

OCD Hobbs

14-646

Form 3160-3
(March 2012)UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

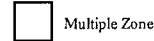
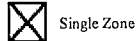
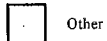
FORM APPROVED
OMB No. 1004-0137
Expires October 31, 20145. Lease Serial No.
SHL: Private; BHL: NM0160973; Other:
NM0106040A

6. If Indian, Allottee or Tribe Name

1a. Type of Work

☐ REENTER

1b. Type of Well



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

7. If Unit or CA Agreement, Name and No.

Red Hills Unit - NM071019X

8. Lease Name and Well No.

Red Hills Unit 24H

3005K5

9. API Well No.

30025 - 42329

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

At Surface

160 FNL & 1350 FWL

At proposed prod. Zone

330 FSL & 2200 FWL

Bone Spring

DEC 09 2014

10. Field and Pool, or Exploratory

Bone Spring Wildcat

9799K

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

5, 26S, 33E

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

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

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)

160'

16. No of acres in lease

Private=0.00 acres

NM0108040A=240.00 acres

NM0160973=1238.72 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.

20' from #23

19. Proposed Depth

Pilot Hole TD: N/A

14,684 MD

14,710

9,875 TVD

20. BLM/BIA Bond No. on File

NM2575; NMB000835

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

3379 GR

22. Approximate date work will start*

7/31/14

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:

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

Name (Printed/Typed)

Terri Statthem

Date

3/21/14

Title

Regulatory Compliance

Approved By (Signature)

Steve Caffey

Name (Printed/Typed)

CARLSBAD FIELD OFFICE

Date

DEC 2 2014

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.

(Continued on page 2)

*(Instructions on page 2)

Carlsbad Controlled Water Basin

Approval Subject to Terms & Special Stipulations Attached

SEE ATTACHED FOR
CONDITIONS OF APPROVAL
DEC 10 2014

Application to Drill
Red Hills Unit 24H
 Cimarex Energy Co.
 UL: C, Sec. 5, 26S, 33E
 LEA Co., NM

8A. Casing Design and Casing Loading Assumptions:

Surface	Tension	A 1.8 design factor with effects of buoyancy: 8.80 ppg.
	Collapse	A 1.125 design factor with full internal evacuation and a collapse force equal to a 8.80 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: 10.10 ppg.
	Collapse	A 1.125 design factor evacuated 1/3 TVD of next casing string with a collapse force equal to a 10.10 ppg mud gradient. During the running of the casing, the operator will stop and fill the casing as need to ensure it does not collapse.
	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 Completion System	Tension	A 1.8 design factor with effects of buoyancy: 9.20 ppg.
	Collapse	A 1.125 design factor with full internal evacuation of next casing string with a collapse force equal to a 9.20 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	498	1.75	13.50	871	Class C + Bentonite + Calcium Chloride + LCM, 8.829 gps water
	Tail	136	1.34	14.80	181	Class C + LCM, 6.320 gps water
	TOC: 0		45% Excess			Centralizers per Onshore Order 2.III.B.1f
Intermediate	Lead	897	1.88	12.90	1686	35:65 (Poz:C) + Salt + Bentonite + LCM + Retarder, 9.650 gps water
	Tail	288	1.34	14.80	385	Class C + Retarder + LCM, 6.320 gps water
	TOC: 0		44% Excess			
Production	Lead	540	2.33	11.90	1257	35:65(Poz:H) + Salt + Bentonite + Retarder + Dispersant + Antisettling Agent, 13.400 gps water
	Tail	1271	1.30	14.50	1652	50:50 (Poz:H) + Salt + Bentonite + Fluid Loss + Dispersant + Expanding Agent + Retarder + Antifoam, 5.790 gps water
	TOC: 4720		16% 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: No Pilot KOP: 9,239' EOC: 10,374'

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

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.

Application to Drill
Red Hills Unit 24H
Cimarex Energy Co.
UL: C, Sec. 5, 26S, 33E
LEA Co., NM

11. Proposed Mud Circulating System:

Depth	Mud Weight	Visc	Fluid Loss	Type Mud
0' to 1045'	8.30 - 8.80	28	NC	FW Spud Mud
1045' to 4920'	9.60 - 10.10	30-32	NC	Brine Water
4920' to 14684'	8.70 - 9.20	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: 4444 psi

Estimated BHT: 159°

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.

L. Avalon pay will be perforated and stimulated.

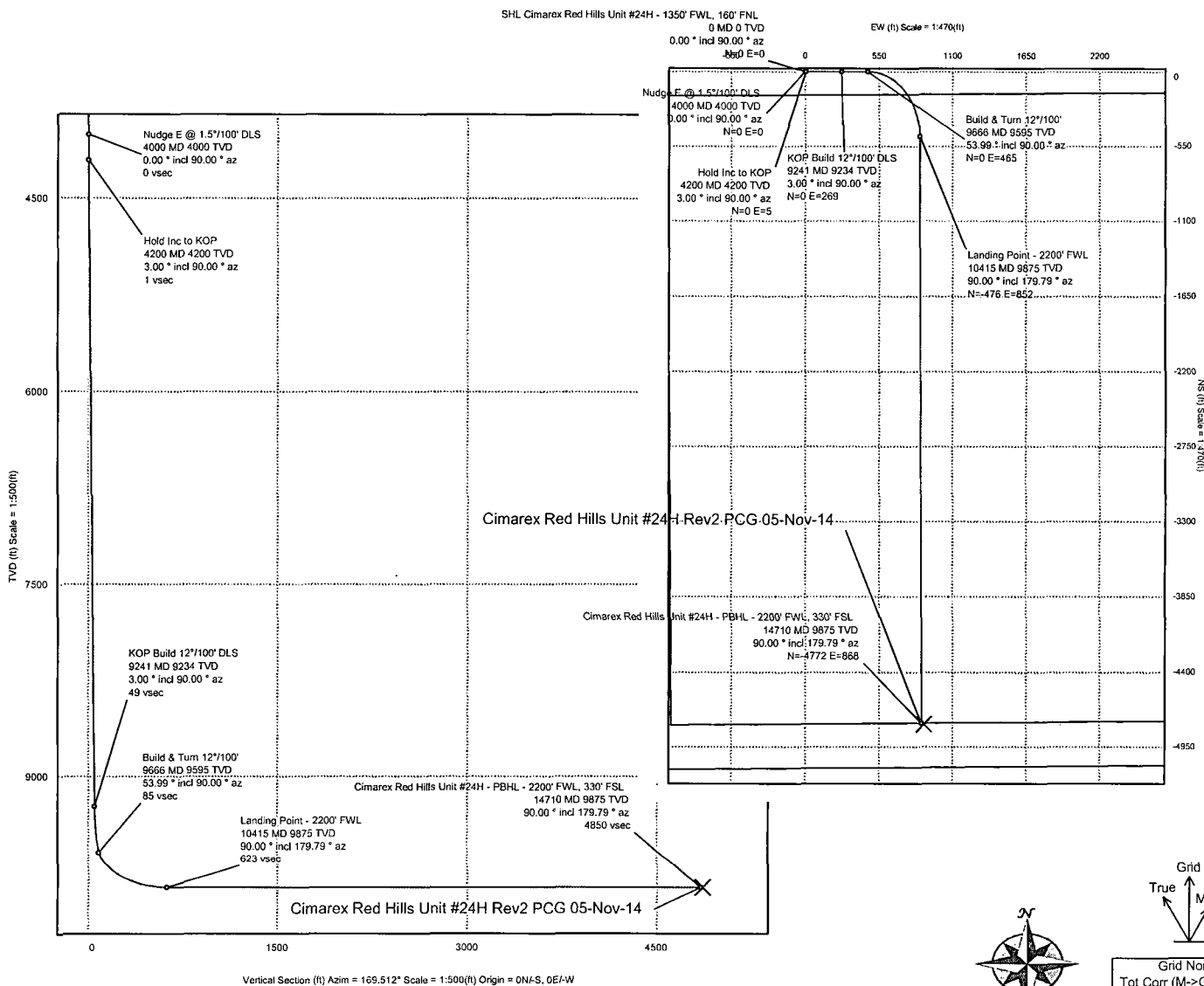
The proposed well will be tested and potential as **Oil**



