

OCD - Hobbs

ATS-14-483

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: NM024368A; BHL: NM05792; Other:
NM0005792A

6. If Indian, Allottee or Tribe Name

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. *OK COLORADO 162683*

HOBBS OCD

3a. Address

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

3b. Phone No. (include area code)

432-571-7800

DEC 09 2014

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

At Surface 150' FNL & 1260' FWL

At proposed prod. Zone 330' FSL & 1310' FWL

Bone Spring

RECEIVED

7. If Unit or CA Agreement, Name and No.
NM71019X8. Lease Name and Well No.
Red Hills Unit 17H *300543*

9. API Well No.

30025 *42325*10. Field and Pool, or Exploratory
Bone Spring Wildcat *97994*

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

33, 25S, 33S

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

Approx 14 miles SW 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)

150'

16. No of acres in lease

NM024368A=160.00 acres
NM0005792A=40.00 acres
NM05792=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.

20'

19. Proposed Depth

Pilot Hole TD: N/A

14,470 MD

9,875 TVD

20. BLM/BIA Bond No. on File

NM2575; NMB000835

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

3373 GR

22. Approximate date work will start*

4/21/14

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

Paula Brunson

Name (Printed/Typed)

Paula Brunson

Date

1/31/14

Title

Regulatory Compliance

Approved By (Signature)

Steve Caffey

Name (Printed/Typed)

CARLSBAD FIELD OFFICE

Date

DEC 1 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 General Requirements
& Special Stipulations AttachedSEE ATTACHED FOR
CONDITIONS OF APPROVAL
DEC 10 2014

Application to Drill
Red Hills Unit 17H
 Cimarex Energy Co.
 UL: D, Sec. 33, 25S, 33S
 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 150' FNL & 1260' FWL
 BHL 330' FSL & 1310' FWL
- 2. Elevation Above Sea Level:** 3,373' 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:** 14,470 MD 9,875 TVD Pilot Hole TD: N/A
- 6. Estimated Tops of Geological Markers:**

Formation	Est Top	Bearing
Rustler	995	N/A
Salt	1140	N/A
Castille	3380	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)	9080	Hydrocarbons
L. Avalon	9680	Hydrocarbons

7. Possible Mineral Bearing Formation: Shown above

7A. OSE Ground Water Estimated Depth: 185'

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	4850	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	9398	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	14470	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.

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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 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	1420	1.24	14.50	1760	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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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 13666'		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.

L. Avalon pay will be perforated and stimulated.

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



Cimarex

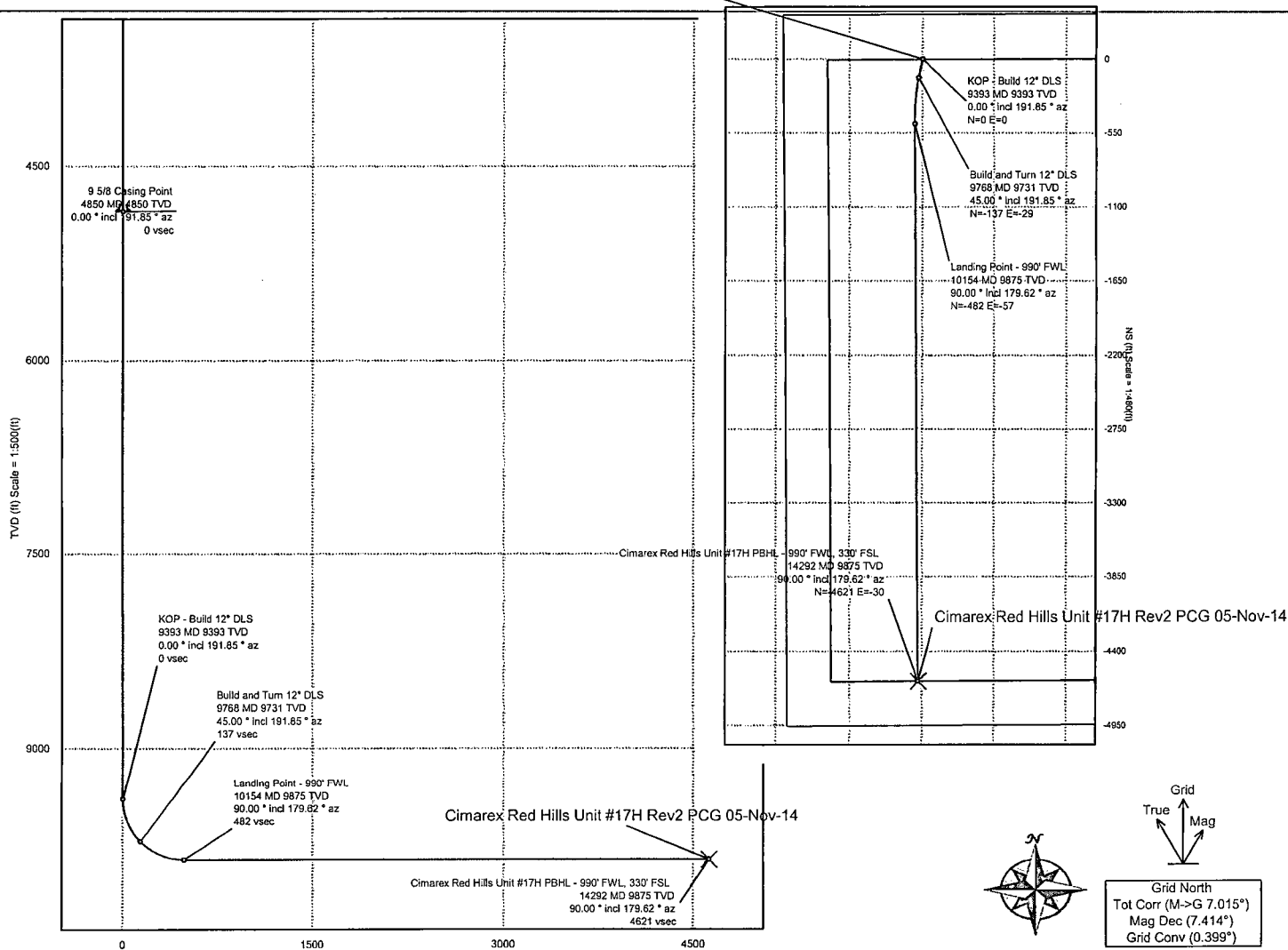


Borehole:	Well:	Field:	Structure:
Original Borehole	Red Hills Unit #17H	NM Lea County	TBD

