

OCD Hobbs

ATS-14-485

HOBBSOCD

MAY 19 2015

RECEIVED

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.
SHLABHL: NM0005792

6. If Indian, Allottee or Tribe Name

(H)

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)

7. If Unit or CA Agreement, Name and No.
NM71019X

8. Lease Name and Well No.

Red Hills Unit 20H

(300545)

9. API Well No.

30025 - 42572

3a. Address

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

3b. Phone No. (include area code)

432-571-7800

10. Field and Pool, or Exploratory

WC-025 6-0652533 290; UPRB

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

At Surface 330' FNL & 1745' FEL

(B)

At proposed prod. Zone 330' FSL & 1330' FEL

(O)

Bone Spring

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

33, 25S, 33E

(97994)

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

Approx 14 miles NW of Jal, NM

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
NM0005792=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.

30'

19. Proposed Depth
Pilot Hole TD: N/A
14,307 MD 9,875 TVD

20. BLM/BIA Bond No. on File

NM2575; NMB000835

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

3351 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

Paula Brunson

Name (Printed/Typed)

Paula Brunson

Date

1/31/14

Title

Regulatory Compliance

Approved By (Signature)

Steve Caffey

Name (Printed/Typed)

Date MAY 12 2015

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.

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(Continued on page 2)

*(Instructions on page 2)

Carlsbad Controlled Water Basin

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

MAY 19 2015

RECEIVED

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 & 1745' FEL
 BHL 330' FSL & 1330' FEL

2. Elevation Above Sea Level: 3,351' 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: 14,307 MD 9,875 TVD Pilot Hole TD: N/A

6. Estimated Tops of Geological Markers:

Formation	Est Top	Bearing
Rustler	975	N/A
Salt	1170	N/A
Castille	3285	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		1.50	1.54	196,800	166,754	3.12
Production	0	9398	9398	8 3/4	5-1/2"	17.00	L-80	LT&C	New	4398	9.0	1.43		1.76	167,875	144,808	2.33
Production	9398	14307	9875	8 3/4	5-1/2"	17.00	L-80	BT&C	New	4621	9.0	1.36		1.67	8,109	6,995	56.76

Note: Operator may drill a 8-1/2" OH from end of curve to TD of the well. This is to reduce the need to ream the conventionally drilled curve to run a RSS assembly into the lateral.

Application to Drill
Red Hills Unit 20H
 Cimarex Energy Co.
 UL: B, Sec. 33, 25S, 33E
 LEA Co., NM

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 Completion System	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	545	2.40	11.90	1307	35:65 (poz/H) + salt + Sodium Metasilicate + 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: No Pilot KOP: 9,398' EOC: 10,148'

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.

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LEA Co., NM

11. Proposed Mud Circulating System:

Depth	Mud Weight	Visc	Fluid Loss	Type Mud
0' to 1000'	8.30	28	NC	FW Spud Mud
1000' to 4920'	10.00	30-32	NC	Brine Water
4920' to 14307'	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: 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.

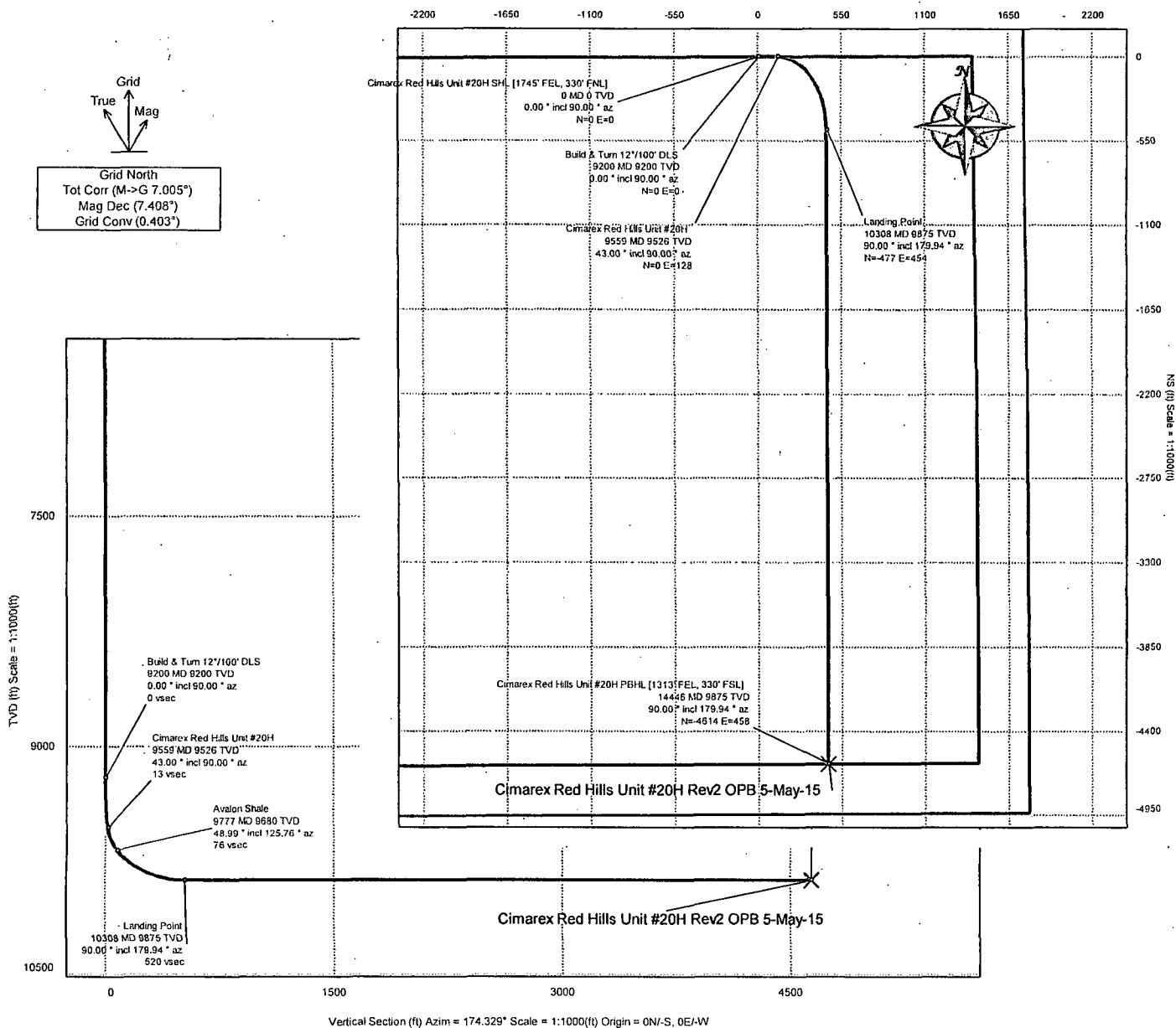
pay will be perforated and stimulated.

