A
Salt	1170'	N/A
Castille	3285'	N/A
Base Last Salt	4650'	N/A
Lamar	4900'	N/A
Bell Canyon	4945'	N/A
Cherry Canyon	6190'	N/A
Brushy Canyon	7485'	N/A
Bone Spring	9045'	Hydrocarbons
U. Avalon (Leonard)	9130'	Hydrocarbons
L. Avalon	9775'	Hydrocarbons
1st BSS	10000'	N/A

7. Possible Mineral Bearing Formation: Shown above

7A. OSE Ground Water Estimated Depth: 180'

8. Casing Program:

Name	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	BHP (psig)	Anticipated Mud Weight (ppg)	Collapse SF at Full Evacuation(1.125)	Collapse SF at 1/3 Evacuation(1.125)	Burst SF (1.125)	Cumulative Air Weight	Cumulative Bouyed Weight (lbs)	Bouyant Tension SF (1.8)
Surface	0	1000	1000	17 1/2	13-3/8"	48.00	H-40	ST&C	New	431	8.3	1.71		4.01	48,000	41,918	7.68
Intermediate	0	4920	4920	12 1/4	9-5/8"	40.00	J-55	LT&C	New	2558	10.0		1.44	1.54	196,800	166,754	3.12
Production	0	8773	8773	8 3/4	5-1/2"	17.00	L-80	LT&C	New	4105	9.0	1.53		1.89	157,250	135,643	2.49
Production	8773	13680	9250	8 3/4	5-1/2"	17.00	L-80	BT&C	New	4329	9.0	1.45		1.79	8,109	6,995	56.76

Application to Drill
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8A. Casing Design and Casing Loading Assumptions:

Surface	Tension	A 1.8 design factor with effects of buoyancy: 8.30 ppg.
	Collapse	A 1.125 design factor with full internal evacuation and a collapse force equal to a 8.30 ppg mud gradient.
	Burst	A 1.125 design with a surface pressure equal to the fracture gradient at setting depth less gas gradient to surface.
Intermediate	Tension	A 1.8 design factor with effects of buoyancy: 10.00 ppg.
	Collapse	A 1.125 design factor evacuated 1/3 TVD of next casing string with a collapse force equal to a 10.00 ppg mud gradient.
	Burst	A 1.125 design with a surface pressure equal to the fracture gradient at setting depth less gas gradient to surface.
Production and/or Production Liner	Tension	A 1.8 design factor with effects of buoyancy: 9.00 ppg.
	Collapse	A 1.125 design factor with full internal evacuation of next casing string with a collapse force equal to a 9.00 ppg mud gradient.
	Burst	A 1.125 design with a surface pressure equal to the fracture gradient at setting depth less gas gradient to surface.

9. Cementing Program:

Casing Type	Type	Sacks	Yield	Weight	Cubic Feet	Cement Blend
Surface	Lead	556	1.75	13.50		972: Class C + Bentonite + Calcium Chloride + LCM, 8.829 gps water
	Tail	195	1.34	14.80		260: Class C + LCM, 6.32 gps water
	TOC: 0		78% Excess			Centralizers per Onshore Order 2.III.B.1f
Intermediate	Lead	1146	1.88	12.90		2153 35:65 (poz/C) + Salt + Bentonite + LCM + retarder, 9.65 gps water
	Tail	288	1.34	14.80		385 Class C + retarder + LCM, 6.32 gps water
	TOC: 0		82% Excess			
Production	Lead	463	2.40	11.90		1110 35:65 (poz/H) + salt + Sodium Metasilcate + Bentonite + Fluid Loss + Dispersant + LCM + Retarder, 13.80 gps water
	Tail	1378	1.24	14.50		1708 50:50 (poz/H) + Bentonite + Salt + Fluid Loss + Dispersant + LCM + Retarder, 5.55 gps water
	TOC: 4720		25% Excess			No centralizers planned in the lateral section. 1 every jt from EOC to KOP. 1 every 4th joint from KOP to 500' inside previous casing.

Cement volumes will be adjusted depending on hole size

9a. Proposed Drilling Plan:

Pilot Hole TD: 10,300' KOP: 8,773' EOC: 9,523'

Set OH mechanical whipstock w/ 1477 ft of 2.875 tubing and pump 30 bbls of Mudpush @ 12 ppg, followed by 678 sks Type H cement, dispersant 0.080 gals/sk, retarder 0.045 gals/sk @ 17.50 ppg, 0.94 cuft/sk, & 0% excess from pilot hole TD to KOP. KO lateral and drill through the curve to TD. Run production csg to TD and cement.

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10. Pressure Control Equipment:

Exhibit "E-1". A BOP consisting of two rams with blind rams and pipe rams, and one annular preventer. Below the surface casing, a 2M system will be used. Below the intermediate casing, a 3M system will be used. See attachments for BOP and choke manifold diagrams. An accumulator that meets the requirements in Onshore Order #2 for the pressure rating of the BOP stack. A Rotating head may be installed as needed. A kelly cock will be installed and maintained in operable condition and a drill string safety valve in the open position will be available on the rig floor.

BOP and associated equipment will be installed, used, maintained, and tested in a manner necessary to assure well control and shall be in place and operational prior to drilling the surface casing shoe. The Annular Preventer shall be functioned at least weekly. The pipe and blind rams will be operated each trip. No abnormal pressure or temperature is expected while drilling.

BOPS will be tested by an independent service company. The ram preventers, choke manifold, and safety valves will be tested as follows: On the surface casing, pressure tests will be made to 250 psi low and 2000 psi high. On the intermediate casing, pressure tests will be made to 250 psi low and 3000 psi high.

The Annular Preventer will be tested to 250 psi low and 1000 psi high on the surface casing, and 250 low and 1500 high on the intermediate 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.

11. Proposed Mud Circulating System:

Depth	Mud Weight	Visc	Fluid Loss	Type Mud
0' to 1060'		8.30 : 28	NC	FW Spud Mud
1060' to 4850'	10.00	30-32	NC	Brine Water
4850' to 13684'	9.00	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. Testing, Logging and Coring Program:

- A. Mud logging program: 2 man unit from 4920 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

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: 4163 psi

Estimated BHT: 154°

14. Construction and Drilling:

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.