Gravity & Magnetic Parameters	Surface Location	Miscellaneous
Model: HDGM 2014 Dip: 59.996° Date: 05-Nov-2014	NAD83 New Mexico State Plane, Eastern Zone, US Feet	Red Hills Unit #17H
MagDec: 7.414° FS: 48304.934nT Gravity FS: 998.479mgm (9.80665 Based)	Lat: N 32 5 36.22 Northing: 398523.7HUS Grid Conv: 0.399°	TVD Ref: Ground Level (3374ft above MSL)
	Lon: W 103 34 56.59 Easting: 773888.7HUS Scale Fact: 0.99997103	Plan: Rev2 PCG 05-Nov-14

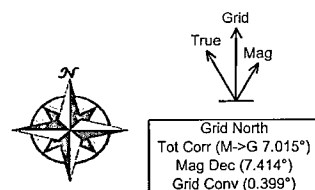
SHL - Cimarex Red Hills Unit #17H - 1050' FWL, 330' FNL
0 MD 0 TVD
0.00° incl 191.85° az
N=0 E=0

EW (ft) Scale = 1:480(ft)



Vertical Section (ft) Azim = 180.366° Scale = 1:500(ft) Origin = 0N/S, 0E/W

Critical Points								
Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)/S(-)	E(+)/W(-)	DLS
SHL - Cimarex Red Hills Unit #17H - 1050' FWL, 330' FNL	0.00	0.00	191.85	0.00	0.00	0.00	0.00	
9 5/8 Casing Point	4850.00	0.00	191.85	4850.00	0.00	0.00	0.00	0.00
Avalon Shale	9080.00	0.00	191.85	9080.00	0.00	0.00	0.00	0.00
KOP - Build 12° DLS	9393.10	0.00	191.85	9393.10	0.00	0.00	0.00	0.00
Build and Turn 12° DLS	9768.10	45.00	191.85	9730.72	137.05	-136.87	-28.72	12.00
Landing Point - 990' FWL	10153.75	90.00	179.62	9875.00	482.47	-482.11	-56.99	12.00
Cimarex Red Hills Unit #17H PBHL - 990' FWL, 330' FSL	14292.27	90.00	179.62	9875.00	4620.64	-4620.54	-29.50	0.00



D E C		CONTROLLED	
Plan ref	Cimarex Red Hills Unit #17H 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 #17H Rev2 PCG 05-Nov-14 Proposal Geodetic Report

(Non-Def Plan)

Report Date: November 05, 2014 - 11:33 AM
 Client: Cimarex
 Field: NM Lea County (NAD 83)
 Structure / Slot: Cimarex Red Hills Unit #17H / Red Hills Unit #17H
 Well: Red Hills Unit #17H
 Borehole: Original Borehole
 UWI / API#: Unknown / Unknown
 Survey Name: Cimarex Red Hills Unit #17H Rev2 PCG 05-Nov-14
 Survey Date: January 03, 2014
 Tort / AHD / DDI / ERD Ratio: 91.287 ° / 4625.362 ft / 5.786 / 0.468
 Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
 Location Lat / Long: N 32° 5' 36.22286", W 103° 34' 56.59146"
 Location Grid N/E Y/X: N 398523.700 ftUS, E 773888.700 ftUS
 CRS Grid Convergence Angle: 0.3990 °
 Grid Scale Factor: 0.99997103
 Version / Patch: 2.7.1043.0

Survey / DLS Computation: Minimum Curvature / Lubinski
 Vertical Section Azimuth: 180.366 ° (Grid North)
 Vertical Section Origin: 0.000 ft, 0.000 ft
 TVD Reference Datum: Ground Level
 TVD Reference Elevation: 3374.000 ft above MSL
 Seabed / Ground Elevation: 3374.000 ft above MSL
 Magnetic Declination: 7.414 °
 Total Gravity Field Strength: 998.4793mgn (9.80665 Based)
 Gravity Model: DOX
 Total Magnetic Field Strength: 48304.934 nT
 Magnetic Dip Angle: 59.996 °
 Declination Date: November 05, 2014
 Magnetic Declination Model: HDGM 2014
 North Reference: Grid North
 Grid Convergence Used: 0.3990 °
 Total Corr Mag North->Grid North: 7.0145 °
 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 #17H - 1050' FWL, 330' FNL	0.00	0.00	191.85	0.00	0.00	0.00	0.00	N/A	398523.70	773888.70	N 32 5 36.22 W 103 34 56.59	
9 5/8 Casing Point	4850.00	0.00	191.85	4850.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22 W 103 34 56.59	
Avalon Shale	9080.00	0.00	191.85	9080.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22 W 103 34 56.59	
KOP - Build 12° DLS	9393.10	0.00	191.85	9393.10	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22 W 103 34 56.59	
Build and Turn 12° DLS	9768.10	45.00	191.85	9730.72	137.05	-136.87	-28.72	12.00	398386.84	773859.98	N 32 5 34.87 W 103 34 56.94	
Landing Point - 990' FWL	10153.75	90.00	179.62	9875.00	482.47	-482.11	-56.99	12.00	398041.60	773831.71	N 32 5 31.46 W 103 34 57.29	
Cimarex Red Hills Unit #17H PBHL - 990' FWL, 330' FSL	14292.27	90.00	179.62	9875.00	4620.64	-4620.54	-29.50	0.00	393903.30	773859.20	N 32 4 50.50 W 103 34 57.31	

Survey Type: Non-Def Plan

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

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 ° ' ")
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	14292.272	1/100.000	30.000	30.000	SLB_MWD-STD	Original Borehole / Cimarex Red Hills Unit #17H Rev2 PCG 05-Nov-				



Cimarex Red Hills Unit #17H Rev2 PCG 05-Nov-14 Proposal Geodetic Report - 100ft Interpolated

(Non-Def Plan)