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

Borehole: Original Borehole	Well: Red Hills Unit #20H	Field: NM Lea County (NAD 83)	Structure: TBD
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Gravity & Magnetic Parameters Model: BGGM Dip: 59.998° Date: 06-Jan-2014 Mag Dec: 7.408° FS: 49306.409n Gravity FS: 998.482mgm (9.80665 Based)	Surface Location NAD83 New Mexico State Plane, Eastern Zone, US Feet Lat: N 32 5 36.16 Northing: 398534.5HUS Grid Conv: 0.4032° Lon: W 103 34 27.79 Easting: 776366.7HUS Scale Fact: 0.99997236	Miscellaneous Red Hills Unit #20H TVD Ref: Ground Level(3351ft above MSL) Plan: Cimarex Red Hills Unit #20H Rev2 OPB 5-May-15
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EW (ft) Scale = 1:1000(ft)



Vertical Section (ft) Azim = 174.325° Scale = 1:1000(ft) Origin = 0N/-S, 0E/-W

Critical Points								
Critical Point	MD	INCL	AZIM	TVD	VSEC	N(°)S(-)	E(°)W(-)	DLS
Cimarex Red Hills Unit #20H SHL (1745' FEL, 330' FNL)	0.00	0.00	90.00	0.00	0.00	0.00	0.00	
9 5/8 Casing Point	4850.00	0.00	90.00	4850.00	0.00	0.00	0.00	0.00
Build & Turn 127'100' DLS	9200.41	0.00	90.00	9200.41	0.00	0.00	0.00	0.00
Cimarex Red Hills Unit #20H	9558.74	43.00	90.00	9526.04	12.88	0.00	128.27	12.00
Avalon Shale	9776.79	48.99	125.76	9680.00	75.56	-48.93	271.89	12.00
Landing Point	10308.42	90.00	179.94	9875.00	519.69	-477.15	454.15	12.00
Cimarex Red Hills Unit #20H PBHL (1313' FEL, 330' FSL)	14445.52	90.00	179.94	9875.00	4636.93	-4614.24	458.21	0.00

CONTROLLED	
Plan ref	Cimarex Red Hills Unit #20H
Drawing ref	Rev2 OPB 5-May-15
Copy number	of 3
Date	07-May-2015
1	Client
2	Client
3	Office
4	Office
Copy number	for



Cimarex Red Hills Unit #20H Rev2 OPB 5-May-15 Proposal Report

(Non-Def Plan)