15. Other Facets of Operations:

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

U. Avalon (Leonard) pay will be perforated and stimulated.

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



	Critical Points							
Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+) / S(-)	E(-) / W(-)	DLS
Tie-In to Pilot	8750.00	0.00	174.39	8750.00	0.00	0.00	0.00	
KOP - Build 12"/100ft DLS	8772.50	0.00	174.39	8772.50	0.00	0.00	0.00	0.00
Landing point	9522.56	90.00	174.39	9250.00	477.50	-475.21	46.68	12.00
Cimarex Red Hills Unit 21H ST01 PBHL	13680.40	90.00	174.39	9250.00	4635.34	-4613.13	453.21	0.00



Cimarex Red Hills Unit #21H ST01 Rev1 WEB 27-Nov-13 Proposal Report
100' Interpolated
(Def Plan)



Report Date: November 27, 2013 - 07:18 PM
Client: Cimarex
Field: NM Lea County (NAD 83)
Structure / Slot: TD / Cimarex Red Hills Unit 21H
Well: Cimarex Red Hills Unit 21H
Borehole: ST01 Borehole
UWI / API#: Unknown / Unknown
Survey Name: Cimarex Red Hills Unit #21H ST01 Rev1 WEB 27-Nov-13
Survey Date: November 27, 2013
Tort / AHD / DDI / ERD Ratio: 90.002 / 4635.344 R / 5.790 / 0.501
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 5' 36.13124", W 103° 34' 17.38326"
Location Grid N/E Y/X: N 398538.100 RUS, E 77261.600 RUS
CRS Grid Convergence Angle: 0.4048 °
Grid Scale Factor: 0.9997284

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 174.389 ° (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: Ground Level
TVD Reference Elevation: 3343.000 ft above MSL
Seabed / Ground Elevation: 3343.000 ft above MSL
Magnetic Declination: 7.361 °
Total Gravity Field Strength: 988.4823mgm (9.80655 Based)
Total Magnetic Field Strength: 48277.587 nT
Magnetic Dip Angle: 59.990 °
Declination Date: November 27, 2013
Magnetic Declination Model: BGM 2013
North Reference: Grid North
Grid Convergence Used: 0.4048 °
Total Corr Mag North->Grid North: 6.9758 °
Local Coord Referenced To: Structure Reference Point

Comments	MD (ft)	Incl (°)	Azin Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	Northing (RUS)	Easting (RUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")	Closure (ft)	Closure Azimuth (°)	DLS (ft/100ft)
SHL Cimarex Red Hills Unit #21H	0.00	0.00	0.00	0.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	N/A
	100.00	0.00	174.39	100.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
	200.00	0.00	174.39	200.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
	300.00	0.00	174.39	300.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
	400.00	0.00	174.39	400.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
	500.00	0.00	174.39	500.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
	600.00	0.00	174.39	600.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
	700.00	0.00	174.39	700.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
	800.00	0.00	174.39	800.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
	900.00	0.00	174.39	900.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
1000.00	0.00	174.39	1000.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00	
1100.00	0.00	174.39	1100.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00	
1200.00	0.00	174.39	1200.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00	
1300.00	0.00	174.39	1300.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00	
1400.00	0.00	174.39	1400.00	0.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
1500.00	0.00	174.39	1500.00	0.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
1600.00	0.00	174.39	1600.00	0.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
1700.00	0.00	174.39	1700.00	0.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
1800.00	0.00	174.39	1800.00	0.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
1900.00	0.00	174.39	1900.00	0.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
2000.00	0.00	174.39	2000.00	0.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
2100.00	0.00	174.39	2100.00	0.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
2200.00	0.00	174.39	2200.00	0.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
2300.00	0.00	174.39	2300.00	0.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
2400.00	0.00	174.39	2400.00	0.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
2500.00	0.00	174.39	2500.00	0.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
2600.00	0.00	174.39	2600.00	0.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
2700.00	0.00	174.39	2700.00	0.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
2800.00	0.00	174.39	2800.00	0.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
2900.00	0.00	174.39	2900.00	0.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
3000.00	0.00	174.39	3000.00	0.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
3100.00	0.00	174.39	3100.00	0.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
3200.00	0.00	174.39	3200.00	0.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
3300.00	0.00	174.39	3300.00	0.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
3400.00	0.00	174.39	3400.00	0.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
3500.00	0.00	174.39	3500.00	0.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
3600.00	0.00	174.39	3600.00	0.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
3700.00	0.00	174.39	3700.00	0.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
3800.00	0.00	174.39	3800.00	0.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
3900.00	0.00	174.39	3900.00	0.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
4000.00	0.00	174.39	4000.00	0.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
4100.00	0.00	174.39	4100.00	0.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
4200.00	0.00	174.39	4200.00	0.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
4300.00	0.00	174.39	4300.00	0.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
4400.00	0.00	174.39	4400.00	0.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
4500.00	0.00	174.39	4500.00	0.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
4600.00	0.00	174.39	4600.00	0.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
4700.00	0.00	174.39	4700.00	0.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
4800.00	0.00	174.39	4800.00	0.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
4900.00	0.00	174.39	4900.00	0.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
5000.00	0.00	174.39	5000.00	0.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
5100.00	0.00	174.39	5100.00	0.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
5200.00	0.00	174.39	5200.00	0.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
5300.00	0.00	174.39	5300.00	0.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
5400.00	0.00	174.39	5400.00	0.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
5500.00	0.00	174.39	5500.00	0.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
5600.00	0.00	174.39	5600.00	0.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
5700.00	0.00	174.39	5700.00	0.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
5800.00	0.00	174.39	5800.00	0.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
5900.00	0.00	174.39	5900.00	0.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
6000.00	0.00	174.39	6000.00	0.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
6100.00	0.00	174.39	6100.00	0.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
6200.00	0.00	174.39	6200.00	0.00	0.00	0.00	0.00	398538.10	777261.60	N				