Cimarex



Borehole: Original Borehole	Well: Red Hills Unit #24H	Field: NM Lea County	Structure: TBD
Gravity & Magnetic Parameters Model: BGGM 2014 Dip: 59.959° Date: 11-Sep-2014 MagDec: 7.349° FS: 48162.964nT Gravity FS: 998.685mgm (9.80665 Based)		Surface Location NAD83 New Mexico State Plane, Eastern Zone, US Feet Lat: N 32 4 45.70 Northing: 393383.4ftUS Grid Conv: 0.3903° Lon: W 103 35 54.60 Easting: 768933.6ftUS Scale Fact: 0.99996842	
		Miscellaneous Red Hills Unit #24H TVD Ref: Ground Level(3379ft above MSL) Plan: Rev2 PCG 05-Nov-14	



Critical Points								
Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)/S(-)	E(+)/W(-)	DLS
SHL Cimarex Red Hills Unit #24H - 1350' FWL, 160' FNL	0.00	0.00	90.00	0.00	0.00	0.00	0.00	
Nudge E @ 1.5°/100' DLS	4000.00	0.00	90.00	4000.00	0.00	0.00	0.00	0.00
Hold Inc to KOP	4200.00	3.00	90.00	4199.91	0.95	0.00	5.23	1.50
9 5/8 Casing Point	4850.98	3.00	90.00	4850.00	7.15	0.00	39.30	0.00
KOP Build 12°/100' DLS	9240.80	3.00	90.00	9233.80	48.98	0.00	269.05	0.00
Build & Turn 12°/100'	9665.72	53.99	90.00	9595.04	84.67	0.00	465.15	12.00
Avalon Shale	9812.60	55.96	111.43	9680.00	128.00	-22.41	582.12	12.00
Landing Point - 2200' FWL	10414.51	90.00	179.79	9875.00	623.33	-476.18	852.08	12.00
Cimarex Red Hills Unit #24H - PBHL - 2200' FWL, 330' FSL	14709.86	90.00	179.79	9875.00	4849.78	-4771.50	868.00	0.00

D E C		CONTROLLED	
Plan ref	Cimarex Red Hills Unit #24H Rev2 PCG 05-Nov-14		
Drawing ref			
Copy number	1 of 1		
Date	05-Nov-2014		
1	Originator	Craig Geaslen	
2	DE Sign Off Authority		
3	D&M Line Manager		
4	Client		
Copy number		for	



Cimarex Red Hills Unit #24H Rev2 PCG 05-Nov-14 Proposal Geodetic Report

(Non-Def Plan)

Report Date: November 05, 2014 - 10:34 AM
Client: Cimarex
Field: NM Lea County (NAD 83)
Structure / Slot: Cimarex Red Hills Unit #24H / Red Hills Unit #24H
Well: Red Hills Unit #24H
Borehole: Original Borehole
UWI / API#: Unknown / Unknown
Survey Name: Cimarex Red Hills Unit #24H Rev2 PCG 05-Nov-14
Survey Date: January 08, 2014
Tort / AHD / DDI / ERD Ratio: 143.825 ° / 5439.774 ft / 6.066 / 0.551
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 4' 45.69503", W 103° 35' 54.59751"
Location Grid N/E Y/X: N 393383.400 ftUS, E 768933.600 ftUS
CRS Grid Convergence Angle: 0.3903 °
Grid Scale Factor: 0.99996842
Version / Patch: 2.7.1043.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 169.512 ° (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: Ground Level
TVD Reference Elevation: 3379.000 ft above MSL
Seabed / Ground Elevation: 3379.000 ft above MSL
Magnetic Declination: 7.098 °
Total Gravity Field Strength: 998.6855mgn (9.80665 Based)
Gravity Model: DOX
Total Magnetic Field Strength: 48207.592 nT
Magnetic Dip Angle: 59.832 °
Declination Date: November 05, 2014
Magnetic Declination Model: HDGM 2014
North Reference: Grid North
Grid Convergence Used: 0.3903 °
Total Corr Mag North->Grid North: 6.7079 °
Local Coord Referenced To: Structure Reference Point

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
SHL Cimarex Red Hills Unit #24H - 1350' FWL, 160' FNL Nudge E @ 1.5"/100' DLS	0.00	0.00	90.00	0.00	0.00	0.00	0.00	N/A	393383.40	768933.60	N 32 4 45.70	W 103 35 54.60
Hold Inc to KOP	4200.00	3.00	90.00	4199.91	0.95	0.00	5.23	1.50	393383.40	768938.83	N 32 4 45.69	W 103 35 54.54
9 5/8 Casing Point	4850.98	3.00	90.00	4850.00	7.15	0.00	39.30	0.00	393383.40	768972.90	N 32 4 45.69	W 103 35 54.14
KOP Build 12"/100' DLS	9240.80	3.00	90.00	9233.80	48.98	0.00	269.05	0.00	393383.40	769202.64	N 32 4 45.68	W 103 35 51.47
Build & Turn 12"/100'	9665.72	53.99	90.00	9595.04	84.67	0.00	465.15	12.00	393383.40	769398.73	N 32 4 45.66	W 103 35 49.19
Avalon Shale	9812.60	55.96	111.43	9680.00	128.00	-22.41	582.12	12.00	393360.99	769515.70	N 32 4 45.43	W 103 35 47.83
Landing Point - 2200' FWL	10414.51	90.00	179.79	9875.00	623.33	-476.18	852.08	12.00	392907.24	769785.65	N 32 4 40.93	W 103 35 44.73
Cimarex Red Hills Unit #24H - PBHL - 2200' FWL, 330' FSL	14709.86	90.00	179.79	9875.00	4849.78	-4771.50	868.00	0.00	388612.06	769801.57	N 32 3 58.42	W 103 35 44.89

Survey Type: Non-Def Plan

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
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Survey Error Model: ISCWSA Rev 0 *** 3-D 95.000% Confidence 2.7955 sigma
Survey Program:

Description	Part	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Survey Tool Type	Borehole / Survey
	1	0.000	14709.857	1/100.000	30.000	30.000	SLB_MWD-POOR	Original Borehole / Cimarex Red Hills Unit #24H Rev2 PCG 05-Nov-



Cimarex Red Hills Unit #24H Rev2 PCG 05-Nov-14 Proposal Geodetic Report - 100ft Interpolated (Non-Def Plan)



Report Date: November 05, 2014 - 03:37 PM
Client: Cimarex
Field: NM Lea County (NAD 83)
Structure / Slot: Cimarex Red Hills Unit #24H / Red Hills Unit #24H
Well: Red Hills Unit #24H
Borehole: Original Borehole
UWI / API#: Unknown / Unknown
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Grid Scale Factor: 0.99996842
Version / Patch: 2.7.1043.0

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Vertical Section Origin: 0.000 ft, 0.000 ft
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SHL Cimarex Red Hills Unit #24H - 1350' FWL, 160' FNL	0.00	0.00	90.00	0.00	0.00	0.00	0.00	N/A	393383.40	768933.60	N 32 4 45.70	W 103 35 54.60
	100.00	0.00	90.00	100.00	0.00	0.00	0.00	0.00	393383.40	768933.60	N 32 4 45.70	W 103 35 54.60
	200.00	0.00	90.00	200.00	0.00	0.00	0.00	0.00	393383.40	768933.60	N 32 4 45.70	W 103 35 54.60
	300.00	0.00	90.00	300.00	0.00	0.00	0.00	0.00	393383.40	768933.60	N 32 4 45.70	W 103 35 54.60
	400.00	0.00	90.00	400.00	0.00	0.00	0.00	0.00	393383.40	768933.60	N 32 4 45.70	W 103 35 54.60
	500.00	0.00	90.00	500.00	0.00	0.00	0.00	0.00	393383.40	768933.60	N 32 4 45.70	W 103 35 54.60
	600.00	0.00	90.00	600.00	0.00	0.00	0.00	0.00	393383.40	768933.60	N 32 4 45.70	W 103 35 54.60
	700.00	0.00	90.00	700.00	0.00	0.00	0.00	0.00	393383.40	768933.60	N 32 4 45.70	W 103 35 54.60
	800.00	0.00	90.00	800.00	0.00	0.00	0.00	0.00	393383.40	768933.60	N 32 4 45.70	W 103 35 54.60
	900.00	0.00	90.00	900.00	0.00	0.00	0.00	0.00	393383.40	768933.60	N 32 4 45.70	W 103 35 54.60
	1000.00	0.00	90.00	1000.00	0.00	0.00	0.00	0.00	393383.40	768933.60	N 32 4 45.70	W 103 35 54.60
	1100.00	0.00	90.00	1100.00	0.00	0.00	0.00	0.00	393383.40	768933.60	N 32 4 45.70	W 103 35 54.60
	1200.00	0.00	90.00	1200.00	0.00	0.00	0.00	0.00	393383.40	768933.60	N 32 4 45.70	W 103 35 54.60
	1300.00	0.00	90.00	1300.00	0.00	0.00	0.00	0.00	393383.40	768933.60	N 32 4 45.70	W 103 35 54.60
	1400.00	0.00	90.00	1400.00	0.00	0.00	0.00	0.00	393383.40	768933.60	N 32 4 45.70	W 103 35 54.60
	1500.00	0.00	90.00	1500.00	0.00	0.00	0.00	0.00	393383.40	768933.60	N 32 4 45.70	W 103 35 54.60
	1600.00	0.00	90.00	1600.00	0.00	0.00	0.00	0.00	393383.40	768933.60	N 32 4 45.70	W 103 35 54.60
	1700.00	0.00	90.00	1700.00	0.00	0.00	0.00	0.00	393383.40	768933.60	N 32 4 45.70	W 103 35 54.60
	1800.00	0.00	90.00	1800.00	0.00	0.00	0.00	0.00	393383.40	768933.60	N 32 4 45.70	W 103 35 54.60
	1900.00	0.00	90.00	1900.00	0.00	0.00	0.00	0.00	393383.40	768933.60	N 32 4 45.70	W 103 35 54.60