Report Date: May 07, 2015 - 09:01 AM
Client: Cimarex
Field: NM Lea County (NAD 83)
Structure / Slot: Cimarex Red Hills Unit #20H / Red Hills Unit #20H
Well: Red Hills Unit #20H
Borehole: Original Borehole
UWI / API#: Unknown / Unknown
Survey Name: Cimarex Red Hills Unit #20H Rev2 OPB 5-May-15
Survey Date: August 28, 2013
Tort / AHD / DDI / ERD Ratio: 132.962 * / 4901.543 ft / 5.979 / 0.496
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 5' 36.15806", W 103° 34' 27.78598"
Location Grid N/E Y/X: N 398534.500 ftUS, E 776366.700 ftUS
CRS Grid Convergence Angle: 0.4032 *
Grid Scale Factor: 0.99997236
Version / Patch: 2.8.572.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 174.329 * (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: Ground Level
TVD Reference Elevation: 3351.000 ft above MSL
Seabed / Ground Elevation: 3351.000 ft above MSL
Magnetic Declination: 7.408 *
Total Gravity Field Strength: 998.4822mgn (9.80665 Based)
Gravity Model: DOX
Total Magnetic Field Strength: 48306.409 nT
Magnetic Dip Angle: 59.998 *
Declination Date: January 06, 2014
Magnetic Declination Model: BGGM 2013
North Reference: Grid North
Grid Convergence Used: 0.4045 *
Total Corr Mag North->Grid North: 7.0039 *
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 ° ' ")
Cimarex Red Hills Unit #20H SHL [1745' FEL, 330' FNL]	0.00	0.00	90.00	0.00	0.00	0.00	0.00	N/A	398534.50	776366.70	N 32 5 36.16 W 103 34 27.79	
	100.00	0.00	90.00	100.00	0.00	0.00	0.00	0.00	398534.50	776366.70	N 32 5 36.16 W 103 34 27.79	
	200.00	0.00	90.00	200.00	0.00	0.00	0.00	0.00	398534.50	776366.70	N 32 5 36.16 W 103 34 27.79	
	300.00	0.00	90.00	300.00	0.00	0.00	0.00	0.00	398534.50	776366.70	N 32 5 36.16 W 103 34 27.79	
	400.00	0.00	90.00	400.00	0.00	0.00	0.00	0.00	398534.50	776366.70	N 32 5 36.16 W 103 34 27.79	
	500.00	0.00	90.00	500.00	0.00	0.00	0.00	0.00	398534.50	776366.70	N 32 5 36.16 W 103 34 27.79	
	600.00	0.00	90.00	600.00	0.00	0.00	0.00	0.00	398534.50	776366.70	N 32 5 36.16 W 103 34 27.79	
	700.00	0.00	90.00	700.00	0.00	0.00	0.00	0.00	398534.50	776366.70	N 32 5 36.16 W 103 34 27.79	
	800.00	0.00	90.00	800.00	0.00	0.00	0.00	0.00	398534.50	776366.70	N 32 5 36.16 W 103 34 27.79	
	900.00	0.00	90.00	900.00	0.00	0.00	0.00	0.00	398534.50	776366.70	N 32 5 36.16 W 103 34 27.79	
	1000.00	0.00	90.00	1000.00	0.00	0.00	0.00	0.00	398534.50	776366.70	N 32 5 36.16 W 103 34 27.79	
	1100.00	0.00	90.00	1100.00	0.00	0.00	0.00	0.00	398534.50	776366.70	N 32 5 36.16 W 103 34 27.79	
	1200.00	0.00	90.00	1200.00	0.00	0.00	0.00	0.00	398534.50	776366.70	N 32 5 36.16 W 103 34 27.79	
	1300.00	0.00	90.00	1300.00	0.00	0.00	0.00	0.00	398534.50	776366.70	N 32 5 36.16 W 103 34 27.79	
	1400.00	0.00	90.00	1400.00	0.00	0.00	0.00	0.00	398534.50	776366.70	N 32 5 36.16 W 103 34 27.79	
	1500.00	0.00	90.00	1500.00	0.00	0.00	0.00	0.00	398534.50	776366.70	N 32 5 36.16 W 103 34 27.79	
	1600.00	0.00	90.00	1600.00	0.00	0.00	0.00	0.00	398534.50	776366.70	N 32 5 36.16 W 103 34 27.79	
	1700.00	0.00	90.00	1700.00	0.00	0.00	0.00	0.00	398534.50	776366.70	N 32 5 36.16 W 103 34 27.79	
	1800.00	0.00	90.00	1800.00	0.00	0.00	0.00	0.00	398534.50	776366.70	N 32 5 36.16 W 103 34 27.79	
	1900.00	0.00	90.00	1900.00	0.00	0.00	0.00	0.00	398534.50	776366.70	N 32 5 36.16 W 103 34 27.79	
	2000.00	0.00	90.00	2000.00	0.00	0.00	0.00	0.00	398534.50	776366.70	N 32 5 36.16 W 103 34 27.79	
	2100.00	0.00	90.00	2100.00	0.00	0.00	0.00	0.00	398534.50	776366.70	N 32 5 36.16 W 103 34 27.79	
	2200.00	0.00	90.00	2200.00	0.00	0.00	0.00	0.00	398534.50	776366.70	N 32 5 36.16 W 103 34 27.79	
	2300.00	0.00	90.00	2300.00	0.00	0.00	0.00	0.00	398534.50	776366.70	N 32 5 36.16 W 103 34 27.79	
	2400.00	0.00	90.00	2400.00	0.00	0.00	0.00	0.00	398534.50	776366.70	N 32 5 36.16 W 103 34 27.79	
	2500.00	0.00	90.00	2500.00	0.00	0.00	0.00	0.00	398534.50	776366.70	N 32 5 36.16 W 103 34 27.79	
	2600.00	0.00	90.00	2600.00	0.00	0.00	0.00	0.00	398534.50	776366.70	N 32 5 36.16 W 103 34 27.79	
	2700.00	0.00	90.00	2700.00	0.00	0.00	0.00	0.00	398534.50	776366.70	N 32 5 36.16 W 103 34 27.79	
	2800.00	0.00	90.00	2800.00	0.00	0.00	0.00	0.00	398534.50	776366.70	N 32 5 36.16 W 103 34 27.79	
	2900.00	0.00	90.00	2900.00	0.00	0.00	0.00	0.00	398534.50	776366.70	N 32 5 36.16 W 103 34 27.79	
	3000.00	0.00	90.00	3000.00	0.00	0.00	0.00	0.00	398534.50	776366.70	N 32 5 36.16 W 103 34 27.79	