Comments	MD (ft)	Incl (°)	Azim Grd (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ° '")	Longitude (E/W ° ° '")	Closure (ft)	Closure Azimuth (°)	DLS (ft/100ft)
Tie-In to Pilot KOP - Build 12"/100ft DLS	7800.00	0.00	174.39	7800.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
	7900.00	0.00	174.39	7900.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
	8000.00	0.00	174.39	8000.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
	8100.00	0.00	174.39	8100.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
	8200.00	0.00	174.39	8200.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
	8300.00	0.00	174.39	8300.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
	8400.00	0.00	174.39	8400.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
	8500.00	0.00	174.39	8500.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
	8600.00	0.00	174.39	8600.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
	8700.00	0.00	174.39	8700.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
	8750.00	0.00	174.39	8750.00	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
	8772.50	0.00	174.39	8772.50	0.00	0.00	0.00	398538.10	777261.60	N 32 5 36.13	W 103 34 17.38	0.00	0.00	0.00
	8800.00	3.30	174.39	8799.98	0.79	-0.79	0.08	398537.31	777261.68	N 32 5 36.12	W 103 34 17.38	0.79	174.39	12.00
	8900.00	15.30	174.39	8898.49	16.92	-16.84	1.65	398521.26	777263.25	N 32 5 35.96	W 103 34 17.37	16.92	174.39	12.00
	9000.00	27.30	174.39	8891.49	53.18	-52.92	5.20	398485.18	777266.80	N 32 5 35.61	W 103 34 17.33	53.18	174.39	12.00
	9100.00	38.30	174.39	9074.92	107.98	-107.46	10.56	398430.64	777272.16	N 32 5 35.07	W 103 34 17.27	107.98	174.39	12.00
	9200.00	51.30	174.39	9145.14	178.92	-178.07	17.49	398360.04	777279.09	N 32 5 34.37	W 103 34 17.19	178.92	174.39	12.00
Landing point	9300.00	63.30	174.39	9199.07	262.92	-261.66	25.70	398276.45	777287.30	N 32 5 33.54	W 103 34 17.11	262.92	174.39	12.00
	9400.00	75.29	174.39	9234.36	356.29	-354.58	34.83	398183.53	777296.43	N 32 5 32.62	W 103 34 17.01	356.29	174.39	12.00
	9500.00	87.29	174.39	9249.47	454.95	-452.77	44.47	398085.34	777306.07	N 32 5 31.65	W 103 34 16.90	454.95	174.39	12.00
	9522.56	90.00	174.39	9250.00	477.50	-475.21	46.68	398002.90	777308.28	N 32 5 31.43	W 103 34 16.88	477.50	174.39	12.00
	9600.00	90.00	174.39	9250.00	554.94	-552.29	54.25	397985.83	777315.85	N 32 5 30.66	W 103 34 16.80	554.94	174.39	0.00
	9700.00	90.00	174.39	9250.00	654.94	-651.81	64.03	397886.31	777325.62	N 32 5 29.68	W 103 34 16.69	654.94	174.39	0.00
	9800.00	90.00	174.39	9250.00	754.94	-751.33	73.80	397786.79	777335.40	N 32 5 28.69	W 103 34 16.59	754.94	174.39	0.00
	9900.00	90.00	174.39	9250.00	854.94	-850.85	83.58	397687.28	777345.17	N 32 5 27.71	W 103 34 16.48	854.94	174.39	0.00
	10000.00	90.00	174.39	9250.00	954.94	-950.37	93.35	397587.76	777354.95	N 32 5 26.72	W 103 34 16.38	954.94	174.39	0.00
	10100.00	90.00	174.39	9250.00	1054.94	-1049.89	103.13	397488.24	777364.73	N 32 5 25.74	W 103 34 16.27	1054.94	174.39	0.00
	10200.00	90.00	174.39	9250.00	1154.94	-1149.41	112.91	397388.72	777374.50	N 32 5 24.75	W 103 34 16.17	1154.94	174.39	0.00
	10300.00	90.00	174.39	9250.00	1254.94	-1248.93	122.68	397289.20	777384.28	N 32 5 23.76	W 103 34 16.06	1254.94	174.39	0.00
	10400.00	90.00	174.39	9250.00	1354.94	-1348.45	132.46	397189.68	777394.05	N 32 5 22.78	W 103 34 15.95	1354.94	174.39	0.00
	10500.00	90.00	174.39	9250.00	1454.94	-1447.98	142.23	397090.17	777403.83	N 32 5 21.79	W 103 34 15.85	1454.94	174.39	0.00
	10600.00	90.00	174.39	9250.00	1554.94	-1547.50	152.01	396990.65	777413.61	N 32 5 20.81	W 103 34 15.74	1554.94	174.39	0.00
	10700.00	90.00	174.39	9250.00	1654.94	-1647.02	161.79	396891.13	777423.38	N 32 5 19.82	W 103 34 15.64	1654.94	174.39	0.00