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)		Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	2000.00	0.00	90.00	2000.00	0.00	0.00	0.00	0.00	393383.40	768933.60	N 32	4 45.70	W 103 35 54.60
	2100.00	0.00	90.00	2100.00	0.00	0.00	0.00	0.00	393383.40	768933.60	N 32	4 45.70	W 103 35 54.60
	2200.00	0.00	90.00	2200.00	0.00	0.00	0.00	0.00	393383.40	768933.60	N 32	4 45.70	W 103 35 54.60
	2300.00	0.00	90.00	2300.00	0.00	0.00	0.00	0.00	393383.40	768933.60	N 32	4 45.70	W 103 35 54.60
	2400.00	0.00	90.00	2400.00	0.00	0.00	0.00	0.00	393383.40	768933.60	N 32	4 45.70	W 103 35 54.60
	2500.00	0.00	90.00	2500.00	0.00	0.00	0.00	0.00	393383.40	768933.60	N 32	4 45.70	W 103 35 54.60
	2600.00	0.00	90.00	2600.00	0.00	0.00	0.00	0.00	393383.40	768933.60	N 32	4 45.70	W 103 35 54.60
	2700.00	0.00	90.00	2700.00	0.00	0.00	0.00	0.00	393383.40	768933.60	N 32	4 45.70	W 103 35 54.60
	2800.00	0.00	90.00	2800.00	0.00	0.00	0.00	0.00	393383.40	768933.60	N 32	4 45.70	W 103 35 54.60
	2900.00	0.00	90.00	2900.00	0.00	0.00	0.00	0.00	393383.40	768933.60	N 32	4 45.70	W 103 35 54.60
	3000.00	0.00	90.00	3000.00	0.00	0.00	0.00	0.00	393383.40	768933.60	N 32	4 45.70	W 103 35 54.60
	3100.00	0.00	90.00	3100.00	0.00	0.00	0.00	0.00	393383.40	768933.60	N 32	4 45.70	W 103 35 54.60
	3200.00	0.00	90.00	3200.00	0.00	0.00	0.00	0.00	393383.40	768933.60	N 32	4 45.70	W 103 35 54.60
	3300.00	0.00	90.00	3300.00	0.00	0.00	0.00	0.00	393383.40	768933.60	N 32	4 45.70	W 103 35 54.60
	3400.00	0.00	90.00	3400.00	0.00	0.00	0.00	0.00	393383.40	768933.60	N 32	4 45.70	W 103 35 54.60
	3500.00	0.00	90.00	3500.00	0.00	0.00	0.00	0.00	393383.40	768933.60	N 32	4 45.70	W 103 35 54.60
	3600.00	0.00	90.00	3600.00	0.00	0.00	0.00	0.00	393383.40	768933.60	N 32	4 45.70	W 103 35 54.60
	3700.00	0.00	90.00	3700.00	0.00	0.00	0.00	0.00	393383.40	768933.60	N 32	4 45.70	W 103 35 54.60
	3800.00	0.00	90.00	3800.00	0.00	0.00	0.00	0.00	393383.40	768933.60	N 32	4 45.70	W 103 35 54.60
	3900.00	0.00	90.00	3900.00	0.00	0.00	0.00	0.00	393383.40	768933.60	N 32	4 45.70	W 103 35 54.60
Nudge E @ 1.5°/100' DLS	4000.00	0.00	90.00	4000.00	0.00	0.00	0.00	0.00	393383.40	768933.60	N 32	4 45.70	W 103 35 54.60
	4100.00	1.50	90.00	4099.99	0.24	0.00	1.31	1.50	393383.40	768934.91	N 32	4 45.69	W 103 35 54.58
Hold Inc to KOP	4200.00	3.00	90.00	4199.91	0.95	0.00	5.23	1.50	393383.40	768938.83	N 32	4 45.69	W 103 35 54.54
	4300.00	3.00	90.00	4299.77	1.91	0.00	10.47	0.00	393383.40	768944.07	N 32	4 45.69	W 103 35 54.48
	4400.00	3.00	90.00	4399.63	2.86	0.00	15.70	0.00	393383.40	768949.30	N 32	4 45.69	W 103 35 54.42
	4500.00	3.00	90.00	4499.50	3.81	0.00	20.94	0.00	393383.40	768954.53	N 32	4 45.69	W 103 35 54.35
	4600.00	3.00	90.00	4599.36	4.76	0.00	26.17	0.00	393383.40	768959.77	N 32	4 45.69	W 103 35 54.29
	4700.00	3.00	90.00	4699.22	5.72	0.00	31.40	0.00	393383.40	768965.00	N 32	4 45.69	W 103 35 54.23
	4800.00	3.00	90.00	4799.09	6.67	0.00	36.64	0.00	393383.40	768970.24	N 32	4 45.69	W 103 35 54.17
9 5/8 Casing Point	4850.98	3.00	90.00	4850.00	7.15	0.00	39.30	0.00	393383.40	768972.90	N 32	4 45.69	W 103 35 54.14
	4900.00	3.00	90.00	4898.95	7.62	0.00	41.87	0.00	393383.40	768975.47	N 32	4 45.69	W 103 35 54.11
	5000.00	3.00	90.00	4998.81	8.57	0.00	47.10	0.00	393383.40	768980.70	N 32	4 45.69	W 103 35 54.05
	5100.00	3.00	90.00	5098.68	9.53	0.00	52.34	0.00	393383.40	768985.94	N 32	4 45.69	W 103 35 53.99
	5200.00	3.00	90.00	5198.54	10.48	0.00	57.57	0.00	393383.40	768991.17	N 32	4 45.69	W 103 35 53.93
	5300.00	3.00	90.00	5298.40	11.43	0.00	62.80	0.00	393383.40	768996.40	N 32	4 45.69	W 103 35 53.87
	5400.00	3.00	90.00	5398.26	12.39	0.00	68.04	0.00	393383.40	769001.64	N 32	4 45.69	W 103 35 53.81
	5500.00	3.00	90.00	5498.13	13.34	0.00	73.27	0.00	393383.40	769006.87	N 32	4 45.69	W 103 35 53.75
	5600.00	3.00	90.00	5597.99	14.29	0.00	78.51	0.00	393383.40	769012.10	N 32	4 45.69	W 103 35 53.69
	5700.00	3.00	90.00	5697.85	15.24	0.00	83.74	0.00	393383.40	769017.34	N 32	4 45.69	W 103 35 53.62
	5800.00	3.00	90.00	5797.72	16.20	0.00	88.97	0.00	393383.40	769022.57	N 32	4 45.69	W 103 35 53.56
	5900.00	3.00	90.00	5897.58	17.15	0.00	94.21	0.00	393383.40	769027.80	N 32	4 45.69	W 103 35 53.50
	6000.00	3.00	90.00	5997.44	18.10	0.00	99.44	0.00	393383.40	769033.04	N 32	4 45.69	W 103 35 53.44
	6100.00	3.00	90.00	6097.30	19.05	0.00	104.67	0.00	393383.40	769038.27	N 32	4 45.69	W 103 35 53.38
	6200.00	3.00	90.00	6197.17	20.01	0.00	109.91	0.00	393383.40	769043.50	N 32	4 45.69	W 103 35 53.32
	6300.00	3.00	90.00	6297.03	20.96	0.00	115.14	0.00	393383.40	769048.74	N 32	4 45.69	W 103 35 53.26