Comments	MD	Incl. (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	Northng (ft)	Eastng (ft)	Latitude (N/S...)	Longitude (E/W...)
	3500.00	0.00	90.00	3500.00	0.00	0.00	0.00	0.00	0.00	776366.70 N	32 5 36.16 W 103 34 27.79
	3600.00	0.00	90.00	3600.00	0.00	0.00	0.00	0.00	0.00	776366.70 N	32 5 36.16 W 103 34 27.79
	3700.00	0.00	90.00	3700.00	0.00	0.00	0.00	0.00	0.00	776366.70 N	32 5 36.16 W 103 34 27.79
	3800.00	0.00	90.00	3800.00	0.00	0.00	0.00	0.00	0.00	776366.70 N	32 5 36.16 W 103 34 27.79
	3900.00	0.00	90.00	3900.00	0.00	0.00	0.00	0.00	0.00	776366.70 N	32 5 36.16 W 103 34 27.79
	4000.00	0.00	90.00	4000.00	0.00	0.00	0.00	0.00	0.00	776366.70 N	32 5 36.16 W 103 34 27.79
	4100.00	0.00	90.00	4100.00	0.00	0.00	0.00	0.00	0.00	776366.70 N	32 5 36.16 W 103 34 27.79
	4200.00	0.00	90.00	4200.00	0.00	0.00	0.00	0.00	0.00	776366.70 N	32 5 36.16 W 103 34 27.79
	4300.00	0.00	90.00	4300.00	0.00	0.00	0.00	0.00	0.00	776366.70 N	32 5 36.16 W 103 34 27.79
	4400.00	0.00	90.00	4400.00	0.00	0.00	0.00	0.00	0.00	776366.70 N	32 5 36.16 W 103 34 27.79
	4500.00	0.00	90.00	4500.00	0.00	0.00	0.00	0.00	0.00	776366.70 N	32 5 36.16 W 103 34 27.79
	4600.00	0.00	90.00	4600.00	0.00	0.00	0.00	0.00	0.00	776366.70 N	32 5 36.16 W 103 34 27.79
	4700.00	0.00	90.00	4700.00	0.00	0.00	0.00	0.00	0.00	776366.70 N	32 5 36.16 W 103 34 27.79
9 5/8 Casing Point	4850.00	0.00	90.00	4850.00	0.00	0.00	0.00	0.00	0.00	776366.70 N	32 5 36.16 W 103 34 27.79
	4800.00	0.00	90.00	4800.00	0.00	0.00	0.00	0.00	0.00	776366.70 N	32 5 36.16 W 103 34 27.79
	4700.00	0.00	90.00	4700.00	0.00	0.00	0.00	0.00	0.00	776366.70 N	32 5 36.16 W 103 34 27.79
	4600.00	0.00	90.00	4600.00	0.00	0.00	0.00	0.00	0.00	776366.70 N	32 5 36.16 W 103 34 27.79
	4500.00	0.00	90.00	4500.00	0.00	0.00	0.00	0.00	0.00	776366.70 N	32 5 36.16 W 103 34 27.79
	4400.00	0.00	90.00	4400.00	0.00	0.00	0.00	0.00	0.00	776366.70 N	32 5 36.16 W 103 34 27.79
	4300.00	0.00	90.00	4300.00	0.00	0.00	0.00	0.00	0.00	776366.70 N	32 5 36.16 W 103 34 27.79
	4200.00	0.00	90.00	4200.00	0.00	0.00	0.00	0.00	0.00	776366.70 N	32 5 36.16 W 103 34 27.79
	4100.00	0.00	90.00	4100.00	0.00	0.00	0.00	0.00	0.00	776366.70 N	32 5 36.16 W 103 34 27.79
	4000.00	0.00	90.00	4000.00	0.00	0.00	0.00	0.00	0.00	776366.70 N	32 5 36.16 W 103 34 27.79
	3900.00	0.00	90.00	3900.00	0.00	0.00	0.00	0.00	0.00	776366.70 N	32 5 36.16 W 103 34 27.79
	3800.00	0.00	90.00	3800.00	0.00	0.00	0.00	0.00	0.00	776366.70 N	32 5 36.16 W 103 34 27.79
	3700.00	0.00	90.00	3700.00	0.00	0.00	0.00	0.00	0.00	776366.70 N	32 5 36.16 W 103 34 27.79
	3600.00	0.00	90.00	3600.00	0.00	0.00	0.00	0.00	0.00	776366.70 N	32 5 36.16 W 103 34 27.79
	3500.00	0.00	90.00	3500.00	0.00	0.00	0.00	0.00	0.00	776366.70 N	32 5 36.16 W 103 34 27.79
	3400.00	0.00	90.00	3400.00	0.00	0.00	0.00	0.00	0.00	776366.70 N	32 5 36.16 W 103 34 27.79
	3300.00	0.00	90.00	3300.00	0.00	0.00	0.00	0.00	0.00	776366.70 N	32 5 36.16 W 103 34 27.79
	3200.00	0.00	90.00	3200.00	0.00	0.00	0.00	0.00	0.00	776366.70 N	32 5 36.16 W 103 34 27.79
	3100.00	0.00	90.00	3100.00	0.00	0.00	0.00	0.00	0.00	776366.70 N	32 5 36.16 W 103 34 27.79