	10800.00	90.00	174.39	9250.00	1754.94	-1746.54	171.56	396791.61	777433.16	N 32 5 18.84	W 103 34 15.53	1754.94	174.39	0.00
	10900.00	90.00	174.39	9250.00	1854.94	-1846.06	181.34	396692.09	777442.94	N 32 5 17.85	W 103 34 15.43	1854.94	174.39	0.00
	11000.00	90.00	174.39	9250.00	1954.94	-1945.58	191.12	396592.58	777452.71	N 32 5 16.87	W 103 34 15.32	1954.94	174.39	0.00
	11100.00	90.00	174.39	9250.00	2054.94	-2045.10	200.90	396493.06	777462.49	N 32 5 15.88	W 103 34 15.22	2054.94	174.39	0.00
Cimarex Red Hills Unit 21H ST01 PBHL	11200.00	90.00	174.39	9250.00	2154.94	-2144.62	210.67	396393.54	777472.27	N 32 5 14.90	W 103 34 15.11	2154.94	174.39	0.00
	11300.00	90.00	174.39	9250.00	2254.94	-2244.14	220.45	396294.02	777482.04	N 32 5 13.91	W 103 34 15.01	2254.94	174.39	0.00
	11400.00	90.00	174.39	9250.00	2354.94	-2343.66	230.23	396194.50	777491.82	N 32 5 12.92	W 103 34 14.90	2354.94	174.39	0.00
	11500.00	90.00	174.39	9250.00	2454.94	-2443.18	240.00	396094.99	777501.60	N 32 5 11.94	W 103 34 14.79	2454.94	174.39	0.00
	11600.00	90.00	174.39	9250.00	2554.94	-2542.71	249.78	395995.47	777511.37	N 32 5 10.95	W 103 34 14.69	2554.94	174.39	0.00
	11700.00	90.00	174.39	9250.00	2654.94	-2642.23	259.56	395895.95	777521.15	N 32 5 9.97	W 103 34 14.58	2654.94	174.39	0.00
	11800.00	90.00	174.39	9250.00	2754.94	-2741.75	269.34	395796.43	777530.93	N 32 5 8.98	W 103 34 14.48	2754.94	174.39	0.00
	11900.00	90.00	174.39	9250.00	2854.94	-2841.27	279.12	395696.91	777540.71	N 32 5 8.00	W 103 34 14.37	2854.94	174.39	0.00
	12000.00	90.00	174.39	9250.00	2954.94	-2940.79	288.89	395597.40	777550.49	N 32 5 7.01	W 103 34 14.27	2954.94	174.39	0.00
	12100.00	90.00	174.39	9250.00	3054.94	-3040.31	298.67	395497.88	777560.26	N 32 5 6.03	W 103 34 14.16	3054.94	174.39	0.00
	12200.00	90.00	174.39	9250.00	3154.94	-3139.83	308.45	395398.36	777570.04	N 32 5 5.04	W 103 34 14.06	3154.94	174.39	0.00
	12300.00	90.00	174.39	9250.00	3254.94	-3239.35	318.23	395298.84	777579.82	N 32 5 4.06	W 103 34 13.95	3254.94	174.39	0.00
	12400.00	90.00	174.39	9250.00	3354.94	-3338.87	328.01	395199.33	777589.60	N 32 5 3.07	W 103 34 13.85	3354.94	174.39	0.00
	12500.00	90.00	174.39	9250.00	3454.94	-3438.39	337.78	395099.81	777599.37	N 32 5 2.08	W 103 34 13.74	3454.94	174.39	0.00
	12600.00	90.00	174.39	9250.00	3554.94	-3537.91	347.56	395000.29	777609.15	N 32 5 1.10	W 103 34 13.63	3554.94	174.39	0.00
	12700.00	90.00	174.39	9250.00	3654.94	-3637.43	357.34	394900.77	777618.93	N 32 5 0.11	W 103 34 13.53	3654.94	174.39	0.00
	12800.00	90.00	174.39	9250.00	3754.94	-3736.96	367.12	394801.25	777628.71	N 32 4 59.13	W 103 34 13.42	3754.94	174.39	0.00
	12900.00	90.00	174.39	9250.00	3854.94	-3836.48	376.90	394701.74	777638.49	N 32 4 58.14	W 103 34 13.32	3854.94	174.39	0.00
	13000.00	90.00	174.39	9250.00	3954.94	-3936.00	386.68	394602.22	777648.27	N 32 4 57.16	W 103 34 13.21	3954.94	174.39	0.00
	13100.00	90.00	174.39	9250.00	4054.94	-4035.52	396.46	394502.70	777658.04	N 32 4 56.17	W 103 34 13.11	4054.94	174.39	0.00
Cimarex Red Hills Unit 21H ST01 PBHL	13200.00	90.00	174.39	9250.00	4154.94	-4135.04	406.23	394403.18	777667.82	N 32 4 55.19	W 103 34 13.00	4154.94	174.39	0.00
	13300.00	90.00	174.39	9250.00	4254.94	-4234.56	416.01	394303.66	777677.60	N 32 4 54.20	W 103 34 12.90	4254.94	174.39	0.00
	13400.00	90.00	174.39	9250.00	4354.94	-4334.08	425.79	394204.15	777687.38	N 32 4 53.22	W 103 34 12.79	4354.94	174.39	0.00
	13500.00	90.00	174.39	9250.00	4454.94	-4433.60	435.57	394104.63	777697.16	N 32 4 52.23	W 103 34 12.68	4454.94	174.39	0.00
	13600.00	90.00	174.39	9250.00	4554.94	-4533.12	445.35	394005.11	777706.94	N 32 4 51.24	W 103 34 12.58	4554.94	174.39	0.00
	13880.40	90.00	174.39	9250.00	4635.34	-4613.13	453.21	393925.10	777714.80	N 32 4 50.45	W 103 34 12.49	4635.34	174.39	0.00