Report Date: November 05, 2014 - 11:34 AM
Client: Cimarex
Field: NM Lea County (NAD 83)
Structure / Slot: Cimarex Red Hills Unit #17H / Red Hills Unit #17H
Well: Red Hills Unit #17H
Borehole: Original Borehole
UWI / API#: Unknown / Unknown
Survey Name: Cimarex Red Hills Unit #17H Rev2 PCG 05-Nov-14
Survey Date: January 03, 2014
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Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 5' 36.22286", W 103° 34' 56.59146"
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CRS Grid Convergence Angle: 0.3990 °
Grid Scale Factor: 0.99997103
Version / Patch: 2.7.1043.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 180.366 ° (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: Ground Level
TVD Reference Elevation: 3374.000 ft above MSL
Seabed / Ground Elevation: 3374.000 ft above MSL
Magnetic Declination: 7.414 °
Total Gravity Field Strength: 998.4793mgn (9.80665 Based)
Gravity Model: DOX
Total Magnetic Field Strength: 48304.934 nT
Magnetic Dip Angle: 59.996 °
Declination Date: November 05, 2014
Magnetic Declination Model: HDGM 2014
North Reference: Grid North
Grid Convergence Used: 0.3990 °
Total Corr Mag North->Grid North: 7.0145 °
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 #17H - 1050' FWL, 330' FNL	0.00	0.00	191.85	0.00	0.00	0.00	0.00	N/A	398523.70	773888.70	N 32 5 36.22 W 103 34 56.59	
	100.00	0.00	191.85	100.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22 W 103 34 56.59	
	200.00	0.00	191.85	200.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22 W 103 34 56.59	
	300.00	0.00	191.85	300.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22 W 103 34 56.59	
	400.00	0.00	191.85	400.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22 W 103 34 56.59	
	500.00	0.00	191.85	500.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22 W 103 34 56.59	
	600.00	0.00	191.85	600.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22 W 103 34 56.59	
	700.00	0.00	191.85	700.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22 W 103 34 56.59	
	800.00	0.00	191.85	800.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22 W 103 34 56.59	
	900.00	0.00	191.85	900.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22 W 103 34 56.59	
	1000.00	0.00	191.85	1000.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22 W 103 34 56.59	
	1100.00	0.00	191.85	1100.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22 W 103 34 56.59	
	1200.00	0.00	191.85	1200.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22 W 103 34 56.59	
	1300.00	0.00	191.85	1300.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22 W 103 34 56.59	
	1400.00	0.00	191.85	1400.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22 W 103 34 56.59	
	1500.00	0.00	191.85	1500.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22 W 103 34 56.59	
	1600.00	0.00	191.85	1600.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22 W 103 34 56.59	
	1700.00	0.00	191.85	1700.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22 W 103 34 56.59	
	1800.00	0.00	191.85	1800.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22 W 103 34 56.59	
	1900.00	0.00	191.85	1900.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22 W 103 34 56.59	

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	191.85	2000.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	2100.00	0.00	191.85	2100.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	2200.00	0.00	191.85	2200.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	2300.00	0.00	191.85	2300.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	2400.00	0.00	191.85	2400.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	2500.00	0.00	191.85	2500.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	2600.00	0.00	191.85	2600.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	2700.00	0.00	191.85	2700.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	2800.00	0.00	191.85	2800.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	2900.00	0.00	191.85	2900.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	3000.00	0.00	191.85	3000.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	3100.00	0.00	191.85	3100.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	3200.00	0.00	191.85	3200.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	3300.00	0.00	191.85	3300.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	3400.00	0.00	191.85	3400.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	3500.00	0.00	191.85	3500.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	3600.00	0.00	191.85	3600.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	3700.00	0.00	191.85	3700.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	3800.00	0.00	191.85	3800.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	3900.00	0.00	191.85	3900.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	4000.00	0.00	191.85	4000.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	4100.00	0.00	191.85	4100.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	4200.00	0.00	191.85	4200.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	4300.00	0.00	191.85	4300.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	4400.00	0.00	191.85	4400.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	4500.00	0.00	191.85	4500.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	4600.00	0.00	191.85	4600.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	4700.00	0.00	191.85	4700.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	4800.00	0.00	191.85	4800.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
9 5/8 Casing Point	4850.00	0.00	191.85	4850.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	4900.00	0.00	191.85	4900.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	5000.00	0.00	191.85	5000.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	5100.00	0.00	191.85	5100.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	5200.00	0.00	191.85	5200.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	5300.00	0.00	191.85	5300.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	5400.00	0.00	191.85	5400.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	5500.00	0.00	191.85	5500.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	5600.00	0.00	191.85	5600.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	5700.00	0.00	191.85	5700.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	5800.00	0.00	191.85	5800.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	5900.00	0.00	191.85	5900.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	6000.00	0.00	191.85	6000.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	6100.00	0.00	191.85	6100.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	6200.00	0.00	191.85	6200.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	6300.00	0.00	191.85	6300.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	6400.00	0.00	191.85	6400.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	6500.00	0.00	191.85	6500.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59

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 ° ' '')
	6600.00	0.00	191.85	6600.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	6700.00	0.00	191.85	6700.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	6800.00	0.00	191.85	6800.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	6900.00	0.00	191.85	6900.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	7000.00	0.00	191.85	7000.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	7100.00	0.00	191.85	7100.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	7200.00	0.00	191.85	7200.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	7300.00	0.00	191.85	7300.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	7400.00	0.00	191.85	7400.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	7500.00	0.00	191.85	7500.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	7600.00	0.00	191.85	7600.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	7700.00	0.00	191.85	7700.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	7800.00	0.00	191.85	7800.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	7900.00	0.00	191.85	7900.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	8000.00	0.00	191.85	8000.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	8100.00	0.00	191.85	8100.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	8200.00	0.00	191.85	8200.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	8300.00	0.00	191.85	8300.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	8400.00	0.00	191.85	8400.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	8500.00	0.00	191.85	8500.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	8600.00	0.00	191.85	8600.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	8700.00	0.00	191.85	8700.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	8800.00	0.00	191.85	8800.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	8900.00	0.00	191.85	8900.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	9000.00	0.00	191.85	9000.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
Avalon Shale	9080.00	0.00	191.85	9080.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	9100.00	0.00	191.85	9100.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	9200.00	0.00	191.85	9200.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	9300.00	0.00	191.85	9300.00	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
KOP - Build 12° DLS	9393.10	0.00	191.85	9393.10	0.00	0.00	0.00	0.00	398523.70	773888.70	N 32 5 36.22	W 103 34 56.59
	9400.00	0.83	191.85	9400.00	0.05	-0.05	-0.01	12.00	398523.65	773888.69	N 32 5 36.22	W 103 34 56.59
	9500.00	12.83	191.85	9499.11	11.68	-11.66	-2.45	12.00	398512.04	773886.25	N 32 5 36.11	W 103 34 56.62
	9600.00	24.83	191.85	9593.59	43.25	-43.19	-9.06	12.00	398480.51	773879.64	N 32 5 35.80	W 103 34 56.70
	9700.00	36.83	191.85	9679.30	93.38	-93.25	-19.57	12.00	398430.45	773869.13	N 32 5 35.30	W 103 34 56.83
Build and Turn 12° DLS	9768.10	45.00	191.85	9730.72	137.05	-136.87	-28.72	12.00	398386.84	773859.98	N 32 5 34.87	W 103 34 56.94
	9800.00	48.67	190.36	9752.54	159.90	-159.69	-33.19	12.00	398364.01	773855.51	N 32 5 34.64	W 103 34 56.99
	9900.00	60.27	186.57	9810.56	240.34	-240.06	-44.95	12.00	398283.65	773843.75	N 32 5 33.85	W 103 34 57.13
	10000.00	71.96	183.58	9850.99	331.31	-330.98	-52.91	12.00	398192.73	773835.79	N 32 5 32.95	W 103 34 57.23
	10100.00	83.69	180.96	9872.04	428.83	-428.47	-56.72	12.00	398095.24	773831.98	N 32 5 31.99	W 103 34 57.29
Landing Point - 990' FWL	10153.75	90.00	179.62	9875.00	482.47	-482.11	-56.99	12.00	398041.60	773831.71	N 32 5 31.46	W 103 34 57.29
	10200.00	90.00	179.62	9875.00	528.71	-528.36	-56.69	0.00	397995.36	773832.02	N 32 5 31.00	W 103 34 57.29
	10300.00	90.00	179.62	9875.00	628.70	-628.36	-56.02	0.00	397895.36	773832.68	N 32 5 30.01	W 103 34 57.29
	10400.00	90.00	179.62	9875.00	728.70	-728.36	-55.36	0.00	397795.37	773833.34	N 32 5 29.02	W 103 34 57.29
	10500.00	90.00	179.62	9875.00	828.69	-828.35	-54.70	0.00	397695.37	773834.01	N 32 5 28.03	W 103 34 57.29
	10600.00	90.00	179.62	9875.00	928.68	-928.35	-54.03	0.00	397595.38	773834.67	N 32 5 27.04	W 103 34 57.29