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	6400.00	3.00	90.00	6396.89	21.91	0.00	120.37	0.00	393383.40	769053.97	N 32 4 45.69	W 103 35 53.20
	6500.00	3.00	90.00	6496.76	22.87	0.00	125.61	0.00	393383.40	769059.20	N 32 4 45.69	W 103 35 53.14
	6600.00	3.00	90.00	6596.62	23.82	0.00	130.84	0.00	393383.40	769064.44	N 32 4 45.69	W 103 35 53.08
	6700.00	3.00	90.00	6696.48	24.77	0.00	136.07	0.00	393383.40	769069.67	N 32 4 45.69	W 103 35 53.02
	6800.00	3.00	90.00	6796.35	25.72	0.00	141.31	0.00	393383.40	769074.90	N 32 4 45.69	W 103 35 52.96
	6900.00	3.00	90.00	6896.21	26.68	0.00	146.54	0.00	393383.40	769080.14	N 32 4 45.69	W 103 35 52.89
	7000.00	3.00	90.00	6996.07	27.63	0.00	151.78	0.00	393383.40	769085.37	N 32 4 45.68	W 103 35 52.83
	7100.00	3.00	90.00	7095.93	28.58	0.00	157.01	0.00	393383.40	769090.60	N 32 4 45.68	W 103 35 52.77
	7200.00	3.00	90.00	7195.80	29.53	0.00	162.24	0.00	393383.40	769095.84	N 32 4 45.68	W 103 35 52.71
	7300.00	3.00	90.00	7295.66	30.49	0.00	167.48	0.00	393383.40	769101.07	N 32 4 45.68	W 103 35 52.65
	7400.00	3.00	90.00	7395.52	31.44	0.00	172.71	0.00	393383.40	769106.30	N 32 4 45.68	W 103 35 52.59
	7500.00	3.00	90.00	7495.39	32.39	0.00	177.94	0.00	393383.40	769111.54	N 32 4 45.68	W 103 35 52.53
	7600.00	3.00	90.00	7595.25	33.35	0.00	183.18	0.00	393383.40	769116.77	N 32 4 45.68	W 103 35 52.47
	7700.00	3.00	90.00	7695.11	34.30	0.00	188.41	0.00	393383.40	769122.00	N 32 4 45.68	W 103 35 52.41
	7800.00	3.00	90.00	7794.97	35.25	0.00	193.64	0.00	393383.40	769127.24	N 32 4 45.68	W 103 35 52.35
	7900.00	3.00	90.00	7894.84	36.20	0.00	198.88	0.00	393383.40	769132.47	N 32 4 45.68	W 103 35 52.29
	8000.00	3.00	90.00	7994.70	37.16	0.00	204.11	0.00	393383.40	769137.70	N 32 4 45.68	W 103 35 52.23
	8100.00	3.00	90.00	8094.56	38.11	0.00	209.35	0.00	393383.40	769142.94	N 32 4 45.68	W 103 35 52.16
	8200.00	3.00	90.00	8194.43	39.06	0.00	214.58	0.00	393383.40	769148.17	N 32 4 45.68	W 103 35 52.10
	8300.00	3.00	90.00	8294.29	40.01	0.00	219.81	0.00	393383.40	769153.40	N 32 4 45.68	W 103 35 52.04
	8400.00	3.00	90.00	8394.15	40.97	0.00	225.05	0.00	393383.40	769158.64	N 32 4 45.68	W 103 35 51.98
	8500.00	3.00	90.00	8494.02	41.92	0.00	230.28	0.00	393383.40	769163.87	N 32 4 45.68	W 103 35 51.92
	8600.00	3.00	90.00	8593.88	42.87	0.00	235.51	0.00	393383.40	769169.11	N 32 4 45.68	W 103 35 51.86
	8700.00	3.00	90.00	8693.74	43.82	0.00	240.75	0.00	393383.40	769174.34	N 32 4 45.68	W 103 35 51.80
	8800.00	3.00	90.00	8793.60	44.78	0.00	245.98	0.00	393383.40	769179.57	N 32 4 45.68	W 103 35 51.74
	8900.00	3.00	90.00	8893.47	45.73	0.00	251.21	0.00	393383.40	769184.81	N 32 4 45.68	W 103 35 51.68
	9000.00	3.00	90.00	8993.33	46.68	0.00	256.45	0.00	393383.40	769190.04	N 32 4 45.68	W 103 35 51.62
	9100.00	3.00	90.00	9093.19	47.64	0.00	261.68	0.00	393383.40	769195.27	N 32 4 45.68	W 103 35 51.56
	9200.00	3.00	90.00	9193.06	48.59	0.00	266.91	0.00	393383.40	769200.51	N 32 4 45.68	W 103 35 51.50
KOP Build 12°/100' DLS	9240.80	3.00	90.00	9233.80	48.98	0.00	269.05	0.00	393383.40	769202.64	N 32 4 45.68	W 103 35 51.47
	9300.00	10.10	90.00	9292.58	50.21	0.00	275.80	12.00	393383.40	769209.39	N 32 4 45.68	W 103 35 51.39
	9400.00	22.10	90.00	9388.48	55.25	0.00	303.49	12.00	393383.40	769237.08	N 32 4 45.67	W 103 35 51.07
	9500.00	34.10	90.00	9476.52	63.81	0.00	350.51	12.00	393383.40	769284.10	N 32 4 45.67	W 103 35 50.52
	9600.00	46.10	90.00	9552.87	75.51	0.00	414.81	12.00	393383.40	769348.40	N 32 4 45.67	W 103 35 49.78
Build & Turn 12°/100'	9665.72	53.99	90.00	9595.04	84.67	0.00	465.15	12.00	393383.40	769398.73	N 32 4 45.66	W 103 35 49.19
	9700.00	54.11	95.08	9615.18	90.93	-1.23	492.86	12.00	393382.17	769426.44	N 32 4 45.65	W 103 35 48.87
	9800.00	55.64	109.64	9672.92	122.63	-18.75	572.37	12.00	393364.65	769505.95	N 32 4 45.47	W 103 35 47.95
Avalon Shale	9812.60	55.96	111.43	9680.00	128.00	-22.41	582.12	12.00	393360.99	769515.70	N 32 4 45.43	W 103 35 47.83
	9900.00	58.82	123.41	9727.22	173.20	-56.32	647.22	12.00	393327.08	769580.80	N 32 4 45.09	W 103 35 47.08
	10000.00	63.35	136.12	9775.72	240.41	-112.29	714.15	12.00	393271.12	769647.73	N 32 4 44.54	W 103 35 46.31
	10100.00	68.91	147.75	9816.29	321.35	-184.21	770.23	12.00	393199.19	769703.80	N 32 4 43.82	W 103 35 45.66
	10200.00	75.21	158.49	9847.15	412.46	-268.95	813.01	12.00	393114.46	769746.58	N 32 4 42.98	W 103 35 45.17
	10300.00	81.97	168.60	9866.97	509.77	-362.81	840.62	12.00	393020.60	769774.19	N 32 4 42.05	W 103 35 44.86
	10400.00	88.98	178.38	9874.87	609.03	-461.68	851.85	12.00	392921.74	769785.42	N 32 4 41.07	W 103 35 44.73
Landing Point - 2200' FWL	10414.51	90.00	179.79	9875.00	623.33	-476.18	852.08	12.00	392907.24	769785.65	N 32 4 40.93	W 103 35 44.73