Survey Type: Def Plan

Survey Error Model: ISCVSA Rev 0 *** 3-D 95.000% Confidence 2.7955 sigma
Survey Program:

Description	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Survey Tool Type	Borehole / Survey
	0.000	8750.000	1/100.000	30.000	30.000	SLB_MWD-POOR	Pilot Borehole / Cimarex Red Hills Unit #21H Pilot Rev1 WEB 27-
	8750.000	8772.500	1/100.000	30.000	30.000	SLB_MWD-POOR	ST01 Borehole / Cimarex Red Hills Unit #21H ST01 Rev1 WEB
	8772.500	13680.399	1/100.000	30.000	30.000	SLB_MWD-STD	ST01 Borehole / Cimarex Red Hills Unit #21H ST01 Rev1 WEB

Drilling 12-1/4" hole
below 13 3/8" Casing

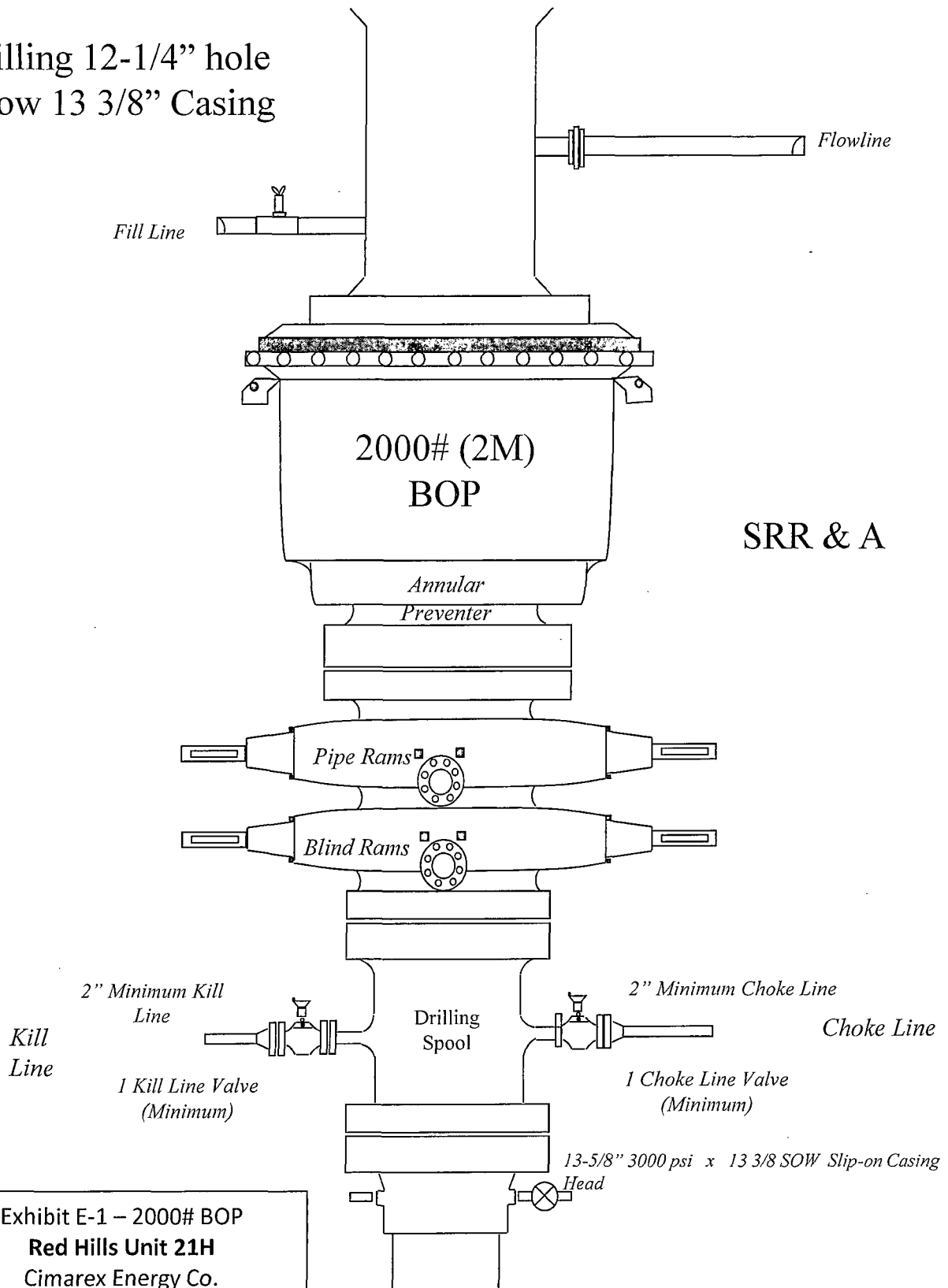


Exhibit E-1 – 2000# BOP
Red Hills Unit 21H
Cimarex Energy Co.
33-25S-33E
SHL 330 FNL & 850 FEL
BHL 330 FSL & 440 FEL
Lea County, NM