Comments	MD	Incl	Azim Grid	TVP	VSEC	NS	EW	DLS	Northing	Eastng	Latitude	Longitude
	(")	(")	(°)	(")	(")	(")	(")	(1/1000")	(ft)	(ft)	(N/S...)	(E/W...)
Build & Turn 12'	9200.00	11.95	90.00	9299.28	1.02	0.00	10.35	12.00	398534.50	776377.05	N 32° 5' 36.16" W	103° 34' 27.67"
	9400.00	23.95	90.00	9394.24	4.06	0.00	41.11	12.00	398534.50	776407.81	N 32° 5' 36.16" W	103° 34' 27.31"
	9500.00	35.95	90.00	9480.72	8.99	0.00	90.95	12.00	398534.50	776457.64	N 32° 5' 36.15" W	103° 34' 26.73"
	9558.74	43.00	90.00	9526.04	12.66	0.00	128.27	12.00	398534.50	776494.97	N 32° 5' 36.15" W	103° 34' 26.30"
	9600.00	43.23	97.24	9556.18	17.23	-1.78	156.37	12.00	398532.72	776523.07	N 32° 5' 36.13" W	103° 34' 25.97"
	9700.00	45.62	114.08	9627.64	42.70	-20.74	223.22	12.00	398513.76	776589.91	N 32° 5' 35.94" W	103° 34' 25.19"
	9776.79	48.99	125.76	9680.00	75.56	-48.93	271.89	12.00	398485.57	776638.58	N 32° 5' 35.65" W	103° 34' 24.63"
	9800.00	50.23	129.03	9695.04	87.63	-59.67	285.92	12.00	398474.84	776652.62	N 32° 5' 35.55" W	103° 34' 24.47"
	9900.00	56.49	141.82	9754.85	150.05	-116.85	341.75	12.00	398417.65	776708.44	N 32° 5' 34.98" W	103° 34' 23.82"
	10000.00	63.88	152.73	9804.65	227.23	-189.79	388.26	12.00	398344.71	776754.95	N 32° 5' 34.25" W	103° 34' 23.29"
	10100.00	71.99	162.29	9842.26	315.80	-275.31	423.42	12.00	398259.20	776790.10	N 32° 5' 33.40" W	103° 34' 22.89"
	10200.00	80.52	170.99	9866.04	411.89	-369.66	445.68	12.00	398164.85	776812.37	N 32° 5' 32.47" W	103° 34' 22.64"
Avalon Shale	10300.00	89.26	179.25	9874.95	511.30	-468.72	454.09	12.00	398065.79	776820.78	N 32° 5' 31.49" W	103° 34' 22.55"
	10400.00	90.00	179.94	9875.00	519.69	-477.15	454.15	12.00	398057.37	776820.84	N 32° 5' 31.40" W	103° 34' 22.55"
	10400.00	90.00	179.94	9875.00	519.69	-477.15	454.15	0.00	397965.80	776820.93	N 32° 5' 30.50" W	103° 34' 22.55"
	10500.00	90.00	179.94	9875.00	710.35	-668.72	454.34	0.00	397865.80	776821.02	N 32° 5' 29.51" W	103° 34' 22.56"
	10600.00	90.00	179.94	9875.00	809.87	-768.72	454.44	0.00	397765.80	776821.12	N 32° 5' 28.52" W	103° 34' 22.57"
	10700.00	90.00	179.94	9875.00	909.39	-868.72	454.53	0.00	397665.80	776821.22	N 32° 5' 27.53" W	103° 34' 22.57"
	10800.00	90.00	179.94	9875.00	1008.91	-968.72	454.63	0.00	397565.81	776821.32	N 32° 5' 26.54" W	103° 34' 22.58"
	10900.00	90.00	179.94	9875.00	1108.43	-1068.72	454.73	0.00	397465.81	776821.42	N 32° 5' 25.55" W	103° 34' 22.59"
	11000.00	90.00	179.94	9875.00	1207.95	-1168.72	454.83	0.00	397365.81	776821.52	N 32° 5' 24.56" W	103° 34' 22.59"
	11100.00	90.00	179.94	9875.00	1307.47	-1268.72	454.93	0.00	397265.82	776821.61	N 32° 5' 23.57" W	103° 34' 22.60"
	11200.00	90.00	179.94	9875.00	1406.99	-1368.72	455.03	0.00	397165.82	776821.71	N 32° 5' 22.58" W	103° 34' 22.61"
	11300.00	90.00	179.94	9875.00	1506.51	-1468.72	455.12	0.00	397065.82	776821.81	N 32° 5' 21.59" W	103° 34' 22.62"
Landing Point	11400.00	90.00	179.94	9875.00	1606.03	-1568.72	455.22	0.00	396965.83	776821.91	N 32° 5' 20.60" W	103° 34' 22.62"
	11500.00	90.00	179.94	9875.00	1705.55	-1668.72	455.32	0.00	396865.83	776822.01	N 32° 5' 19.61" W	103° 34' 22.63"
	11600.00	90.00	179.94	9875.00	1805.07	-1768.72	455.42	0.00	396765.83	776822.11	N 32° 5' 18.62" W	103° 34' 22.64"
	11700.00	90.00	179.94	9875.00	1904.59	-1868.72	455.52	0.00	396665.83	776822.20	N 32° 5' 17.64" W	103° 34' 22.64"
	11800.00	90.00	179.94	9875.00	2004.11	-1968.72	455.62	0.00	396565.84	776822.30	N 32° 5' 16.65" W	103° 34' 22.65"
	11900.00	90.00	179.94	9875.00	2103.63	-2068.72	455.71	0.00	396465.84	776822.40	N 32° 5' 15.66" W	103° 34' 22.66"
	12000.00	90.00	179.94	9875.00	2203.15	-2168.72	455.81	0.00	396365.84	776822.50	N 32° 5' 14.67" W	103° 34' 22.67"
	12100.00	90.00	179.94	9875.00	2302.67	-2268.72	455.91	0.00	396265.85	776822.60	N 32° 5' 13.68" W	103° 34' 22.67"
	12200.00	90.00	179.94	9875.00	2402.19	-2368.72	456.01	0.00	396165.85	776822.70	N 32° 5' 12.69" W	103° 34' 22.68"
	12300.00	90.00	179.94	9875.00	2501.71	-2468.72	456.11	0.00	396065.85	776822.79	N 32° 5' 11.70" W	103° 34' 22.69"
	12400.00	90.00	179.94	9875.00	2601.23	-2568.72	456.20	0.00	395965.86	776822.89	N 32° 5' 10.71" W	103° 34' 22.69"
	12500.00	90.00	179.94	9875.00	2700.75	-2668.72	456.30	0.00	395865.86	776822.99	N 32° 5' 9.72" W	103° 34' 22.70"
	12600.00	90.00	179.94	9875.00	2800.27	-2768.72	456.40	0.00	395765.86	776823.09	N 32° 5' 8.73" W	103° 34' 22.71"
	12700.00	90.00	179.94	9875.00	2899.79	-2868.72	456.50	0.00	395665.86	776823.19	N 32° 5' 7.74" W	103° 34' 22.71"
	12800.00	90.00	179.94	9875.00	2999.31	-2968.72	456.60	0.00	395565.87	776823.28	N 32° 5' 6.75" W	103° 34' 22.72"
	12900.00	90.00	179.94	9875.00	3098.83	-3068.72	456.70	0.00	395465.87	776823.38	N 32° 5' 5.76" W	103° 34' 22.73"
	13000.00	90.00	179.94	9875.00	3198.35	-3168.72	456.79	0.00	395365.87	776823.48	N 32° 5' 4.77" W	103° 34' 22.74"
	13100.00	90.00	179.94	9875.00	3297.87	-3268.72	456.89	0.00	395265.88	776823.58	N 32° 5' 3.78" W	103° 34' 22.74"
	13200.00	90.00	179.94	9875.00	3397.39	-3368.72	456.99	0.00	395165.88	776823.68	N 32° 5' 2.79" W	103° 34' 22.75"
	13300.00	90.00	179.94	9875.00	3496.91	-3468.72	457.09	0.00	395065.88	776823.77	N 32° 5' 1.80" W	103° 34' 22.76"
	13400.00	90.00	179.94	9875.00	3596.43	-3568.72	457.19	0.00	394965.89	776823.87	N 32° 5' 0.81" W	103° 34' 22.76"
	13500.00	90.00	179.94	9875.00	3695.95	-3668.72	457.28	0.00	394865.89	776823.97	N 32° 4' 59.82" W	103° 34' 22.77"
	13600.00	90.00	179.94	9875.00	3795.47	-3768.72	457.38	0.00	394765.89	776824.07	N 32° 4' 58.83" W	103° 34' 22.78"
	13700.00	90.00	179.94	9875.00	3894.99	-3868.72	457.48	0.00	394665.89	776824.17	N 32° 4' 57.84" W	103° 34' 22.79"
	13800.00	90.00	179.94	9875.00	3994.51	-3968.72	457.58	0.00	394565.90	776824.27	N 32° 4' 56.86" W	103° 34' 22.79"