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	10500.00	90.00	179.79	9875.00	707.46	-561.67	852.40	0.00	392821.75	769785.97	N 32 4 40.08	W 103 35 44.74
	10600.00	90.00	179.79	9875.00	805.85	-661.67	852.76	0.00	392721.75	769786.33	N 32 4 39.09	W 103 35 44.74
	10700.00	90.00	179.79	9875.00	904.25	-761.67	853.13	0.00	392621.76	769786.70	N 32 4 38.10	W 103 35 44.74
	10800.00	90.00	179.79	9875.00	1002.64	-861.67	853.50	0.00	392521.76	769787.07	N 32 4 37.11	W 103 35 44.75
	10900.00	90.00	179.79	9875.00	1101.04	-961.67	853.86	0.00	392421.76	769787.44	N 32 4 36.12	W 103 35 44.75
	11000.00	90.00	179.79	9875.00	1199.43	-1061.67	854.23	0.00	392321.77	769787.80	N 32 4 35.13	W 103 35 44.75
	11100.00	90.00	179.79	9875.00	1297.83	-1161.67	854.60	0.00	392221.77	769788.17	N 32 4 34.14	W 103 35 44.76
	11200.00	90.00	179.79	9875.00	1396.22	-1261.67	854.97	0.00	392121.78	769788.54	N 32 4 33.15	W 103 35 44.76
	11300.00	90.00	179.79	9875.00	1494.62	-1361.67	855.34	0.00	392021.78	769788.91	N 32 4 32.16	W 103 35 44.76
	11400.00	90.00	179.79	9875.00	1593.01	-1461.67	855.70	0.00	391921.78	769789.27	N 32 4 31.17	W 103 35 44.77
	11500.00	90.00	179.79	9875.00	1691.41	-1561.66	856.07	0.00	391821.79	769789.64	N 32 4 30.18	W 103 35 44.77
	11600.00	90.00	179.79	9875.00	1789.80	-1661.66	856.44	0.00	391721.79	769790.01	N 32 4 29.19	W 103 35 44.78
	11700.00	90.00	179.79	9875.00	1888.20	-1761.66	856.81	0.00	391621.80	769790.38	N 32 4 28.21	W 103 35 44.78
	11800.00	90.00	179.79	9875.00	1986.60	-1861.66	857.18	0.00	391521.80	769790.75	N 32 4 27.22	W 103 35 44.78
	11900.00	90.00	179.79	9875.00	2084.99	-1961.66	857.55	0.00	391421.80	769791.12	N 32 4 26.23	W 103 35 44.79
	12000.00	90.00	179.79	9875.00	2183.39	-2061.66	857.92	0.00	391321.81	769791.49	N 32 4 25.24	W 103 35 44.79
	12100.00	90.00	179.79	9875.00	2281.78	-2161.66	858.29	0.00	391221.81	769791.86	N 32 4 24.25	W 103 35 44.79
	12200.00	90.00	179.79	9875.00	2380.18	-2261.66	858.66	0.00	391121.82	769792.23	N 32 4 23.26	W 103 35 44.80
	12300.00	90.00	179.79	9875.00	2478.58	-2361.66	859.03	0.00	391021.82	769792.60	N 32 4 22.27	W 103 35 44.80
	12400.00	90.00	179.79	9875.00	2576.97	-2461.66	859.40	0.00	390921.82	769792.97	N 32 4 21.28	W 103 35 44.81
	12500.00	90.00	179.79	9875.00	2675.37	-2561.66	859.77	0.00	390821.83	769793.34	N 32 4 20.29	W 103 35 44.81
	12600.00	90.00	179.79	9875.00	2773.76	-2661.66	860.14	0.00	390721.83	769793.71	N 32 4 19.30	W 103 35 44.81
	12700.00	90.00	179.79	9875.00	2872.16	-2761.66	860.51	0.00	390621.84	769794.08	N 32 4 18.31	W 103 35 44.82
	12800.00	90.00	179.79	9875.00	2970.55	-2861.66	860.88	0.00	390521.84	769794.45	N 32 4 17.32	W 103 35 44.82
	12900.00	90.00	179.79	9875.00	3068.95	-2961.66	861.25	0.00	390421.84	769794.82	N 32 4 16.33	W 103 35 44.82
	13000.00	90.00	179.79	9875.00	3167.35	-3061.65	861.62	0.00	390321.85	769795.19	N 32 4 15.34	W 103 35 44.83
	13100.00	90.00	179.79	9875.00	3265.74	-3161.65	861.99	0.00	390221.85	769795.56	N 32 4 14.35	W 103 35 44.83
	13200.00	90.00	179.79	9875.00	3364.14	-3261.65	862.37	0.00	390121.86	769795.94	N 32 4 13.36	W 103 35 44.83
	13300.00	90.00	179.79	9875.00	3462.54	-3361.65	862.74	0.00	390021.86	769796.31	N 32 4 12.37	W 103 35 44.84
	13400.00	90.00	179.79	9875.00	3560.93	-3461.65	863.11	0.00	389921.86	769796.68	N 32 4 11.38	W 103 35 44.84
	13500.00	90.00	179.79	9875.00	3659.33	-3561.65	863.48	0.00	389821.87	769797.05	N 32 4 10.39	W 103 35 44.85
	13600.00	90.00	179.79	9875.00	3757.72	-3661.65	863.85	0.00	389721.87	769797.42	N 32 4 9.40	W 103 35 44.85
	13700.00	90.00	179.79	9875.00	3856.12	-3761.65	864.23	0.00	389621.88	769797.80	N 32 4 8.41	W 103 35 44.85
	13800.00	90.00	179.79	9875.00	3954.52	-3861.65	864.60	0.00	389521.88	769798.17	N 32 4 7.43	W 103 35 44.86
	13900.00	90.00	179.79	9875.00	4052.91	-3961.65	864.97	0.00	389421.88	769798.54	N 32 4 6.44	W 103 35 44.86
	14000.00	90.00	179.79	9875.00	4151.31	-4061.65	865.35	0.00	389321.89	769798.92	N 32 4 5.45	W 103 35 44.86
	14100.00	90.00	179.79	9875.00	4249.71	-4161.65	865.72	0.00	389221.89	769799.29	N 32 4 4.46	W 103 35 44.87
	14200.00	90.00	179.79	9875.00	4348.10	-4261.65	866.09	0.00	389121.90	769799.66	N 32 4 3.47	W 103 35 44.87
	14300.00	90.00	179.79	9875.00	4446.50	-4361.65	866.47	0.00	389021.90	769800.04	N 32 4 2.48	W 103 35 44.87
	14400.00	90.00	179.79	9875.00	4544.90	-4461.64	866.84	0.00	388921.90	769800.41	N 32 4 1.49	W 103 35 44.88
	14500.00	90.00	179.79	9875.00	4643.29	-4561.64	867.21	0.00	388821.91	769800.79	N 32 4 0.50	W 103 35 44.88
	14600.00	90.00	179.79	9875.00	4741.69	-4661.64	867.59	0.00	388721.91	769801.16	N 32 3 59.51	W 103 35 44.88
	14700.00	90.00	179.79	9875.00	4840.09	-4761.64	867.96	0.00	388621.92	769801.53	N 32 3 58.52	W 103 35 44.89
Cimarex Red Hills Unit #24H - PBHL - 2200' FWL, 330' FSL	14709.86	90.00	179.79	9875.00	4849.78	-4771.50	868.00	0.00	388612.06	769801.57	N 32 3 58.42	W 103 35 44.89

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
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Survey Type: Non-Def Plan

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

Survey Program:

Description	Part	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Survey Tool Type	Borehole / Survey
	1	0.000	14709.857	1/100.000	30.000	30.000	SLB_MWD-POOR	Original Borehole / Cimarex Red Hills Unit #24H Rev2 PCG 05-Nov-