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 ° ' ")	
	10700.00	90.00	179.62	9875.00	1028.67	-1028.35	-53.37	0.00	397495.38	773835.33	N 32	5 26.05	W 103 34 57.30	
	10800.00	90.00	179.62	9875.00	1128.66	-1128.35	-52.71	0.00	397395.39	773836.00	N 32	5 25.06	W 103 34 57.30	
	10900.00	90.00	179.62	9875.00	1228.65	-1228.35	-52.04	0.00	397295.39	773836.66	N 32	5 24.07	W 103 34 57.30	
	11000.00	90.00	179.62	9875.00	1328.64	-1328.34	-51.38	0.00	397195.40	773837.32	N 32	5 23.08	W 103 34 57.30	
	11100.00	90.00	179.62	9875.00	1428.64	-1428.34	-50.71	0.00	397095.40	773837.99	N 32	5 22.09	W 103 34 57.30	
	11200.00	90.00	179.62	9875.00	1528.63	-1528.34	-50.05	0.00	396995.41	773838.65	N 32	5 21.10	W 103 34 57.30	
	11300.00	90.00	179.62	9875.00	1628.62	-1628.34	-49.39	0.00	396895.41	773839.31	N 32	5 20.11	W 103 34 57.30	
	11400.00	90.00	179.62	9875.00	1728.61	-1728.33	-48.72	0.00	396795.42	773839.98	N 32	5 19.12	W 103 34 57.30	
	11500.00	90.00	179.62	9875.00	1828.60	-1828.33	-48.06	0.00	396695.42	773840.64	N 32	5 18.13	W 103 34 57.30	
	11600.00	90.00	179.62	9875.00	1928.59	-1928.33	-47.40	0.00	396595.43	773841.31	N 32	5 17.15	W 103 34 57.30	
	11700.00	90.00	179.62	9875.00	2028.59	-2028.33	-46.73	0.00	396495.43	773841.97	N 32	5 16.16	W 103 34 57.30	
	11800.00	90.00	179.62	9875.00	2128.58	-2128.33	-46.07	0.00	396395.44	773842.63	N 32	5 15.17	W 103 34 57.30	
	11900.00	90.00	179.62	9875.00	2228.57	-2228.32	-45.40	0.00	396295.45	773843.30	N 32	5 14.18	W 103 34 57.30	
	12000.00	90.00	179.62	9875.00	2328.56	-2328.32	-44.74	0.00	396195.45	773843.96	N 32	5 13.19	W 103 34 57.30	
	12100.00	90.00	179.62	9875.00	2428.55	-2428.32	-44.07	0.00	396095.46	773844.63	N 32	5 12.20	W 103 34 57.30	
	12200.00	90.00	179.62	9875.00	2528.54	-2528.32	-43.41	0.00	395995.46	773845.29	N 32	5 11.21	W 103 34 57.30	
	12300.00	90.00	179.62	9875.00	2628.53	-2628.31	-42.75	0.00	395895.47	773845.96	N 32	5 10.22	W 103 34 57.30	
	12400.00	90.00	179.62	9875.00	2728.53	-2728.31	-42.08	0.00	395795.47	773846.62	N 32	5 9.23	W 103 34 57.30	
	12500.00	90.00	179.62	9875.00	2828.52	-2828.31	-41.42	0.00	395695.48	773847.28	N 32	5 8.24	W 103 34 57.30	
	12600.00	90.00	179.62	9875.00	2928.51	-2928.31	-40.75	0.00	395595.48	773847.95	N 32	5 7.25	W 103 34 57.30	
	12700.00	90.00	179.62	9875.00	3028.50	-3028.31	-40.09	0.00	395495.49	773848.61	N 32	5 6.26	W 103 34 57.30	
	12800.00	90.00	179.62	9875.00	3128.49	-3128.30	-39.42	0.00	395395.49	773849.28	N 32	5 5.27	W 103 34 57.30	
	12900.00	90.00	179.62	9875.00	3228.48	-3228.30	-38.76	0.00	395295.50	773849.94	N 32	5 4.28	W 103 34 57.30	
	13000.00	90.00	179.62	9875.00	3328.47	-3328.30	-38.09	0.00	395195.50	773850.61	N 32	5 3.29	W 103 34 57.30	
	13100.00	90.00	179.62	9875.00	3428.47	-3428.30	-37.43	0.00	395095.51	773851.27	N 32	5 2.30	W 103 34 57.30	
	13200.00	90.00	179.62	9875.00	3528.46	-3528.29	-36.77	0.00	394995.51	773851.94	N 32	5 1.31	W 103 34 57.30	
	13300.00	90.00	179.62	9875.00	3628.45	-3628.29	-36.10	0.00	394895.52	773852.60	N 32	5 0.32	W 103 34 57.30	
	13400.00	90.00	179.62	9875.00	3728.44	-3728.29	-35.44	0.00	394795.52	773853.27	N 32	4 59.33	W 103 34 57.31	
	13500.00	90.00	179.62	9875.00	3828.43	-3828.29	-34.77	0.00	394695.53	773853.93	N 32	4 58.34	W 103 34 57.31	
	13600.00	90.00	179.62	9875.00	3928.42	-3928.29	-34.11	0.00	394595.54	773854.60	N 32	4 57.35	W 103 34 57.31	
	13700.00	90.00	179.62	9875.00	4028.42	-4028.28	-33.44	0.00	394495.54	773855.26	N 32	4 56.36	W 103 34 57.31	
	13800.00	90.00	179.62	9875.00	4128.41	-4128.28	-32.78	0.00	394395.55	773855.93	N 32	4 55.38	W 103 34 57.31	
	13900.00	90.00	179.62	9875.00	4228.40	-4228.28	-32.11	0.00	394295.55	773856.59	N 32	4 54.39	W 103 34 57.31	
	14000.00	90.00	179.62	9875.00	4328.39	-4328.28	-31.45	0.00	394195.56	773857.26	N 32	4 53.40	W 103 34 57.31	
	14100.00	90.00	179.62	9875.00	4428.38	-4428.28	-30.78	0.00	394095.56	773857.92	N 32	4 52.41	W 103 34 57.31	
	14200.00	90.00	179.62	9875.00	4528.37	-4528.27	-30.11	0.00	393995.57	773858.59	N 32	4 51.42	W 103 34 57.31	
Cimarex Red Hills Unit #17H PBHL - 990' FWL, 330' FSL	14292.27	90.00	179.62	9875.00	4620.64	-4620.54	-29.50	0.00	393903.30	773859.20	N 32	4 50.50	W 103 34 57.31	