Drilling 8-3/4" hole
below 9 5/8" Casing

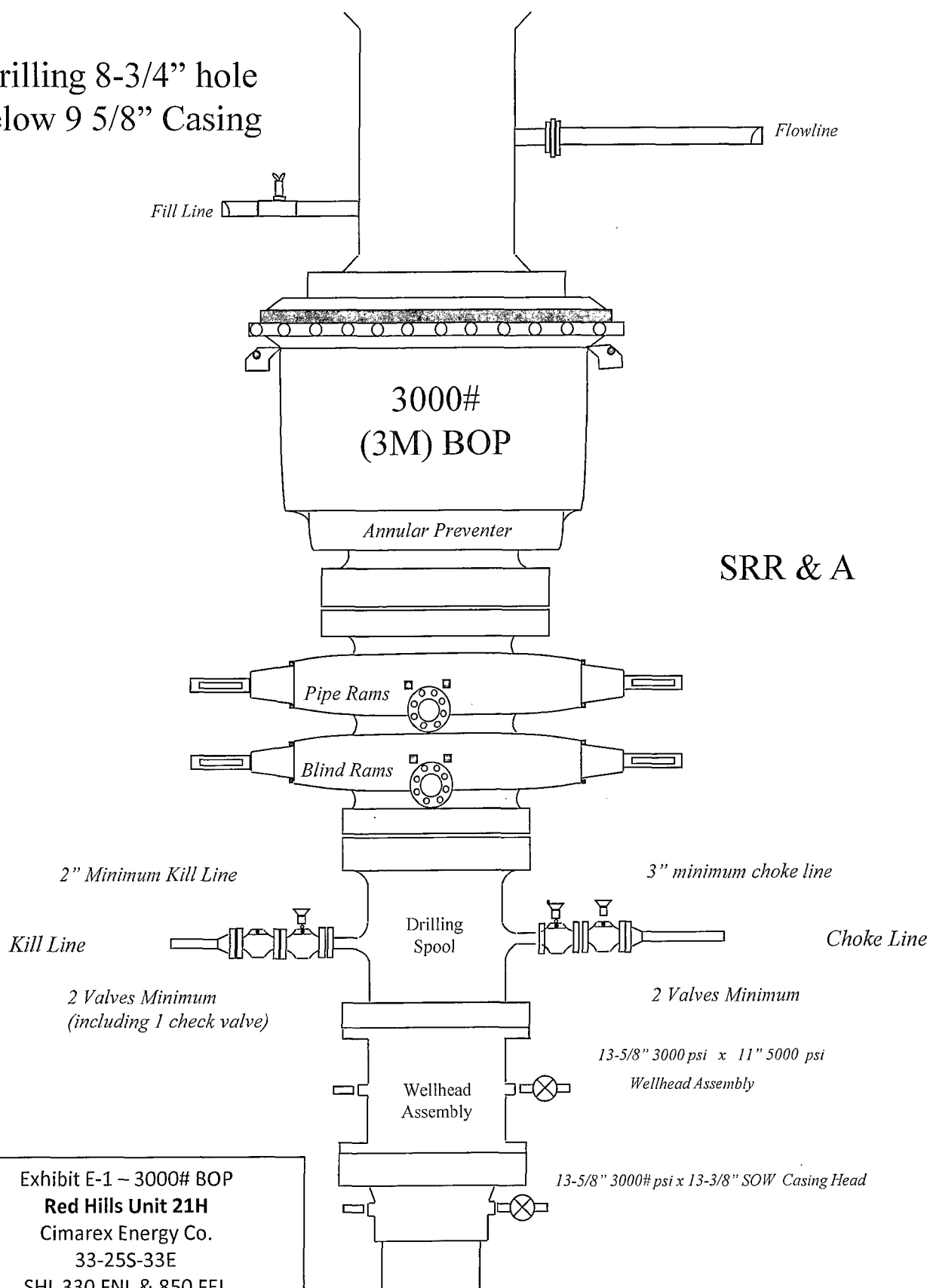
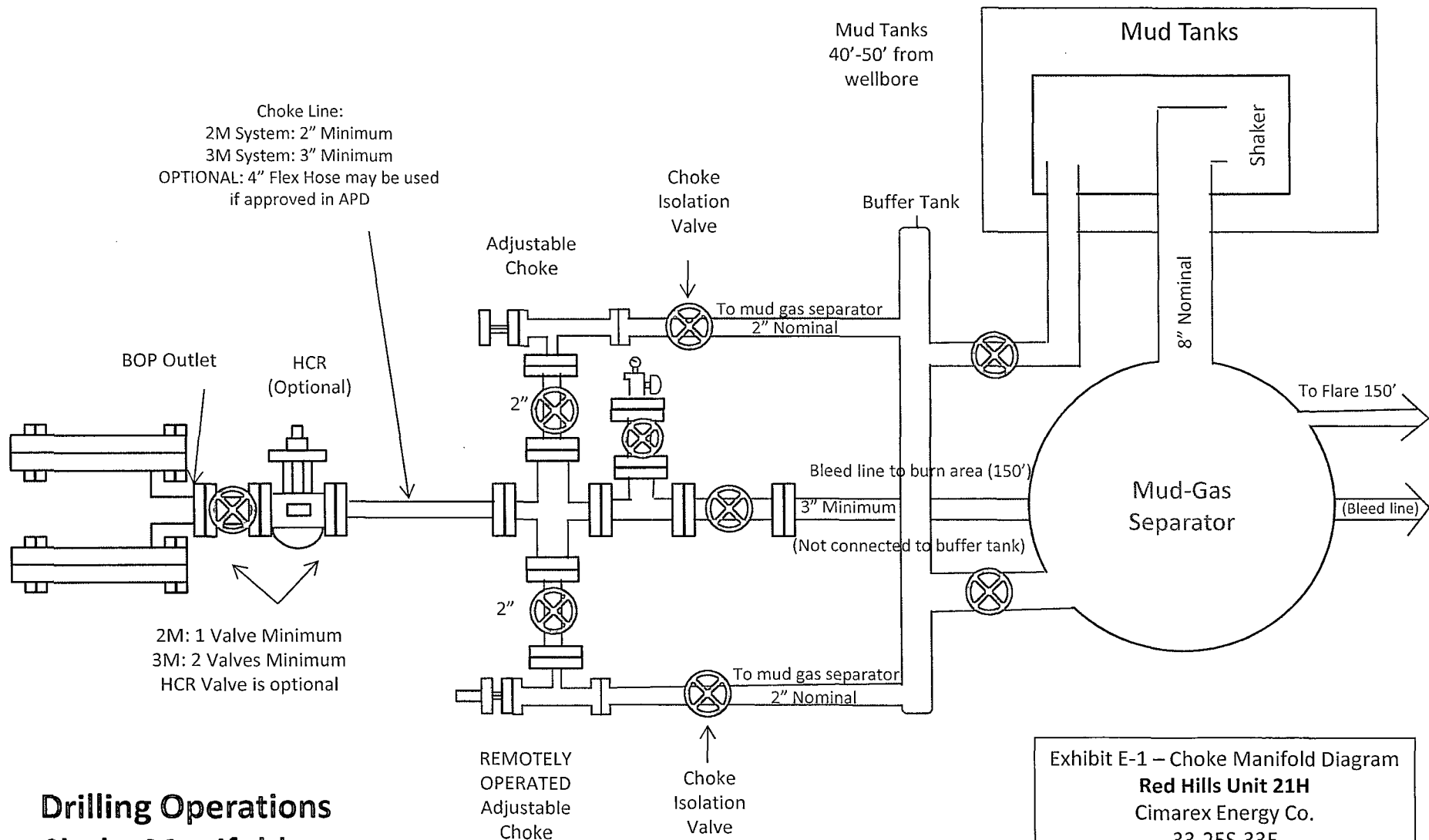


Exhibit E-1 – 3000# BOP
Red Hills Unit 21H
Cimarex Energy Co.
33-25S-33E
SHL 330 FNL & 850 FEL
BHL 330 FSL & 440 FEL
Lea County, NM



Drilling Operations Choke Manifold 2M/3M Service

Exhibit E-1 – Choke Manifold Diagram
Red Hills Unit 21H
 Cimarex Energy Co.
 33-25S-33E
 SHL 330 FNL & 850 FEL
 BHL 330 FSL & 440 FEL
 Lea County, NM

Exhibit F-1 — Co-Flex Hose Hydrostatic Test

Red Hills Unit 21H

Cimarex Energy Co.