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

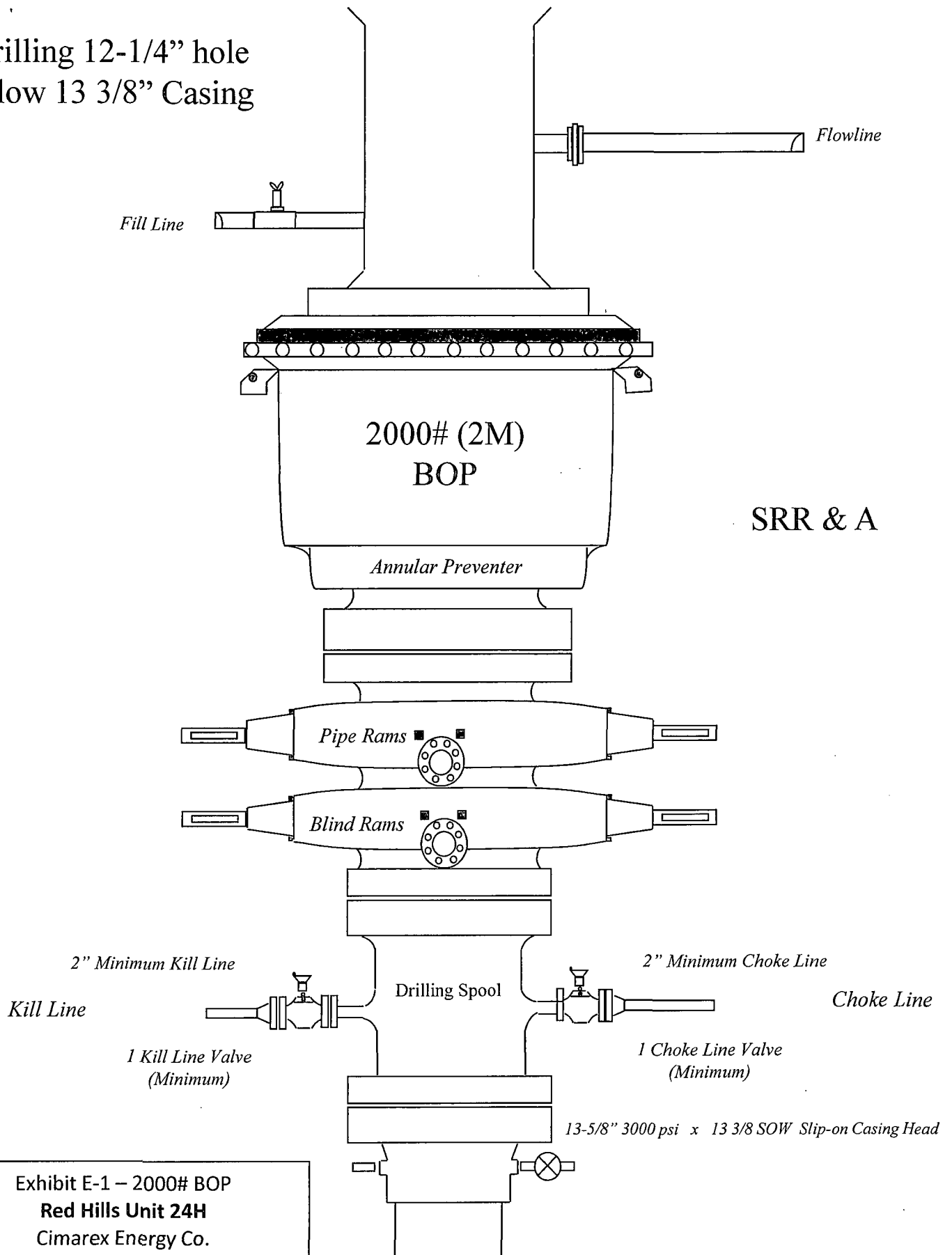


Exhibit E-1 – 2000# BOP
Red Hills Unit 24H
Cimarex Energy Co.
Sec. 5-26S-33E
SHL 160' FNL & 1350' FWL
BHL 330' FSL & 2200' FWL
Lea County, NM