Survey Type: Non-Def Plan

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

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 ° ' ")
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	14292.272	1/100.000	30.000	30.000	SLB_MWD-STD	Original Borehole / Cimarex Red Hills Unit #17H Rev2 PCG 05-Nov-				

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

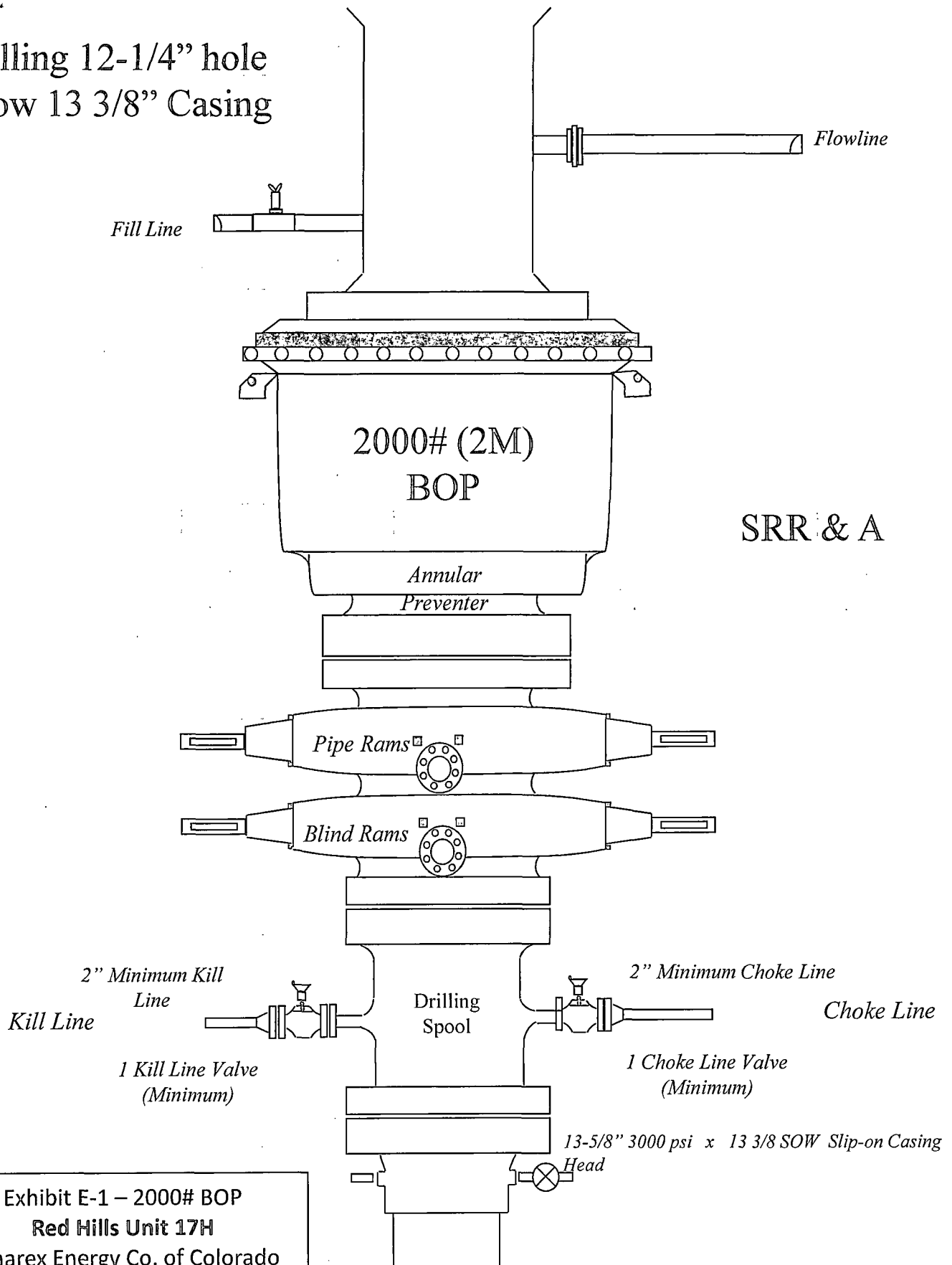


Exhibit E-1 – 2000# BOP
Red Hills Unit 17H
Cimarex Energy Co. of Colorado
33-25S-33E
SHL 150 FNL & 1260 FWL
BHL 330 FSL & 1310 FWL
Lea County, NM