33-25S-33E

SHL 330 FNL & 850 FEL

BHL 330 FSL & 440 FEL

Lea County, NM



Midwest Hose
& Specialty, Inc.

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. James Jones</i>	Approved: <i>Kevin Red</i>	



Midwest Hose
& Specialty, Inc.

Internal Hydrostatic Test Graph

Customer: Houston

Pick Ticket #: 94260

March 3, 2011

Hose Specifications

Hose Type
C & K
L.D.
4"

Length
45'
O.D.
6.09"

Working Pressure
10000 PSI

Burst Pressure
Standards Safety Multiplier Applies

Verification

Time of Filing
4/1/16 10K
Die Size
6.30"

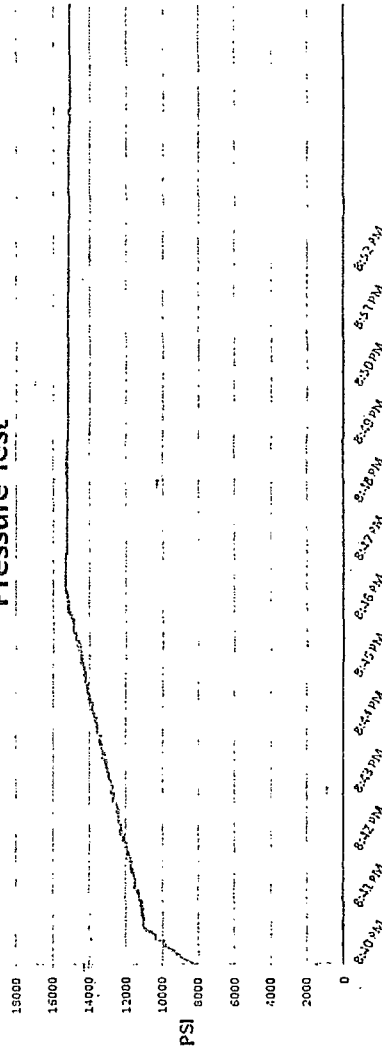
Counting Method
Swage
Final O.D.
6.25"

Hose Serial #
5944

Hose Assembly Serial #
79793

Exhibit F-1 – Co-Flex Hose Hydrostatic Test
Red Hills Unit 21H
Cimarex Energy Co.
33-25S-33E
SHL 330 FNL & 850 FEL
BHL 330 FSL & 440 FEL
Lea County, NM

Pressure Test



Test Pressure 15000 PSI
Time Held at Test Pressure 11 Minutes
Actual Burst Pressure 15483 PSI
Peak Pressure 15483 PSI

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

Tested By: Zac McConnell

Approved By: Kim Thomas

[Signature]

[Signature]

Exhibit F-2 - Co-Flex Hose
Red Hills Unit 21H
Cimarex Energy Co.
33-25S-33E
SHL 330 FNL & 850 FEL
BHL 330 FSL & 440 FEL
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:
<i>James Garcia</i>		3/8/2011



Midwest Hose
& Specialty, Inc.

Exhibit F -3- Co-Flex Hose

Red Hills Unit 21H

Cimarex Energy Co.