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

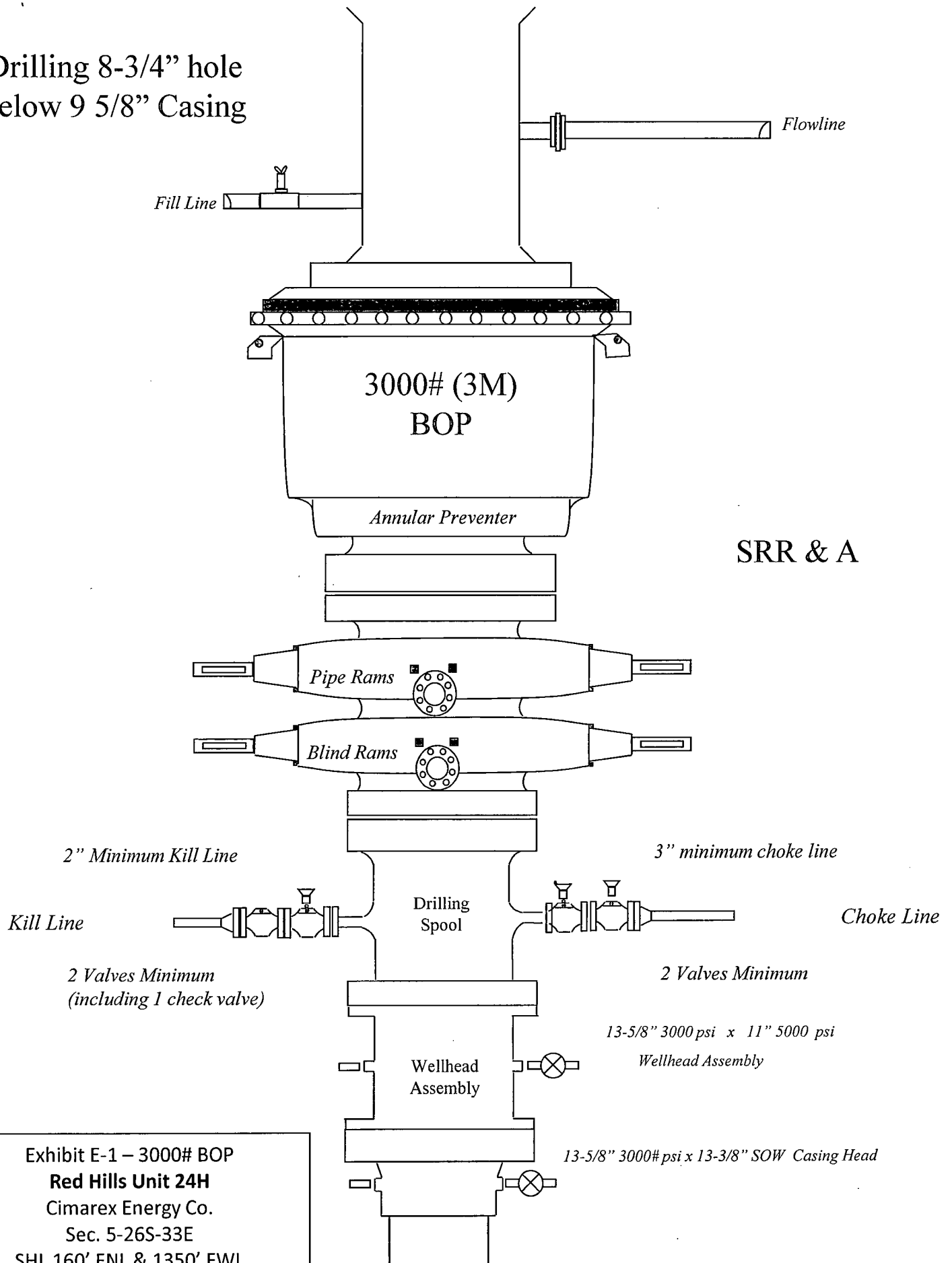


Exhibit E-1 – 3000# BOP

Red Hills Unit 24H

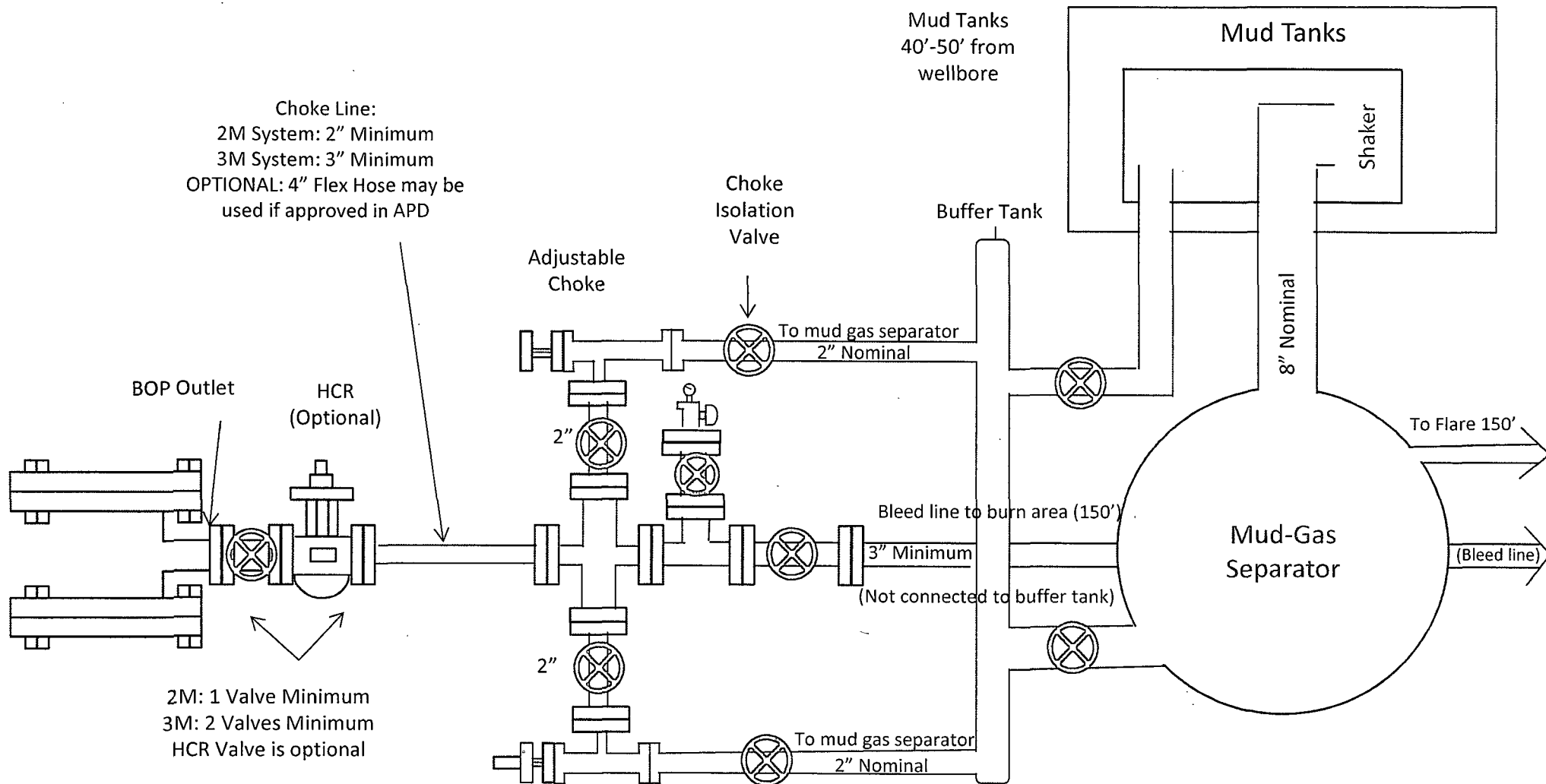
Cimarex Energy Co.

Sec. 5-26S-33E

SHL 160' FNL & 1350' FWL

BHL 330' FSL & 2200' FWL

Lea County, NM



Drilling Operations Choke Manifold 2M/3M Service

Exhibit E-1 – Choke Manifold Diagram
Red Hills Unit 24H
 Cimarex Energy Co.
 Sec. 5-26S-33E
 SHL 160' FNL & 1350' FWL
 BHL 330' FSL & 2200' FWL
 Lea County, NM

Exhibit F – Co-Flex Hose
Red Hills Unit 24H
Cimarex Energy Co.
Sec. 5-26S-33E
SHL 160' FNL & 1350' FWL
BHL 330' FSL & 2200' FWL
Lea County, NM

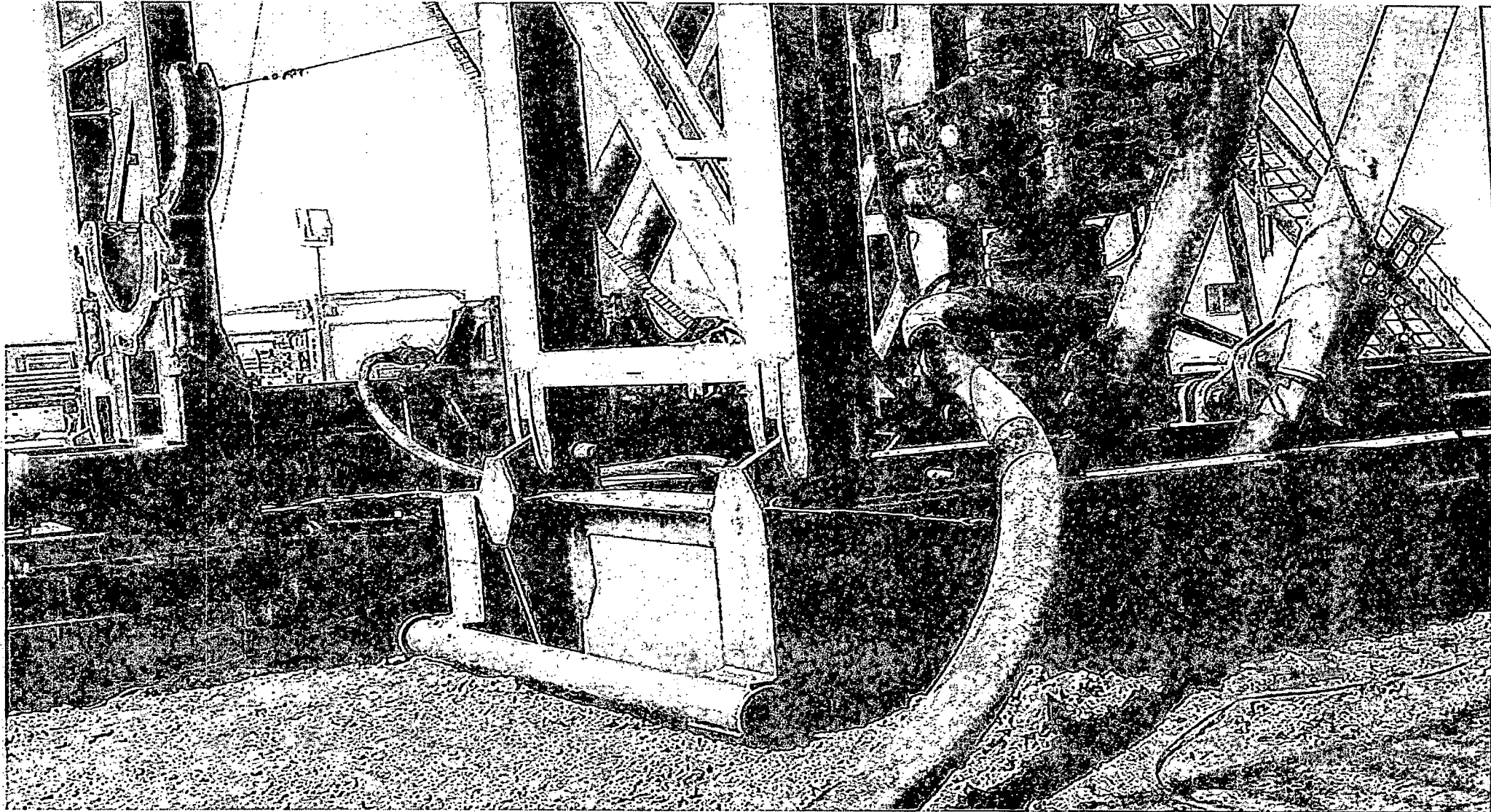


Exhibit F-1 – Co-Flex Hose Hydrostatic Test

Red Hills Unit 24H

Cimarex Energy Co.

Sec. 5-26S-33E

SHL 160' FNL & 1350' FWL

BHL 330' FSL & 2200' FWL

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

TEST PRESSURE

BURST PRESSURE

10,000 PSI

15,000 PSI

0 PSI

COUPLINGS

Stem Part No.

OKC
OKC

Ferrule No.

OKC
OKC

Type of Coupling:

Swage-It

PROCEDURE

Hose assembly pressure tested with water at ambient temperature.

TIME HELD AT TEST PRESSURE

ACTUAL BURST PRESSURE:

15 MIN.

0 PSI

Hose Assembly Serial Number:

79793

Hose Serial Number:

OKC

Comments:

Date:

3/8/2011

Tested:

Approved:



Midwest Hose
& Specialty, Inc.

Internal Hydrostatic Test Graph

Customer: Houston

Pick Ticket #: 94260

Hose Specifications

Hose Type

C&K

LD

4"

Length

45'

O.D.

6.09"

Verification

Type of Fittings

41/16 10K

Die Size

6.38"

Coupling Method

Swage

Final O.D.