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

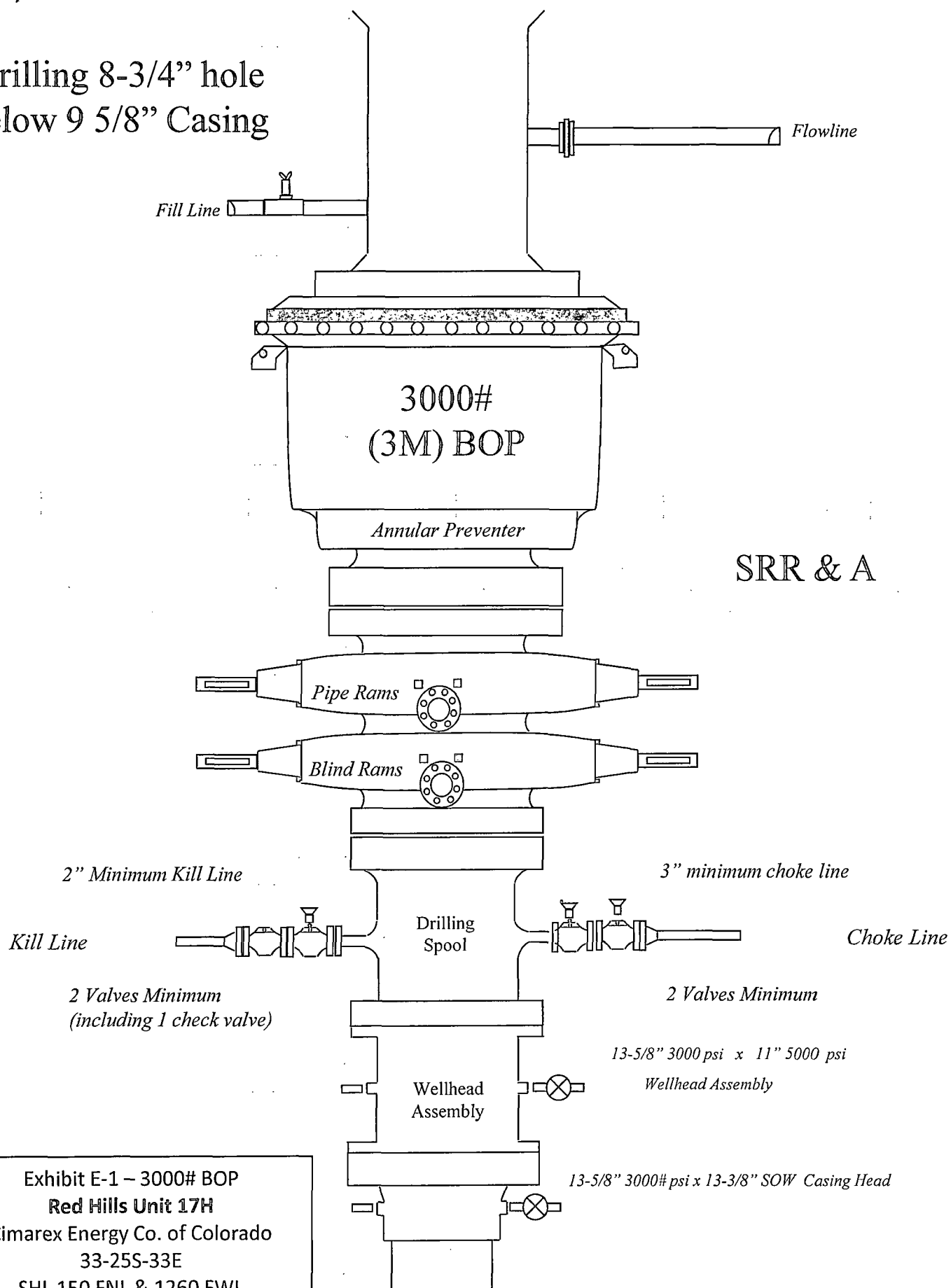
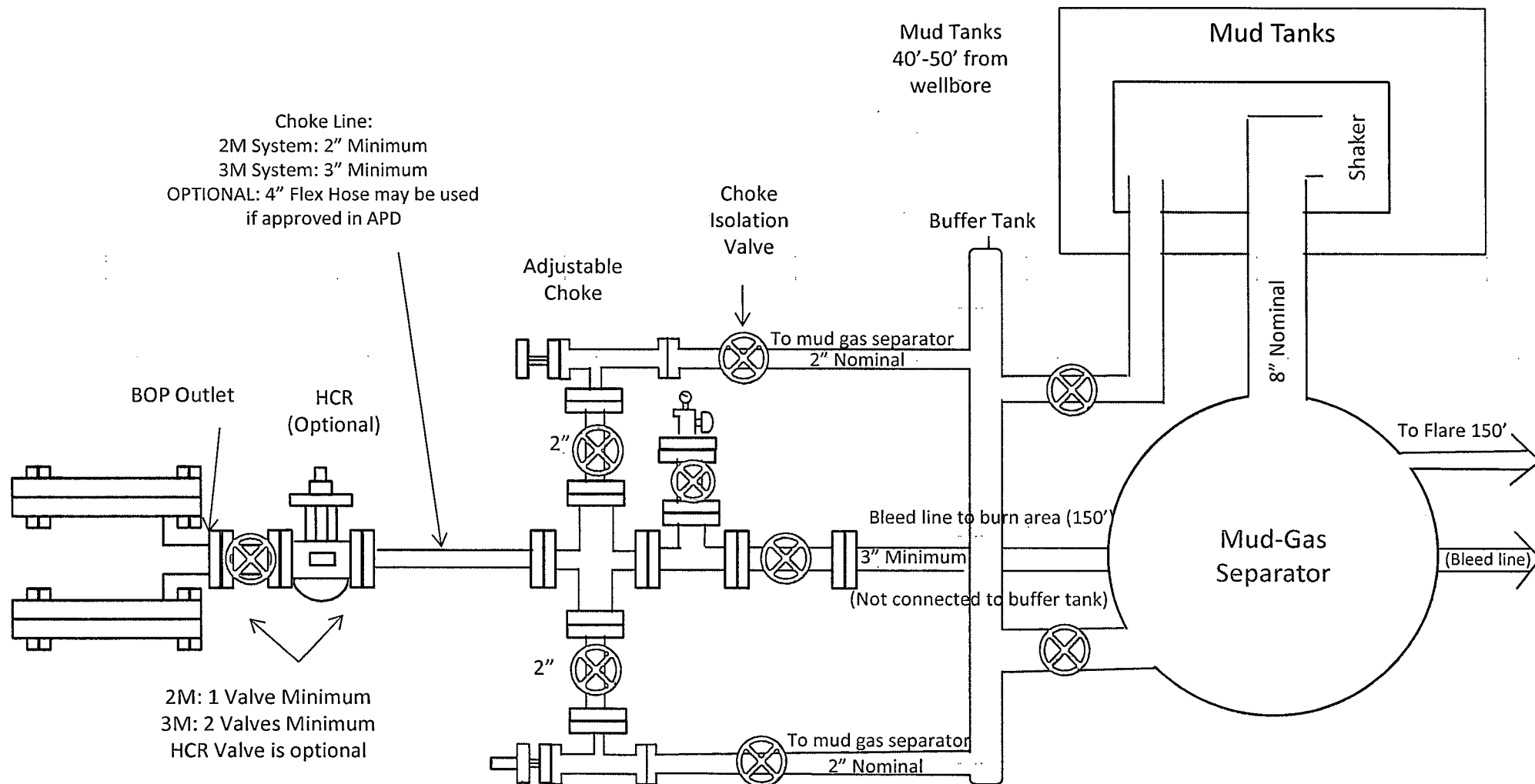