33-25S-33E

SHL 330 FNL & 850 FEL

BHL 330 FSL & 440 FEL

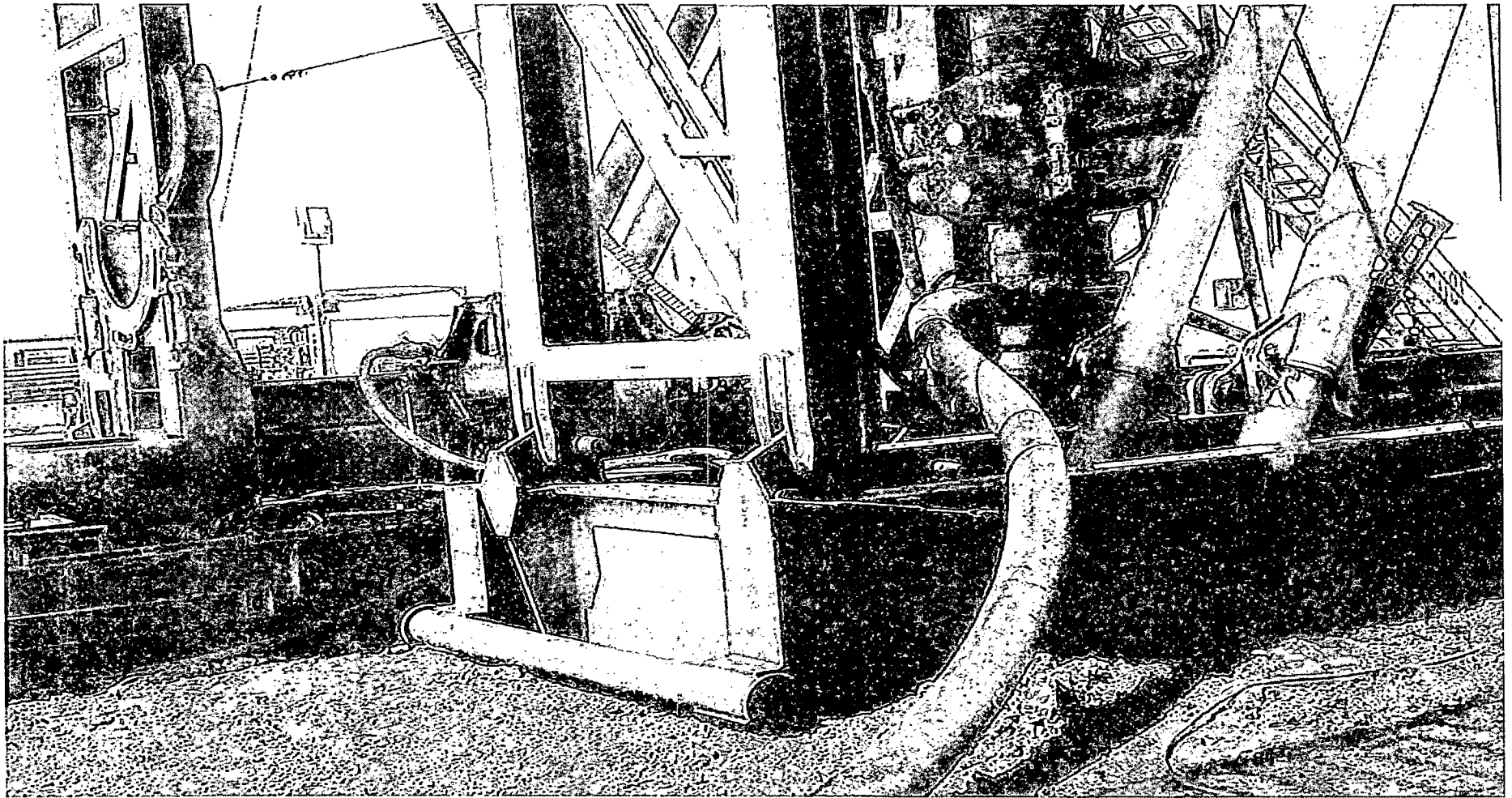
Lea County, NM

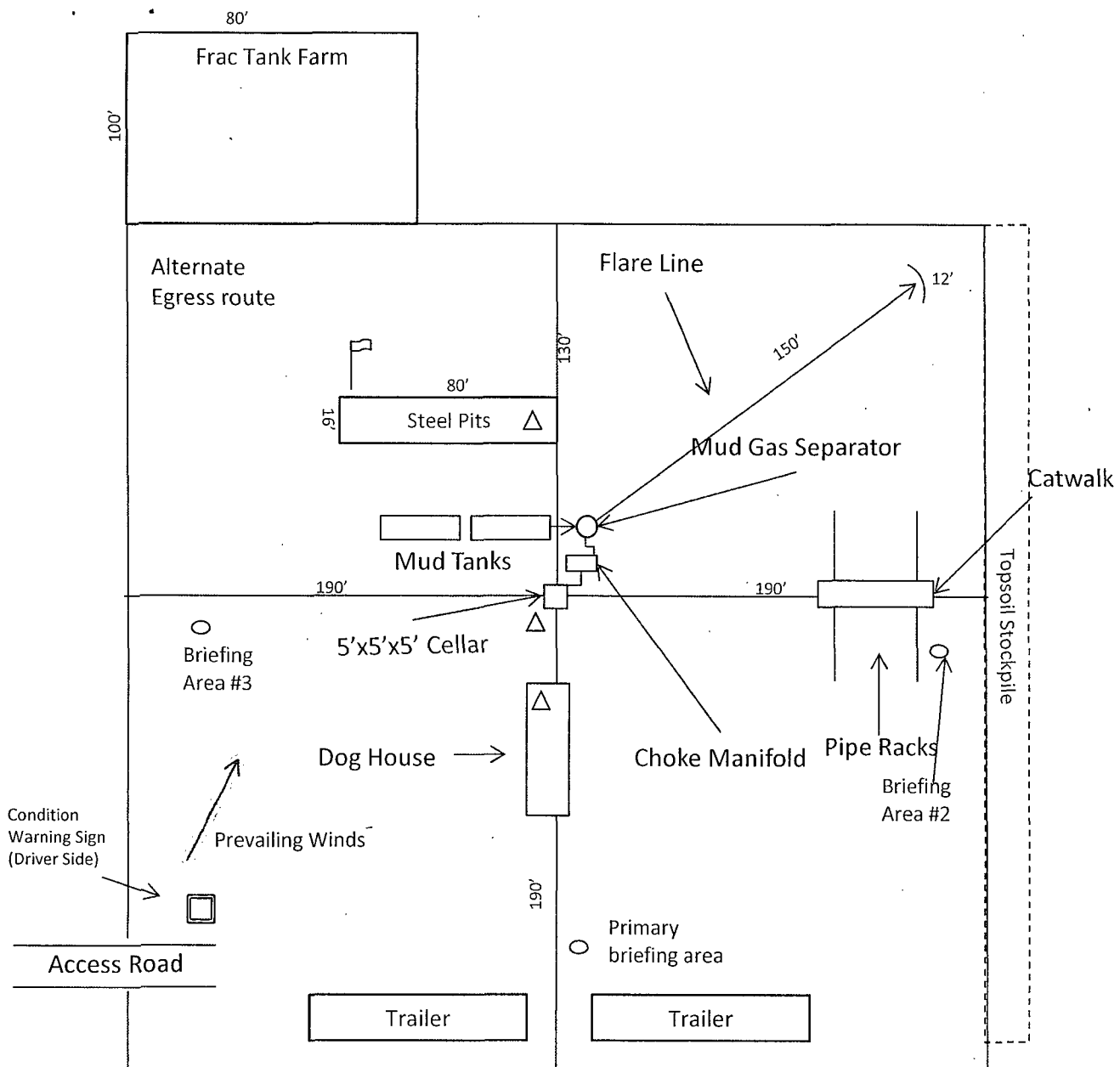
Specification Sheet Choke & Kill Hose

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)

Exhibit F – Co-Flex Hose
Red Hills Unit 21H
Cimarex Energy Co.
33-25S-33E
SHL 330 FNL & 850 FEL
BHL 330 FSL & 440 FEL
Lea County, NM





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

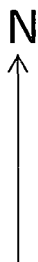


Exhibit D – Rig Diagram
Red Hills Unit 21H
 Cimarex Energy Co.
 33-25S-33E
 SHL 330 FNL & 850 FEL
 BHL 330 FSL & 440 FEL
 Lea County, NM