6.25"

Working Pressure

10000 PSI

Burst Pressure

Standard Safety Multiplier Applies

Hose Serial #

5504

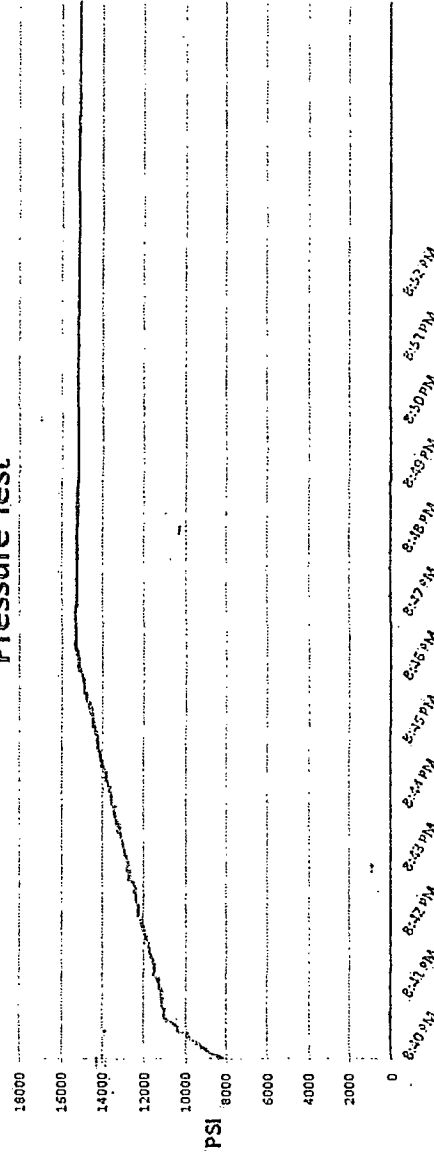
Hose Assembly Serial #

79793

Exhibit F-1 – Co-Flex Hose Hydrostatic Test
Red Hills Unit 24H
Cimarex Energy Co.
Sec. 5-26S-33E
SHL 160' FNL & 1350' FWL
BHL 330' FSL & 2200' FWL
Lea County, NM

March 3, 2011

Pressure Test



Test Pressure
15000 PSI

Time Held at Test Pressure
11 Minutes

Actual Burst Pressure

Peak Pressure
15483 PSI

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

Tested By: Zac McConnell

Approved By: Kim Thomas

[Signature]

[Signature]

Certificate of Conformity

ODYD-271

3/8/2011

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

3/8/2011



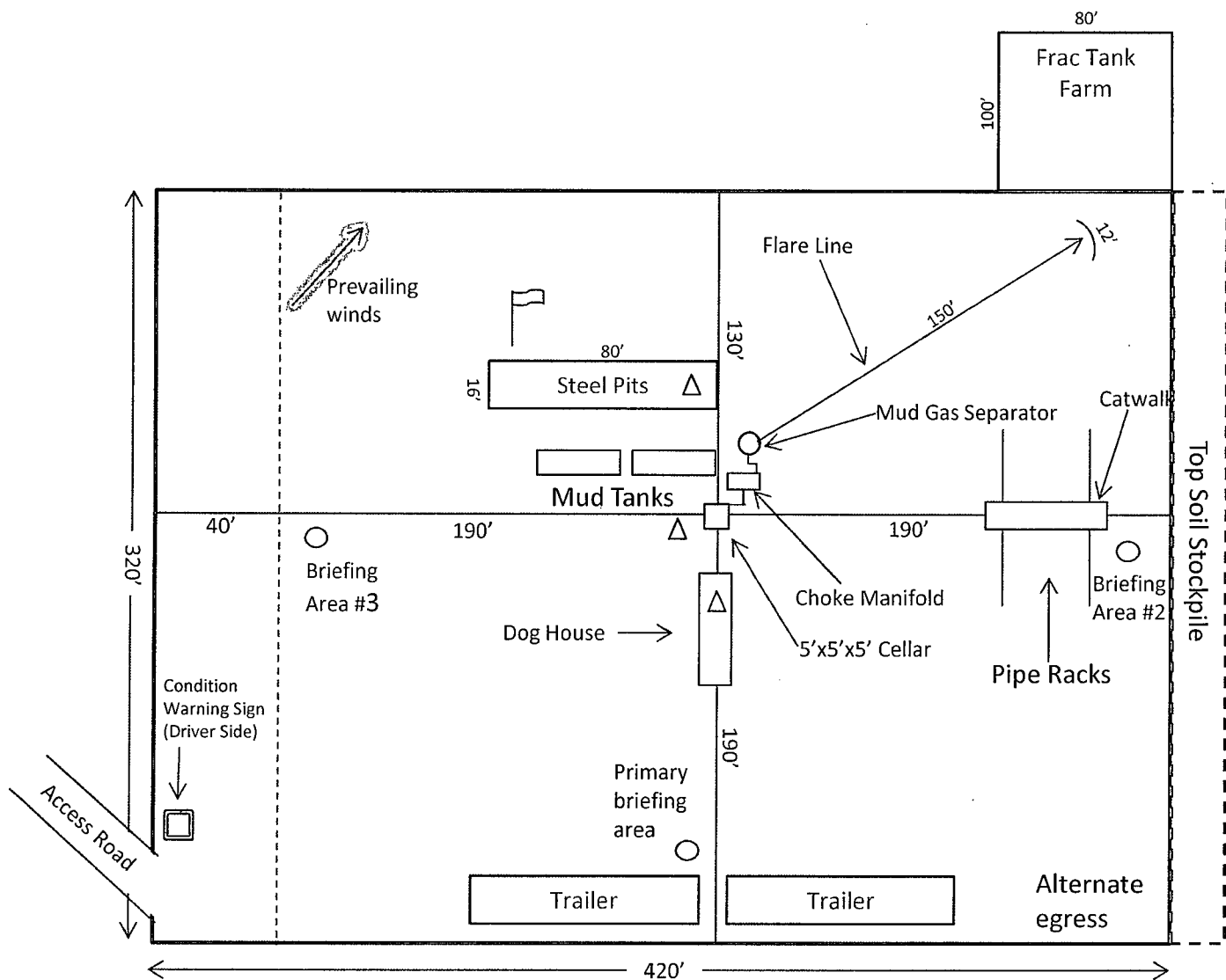
Midwest Hose
& Specialty, Inc.

Exhibit F -3- Co-Flex Hose
Red Hills Unit 24H
Cimarex Energy Co.
Sec. 5-26S-33E
SHL 160' FNL & 1350' FWL
BHL 330' FSL & 2200' 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



Exhibit D – Rig Layout Diagram
Red Hills Unit 24H
 Cimarex Energy Co.
 Sec. 5-26S-33E
 SHL 160' FNL & 1350' FWL
 BHL 330' FSL & 2200' FWL
 Lea County, NM

- 1 All Company and Contract personnel admitted on location must be trained by a qualified H₂S safety instructor to the following:
 - A. Characteristics of H₂S
 - B. Physical effects and hazards
 - C. Principal and operation of H₂S detectors, warning system and briefing areas.
 - D. Evacuation procedure, routes and first aid.
 - E. Proper use of safety equipment & life support systems
 - F. Essential personnel meeting Medical Evaluation criteria will receive additional training on the proper use of 30 minute pressure demand air packs.
- 2 H₂S Detection and Alarm Systems:
 - A. H₂S sensors/detectors to be located on the drilling rig floor, in the base of the sub structure/cellar area, on the mud pits in the shale shaker area. Additional H₂S detectors may be placed as deemed necessary.
 - B. An audio alarm system will be installed on the derrick floor and in the top doghouse.
- 3 Windsock and/or wind streamers:
 - A. Windsock at mudpit area should be high enough to be visible.
 - B. Windsock on the rig floor and / or top doghouse should be high enough to be visible.
- 4 Condition Flags and Signs
 - A. Warning sign on access road to location.
 - B. Flags to be displayed on sign at entrance to location. Green flag indicates normal safe condition. Yellow flag indicates potential pressure and danger. Red flag indicates danger (H₂S present in dangerous concentration). Only H₂S trained and certified personnel admitted to location.
- 5 Well control equipment:
 - A. See exhibit "E-1"
- 6 Communication:
 - A. While working under masks chalkboards will be used for communication.
 - B. Hand signals will be used where chalk board is inappropriate.
 - C. Two way radio will be used to communicate off location in case of emergency help is required. In most cases cellular telephones will be available at most drilling foreman's trailer or living quarters.
- 7 Drillstem Testing:

No DSTs or cores are planned at this time.
- 8 Drilling contractor supervisor will be required to be familiar with the effects H₂S has on tubular goods and other mechanical equipment.
- 9 If H₂S is encountered, mud system will be altered if necessary to maintain control of formation. A mud gas separator will be brought into service along with H₂S scavengers if necessary.