Exhibit E-1 – 3000# BOP
Red Hills Unit 17H
Cimarex Energy Co. of Colorado
33-25S-33E
SHL 150 FNL & 1260 FWL
BHL 330 FSL & 1310 FWL
Lea County, NM



Drilling Operations Choke Manifold 2M/3M Service

Exhibit E-1 – Choke Manifold
Diagram
Red Hills Unit 17H
Cimarex Energy Co. of Colorado
33-25S-33E
SHL 150 FNL & 1260 FWL
BHL 330 FSL & 1310 FWL
Lea County, NM

Exhibit F – Co-Flex Hose

Red Hills Unit 17H

Cimarex Energy Co. of Colorado

33-25S-33E

SHL 150 FNL & 1260 FWL

BHL 330 FSL & 1310 FWL

Lea County, NM

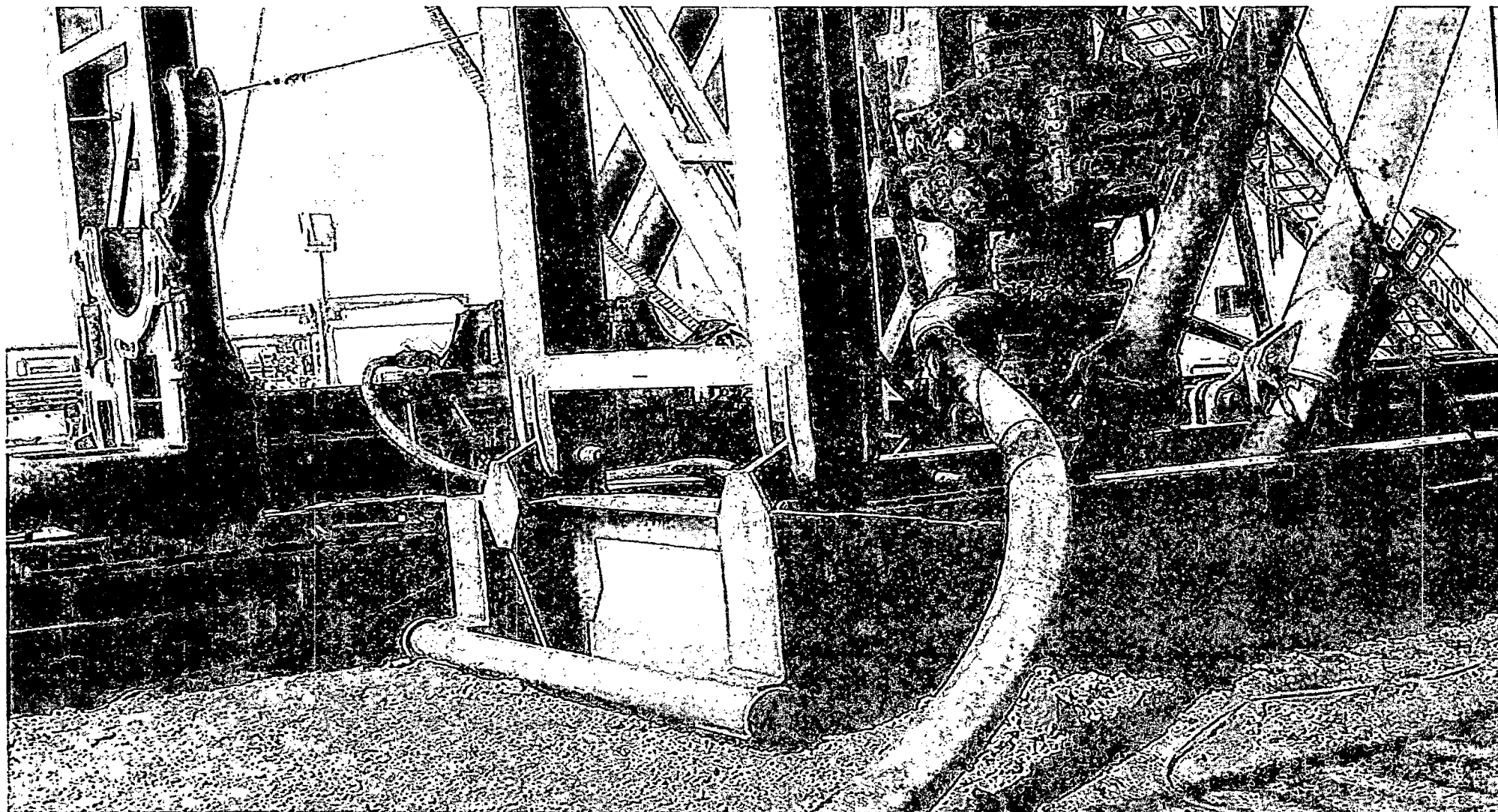


Exhibit F-1 – Co-Flex Hose Hydrostatic Test

Red Hills Unit 17H

Cimarex Energy Co. of Colorado

33-25S-33E

SHL 150 FNL & 1260 FWL

BHL 330 FSL & 1310 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:

A. James Jones

Approved:

Kevin J. Jett



Midwest Hose
& Specialty, Inc.

Internal Hydrostatic Test Graph

Customer: Houston

Pick Ticket #: 94260

Hose Specifications

Hose Type
C.S.K.
I.D.
4"
Working Pressure
10000 PSI

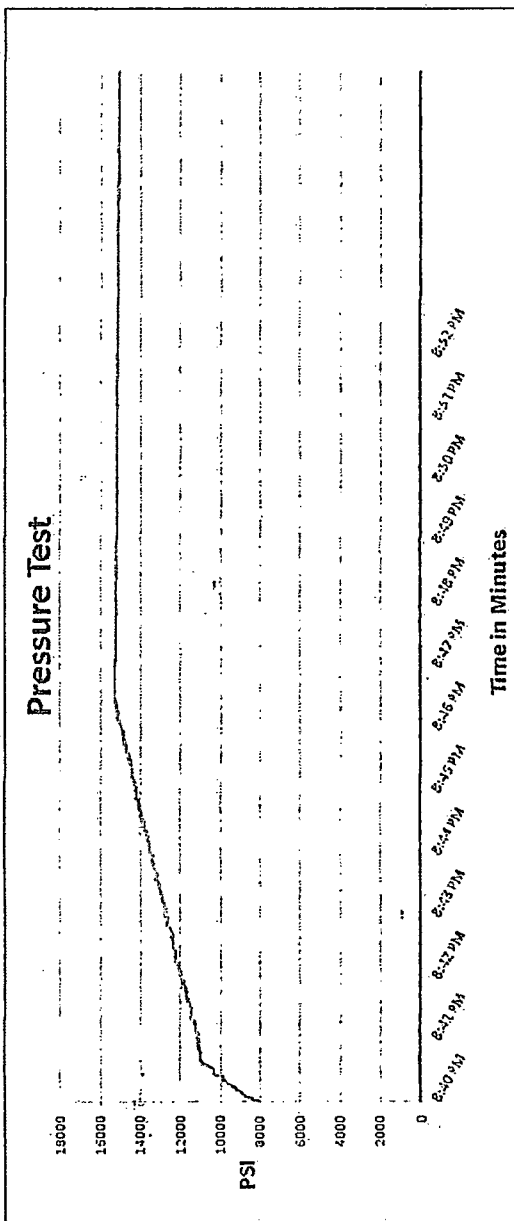
Length
45'
O.D.
6.09"
Burst Pressure
Standard Safety Multiplier/Applies