Comments	MD (ft)	Incl (°)	Azlm Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (*/100ft)	Northing (ftUS)	Eastng (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	13900.00	90.00	179.94	9875.00	4094.03	-4068.72	457.68	0.00	394465.90	776824.36	N 32 4 55.87 W	103 34 22.80
	14000.00	90.00	179.94	9875.00	4193.55	-4168.72	457.78	0.00	394365.90	776824.46	N 32 4 54.88 W	103 34 22.81
	14100.00	90.00	179.94	9875.00	4293.07	-4268.72	457.87	0.00	394265.91	776824.56	N 32 4 53.89 W	103 34 22.81
	14200.00	90.00	179.94	9875.00	4392.59	-4368.72	457.97	0.00	394165.91	776824.66	N 32 4 52.90 W	103 34 22.82
	14300.00	90.00	179.94	9875.00	4492.11	-4468.72	458.07	0.00	394065.91	776824.76	N 32 4 51.91 W	103 34 22.83
	14400.00	90.00	179.94	9875.00	4591.63	-4568.72	458.17	0.00	393965.92	776824.86	N 32 4 50.92 W	103 34 22.83
Cimarex Red Hills Unit #20H PBHL [1313' FEL, 330' FSL]	14445.52	90.00	179.94	9875.00	4636.93	-4614.24	458.21	0.00	393920.40	776824.90	N 32 4 50.47 W	103 34 22.84

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	14445.517	1/100.000	30.000	30.000	SLB_MWD-STD	Original Borehole / Cimarex Red Hills Unit #20H Rev2 OPB 5-May-