Verification

Type of Fittings
4 1/16 10K
Die Size
6.39"
Hose Serial #
5544

Cauling Method
Swage
Final O.D.
6.25"
Hose Assembly Serial #
79733

Pressure Test



Test Pressure
15000 PSI

Time Held at Test Pressure
11 Minutes

Actual Burst Pressure

Peak Pressure
15485 PSI

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

Tested By: Zac McConnell

Approved By: Kim Thomas

[Signature]

[Signature]

March 3, 2011

Exhibit F-1 – Co-Flex Hose Hydrostatic Test
Red Hills Unit 17H
Cimarex Energy Co. of Colorado
33-25S-33E
SHL 150 FNL & 1260 FWL
BHL 330 FSL & 1310 FWL
Lea County, NM

Exhibit F-2 – Co-Flex Hose
Red Hills Unit 17H
Cimarex Energy Co. of Colorado
33-25S-33E
SHL 150 FNL & 1260 FWL
BHL 330 FSL & 1310 FWL
Lea County, NM



Midwest Hose & Specialty, Inc.

Certificate of Conformity

Customer:		PO
DEM		ODYD-271
SPECIFICATIONS		
Sales Order	Dated:	
79793	3/8/2011	
We hereby certify that the material supplied for the referenced purchase order to be true according to the requirements of the purchase order and current industry standards Supplier: Midwest Hose & Specialty, Inc. 10640 Tanner Road Houston, Texas 77041		
Comments:		
Approved:		Date:
		3/8/2011



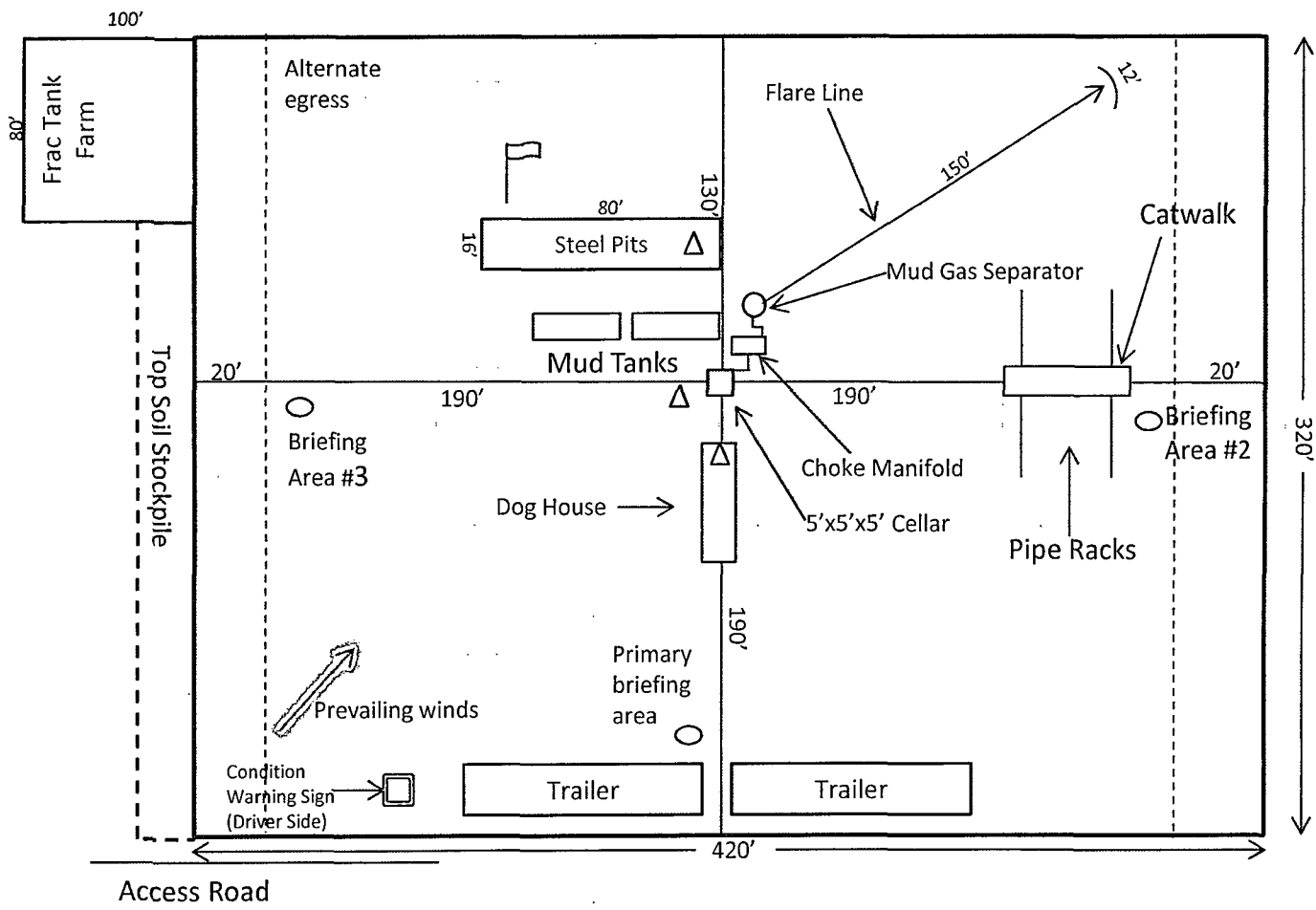
Midwest Hose
& Specialty, Inc.

Exhibit F -3- Co-Flex Hose
Red Hills Unit 17H
Cimarex Energy Co. of Colorado
33-25S-33E
SHL 150 FNL & 1260 FWL
BHL 330 FSL & 1310 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 Diagram
Red Hills Unit 17H
 Cimarex Energy Co. of Colorado
 33-25S-33E
 SHL 150 FNL & 1260 FWL
 BHL 330 FSL & 1310 FWL
 Lea County, NM