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

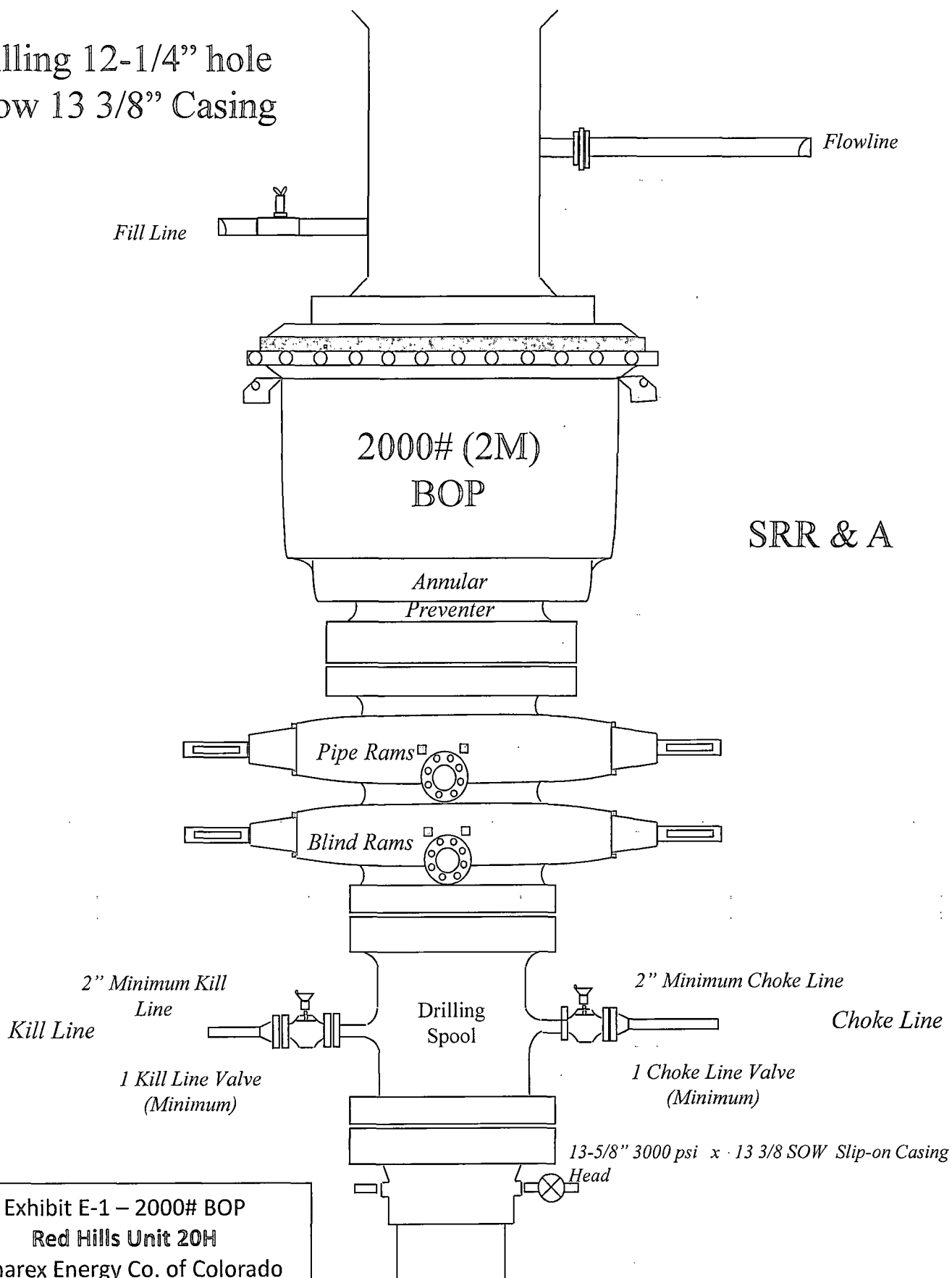
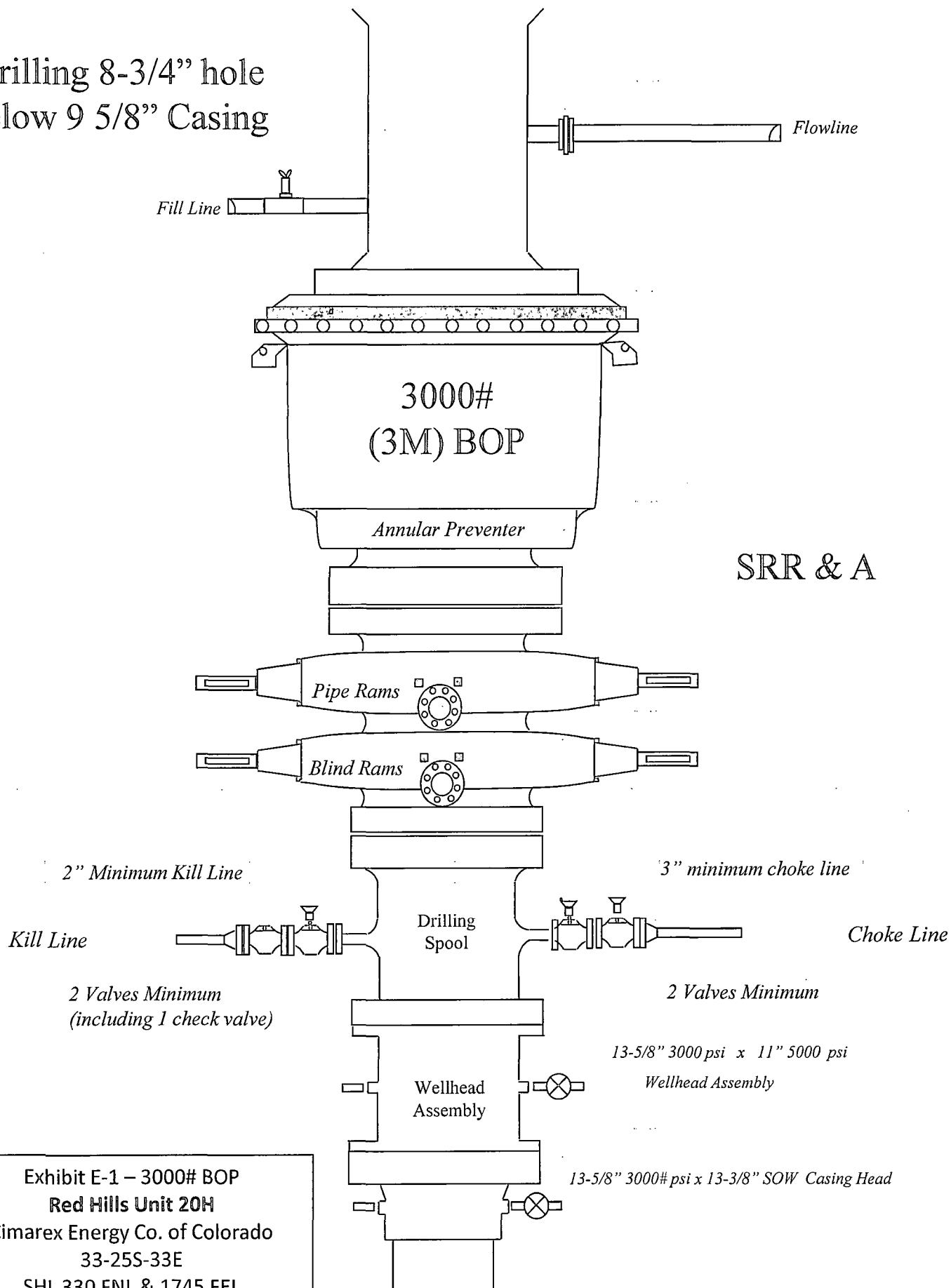


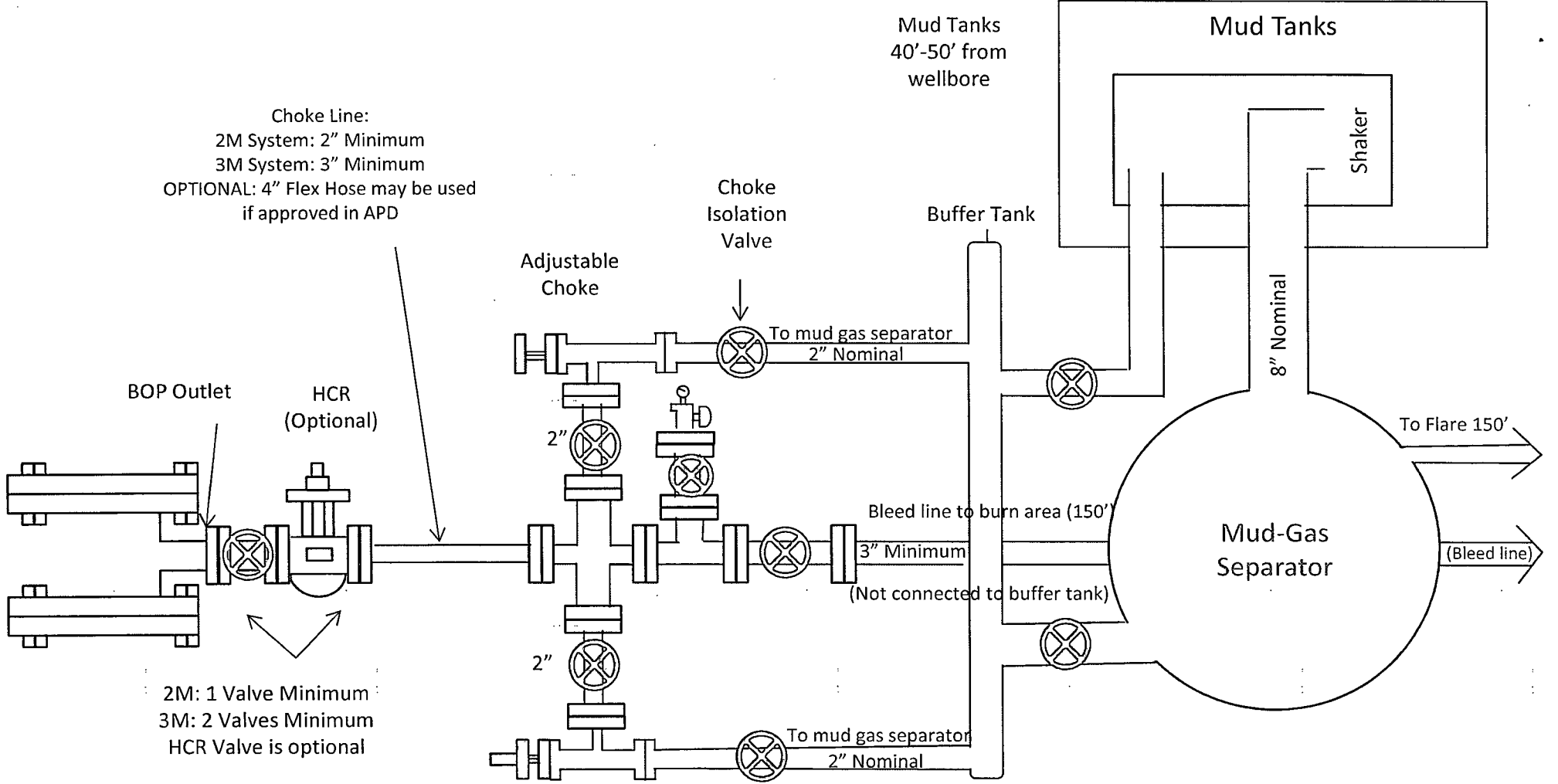
Exhibit E-1 – 2000# BOP
Red Hills Unit 20H
Cimarex Energy Co. of Colorado
33-25S-33E
SHL 330 FNL & 1745 FEL
BHL 330 FSL & 1330 FEL
Lea County, NM

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



SRR & A

Exhibit E-1 – 3000# BOP
Red Hills Unit 20H
Cimarex Energy Co. of Colorado
33-25S-33E
SHL 330 FNL & 1745 FEL
BHL 330 FSL & 1330 FEL
Lea County, NM



Drilling Operations **Choke Manifold** **2M/3M Service**

Exhibit E-1 – Choke Manifold
Diagram
Red Hills Unit 20H
Cimarex Energy Co. of Colorado
33-25S-33E
SHL 330 FNL & 1745 FEL
BHL 330 FSL & 1330 FEL
Lea County, NM

Exhibit F-1 - Co-Flex Hose Hydrostatic Test

Red Hills Unit 20H

Cimarex Energy Co. of Colorado
33-25S-33E

SHL 330 FNL & 1745 FEL

BHL 330 FSL & 1330 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

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:

A. Jones Jones

Approved:

Kevin [Signature]



Midwest Hose
& Specialty, Inc.

Internal Hydrostatic Test Graph

Customer: Houston

Pick Ticket #: 94260

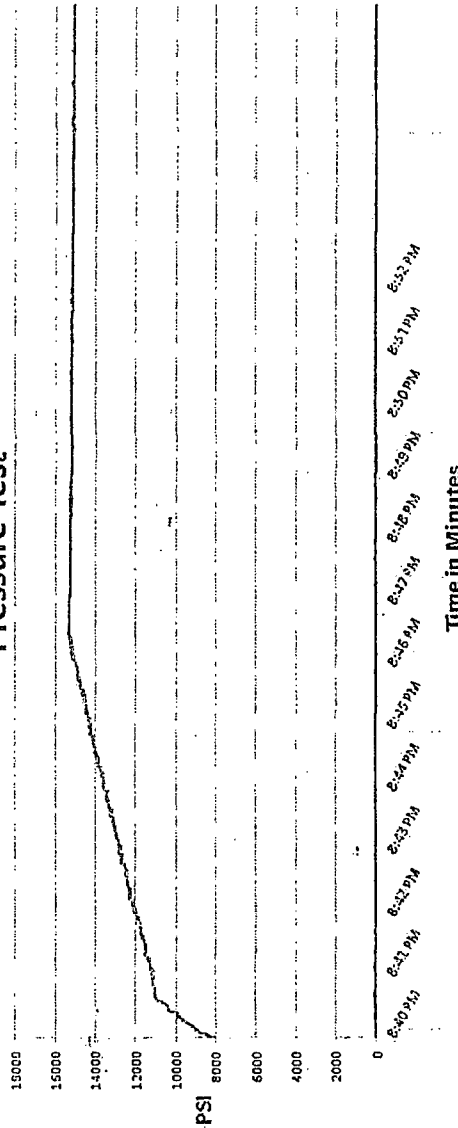
Hose Specifications

Hose Type: C&K
I.D.: 4"
Working Pressure: 10000 PSI
Length: 45'
O.D.: 6.09"
Burst Pressure: Standard Safety Multiplier Applies

Verification

Type of Fittings: 41/16 10K
Coupling Method: Swage
Final O.D.: 6.25"
Hose Serial #: 5504
Hose Assembly Serial #: 79793

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]

March 3, 2011

Certificate of Conformity

ODYD-271

3/8/2011.

3/8/2011



Midwest Hose
& Specialty, Inc.

Exhibit F -3- Co-Flex Hose
Red Hills Unit 20H
Cimarex Energy Co. of Colorado
33-25S-33E
SHL 330 FNL & 1745 FEL
BHL 330 FSL & 1330 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 20H
Cimarex Energy Co. of Colorado
33-25S-33E
SHL 330 FNL & 1745 FEL
BHL 330 FSL & 1330 FEL
Lea County, NM

