

HOBBS OCD

Form 3160-3
(March 2012)OCD Hobbs 03 2014
DEC 03 2014UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTFORM APPROVED
OMB No. 1004-0137
Expires October 31, 2014

RECEIVED Split Estate

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of Work ☒ DRILL ☐ REENTER		7. If Unit or CA Agreement, Name and No. NM71019X
1b. Type of Well ☒ Oil Well ☐ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone		8. Lease Name and Well No. Red Hills Unit 29H <300545>
2. Name of Operator Cimarex Energy Co. <OF COLORADO<162.683>		9. API Well No. 30025 - 42306
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 Bone Spring Wildcat 97994
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At Surface ☒ 140 FNL & 895 FWL At proposed prod. Zone 330 FSL & 1330 FWL Bone Spring		11. Sec., T. R. M. or Blk. and Survey and Area 4, 26S, 33E
14. Distance in miles and direction from nearest town or post office* Approximately 30 miles NW of Jal, NM		12. County or Parish Lea
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line if any) 140		13. State NM
16. No of acres in lease NM089425=600.00 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		20. BLM/BIA Bond No. on File NM2575; NMB000835
19. Proposed Depth Pilot Hole TD: N/A 14,498 MD 597 9,875 TVD		21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3354 GR
22. Approximate date work will start* 5/15/14		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 | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). |
| 2. A Drilling Plan | 5. Operator Certification |
| 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). | 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 3/20/14
Title Regulatory Compliance		
Approved By (Signature) Steve Caffey	Name (Printed/Typed)	Date NOV 25 2014
Title FIELD MANAGER	Office CARLSBAD FIELD OFFICE	

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
Conditions of approval, if any, are attached.

APPROVAL FOR TWO YEARS

Title 18 U.S.S. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious, or fraudulent statements or representations as to any matter within its jurisdiction.

(Continued on page 2)

*(Instructions on page 2)

Carlsbad Controlled Water Basin

Subject to General Requirements
& Special Stipulations AttachedSEE ATTACHED FOR
CONDITIONS OF APPROVAL
DEC 04 2014

Operator - Land Owner Agreement

DEC 03 2014

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Company: Cimarex Energy Co.Proposed Well: Red Hills Unit 29HFederal Lease Number: NM089425

Please be advised that Cimarex Energy Co. has an agreement with the surface owner, listed below, concerning entry and surface restoration after completion of drilling operations at the above described well.

Dinwiddle Cattle Company, LLC

Tommy Dinwiddle

P.O. Box 374

Roswell, NM 88202

575-355-7610

After abandonment of the well, all pits will be filled and levelled and all equipment and trash will be removed from the well site. No other requirements were made concerning restoration of the well site.

9/12/14
Date

Hope Knauls
Signature Hope Knauls

Operator Certification Statement

Red Hills Unit 29H

Cimarex Energy Co.

UL: D, Sec. 4, 26S, 33E

Lea Co., NM

HOBBS COO

DEC 03 2014

RECEIVED

Operator's Representative

Cimarex Energy Co. of Colorado

600 N. Marienfeld St., Ste. 600

Midland, TX 79701

Office Phone: (432) 571-7800

CERTIFICATION: I hereby certify that I, or someone under my direct supervision, have inspected the drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I have full knowledge of state and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or the company I represent, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements.

Executed this 20 day of March, 2014

NAME:

Paula Brunson

Paula Brunson

TITLE: Regulatory Compliance

ADDRESS: 600 N. Marienfeld St. Ste. 600 Midland Tx 79071

TELEPHONE: 432-571-7800

EMAIL: pbrunson@cimarex.com

Field Representative: Same as above

DEC 03 2014

In response to questions asked under Section II B of Bulletin NTL-6, the following information is provided for your consideration. **RECEIVED**

1. Location: SHL 3140 FNL & 895 FWL

BHL 330 FSL & 1330 FWL

2. Elevation Above Sea Level: 3,354' 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: 14,498 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: 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	1045 1045	1045	17 1/2	13-3/8"	48.00	H-40	ST&C	New	478	8.8	1.55		3.62	50,160	43,421	7.42
Intermediate	0	4920 4920	4920	12 1/4	9-5/8"	48.00	J-55	LT&C	New	2583	10.1		1.17	1.36	177,120	149,808	3.02
Production	0	9398	9398	8 3/4	5-1/2"	17.00	L-80	LT&C	New	4496	9.2	1.40		1.72	167,875	144,295	2.34
Production	9398	14498 14498	9875	8 3/4	5-1/2"	17.00	L-80	BT&C	New	4724	9.2	1.33		1.64	8,109	6,970	56.96

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 29H
 Cimarex Energy Co.
 UL: D, Sec. 4, 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.
	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: 9.20 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, 6.32 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, 9.65 gps water
	Tail	288	1.34	14.80	385	Class C + retarder + LCM, 6.32 gps water
	TOC: 0	44% 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	1256	1.24	14.50	1557	50:50 (poz/H) + Bentonite + Salt + Fluid Loss + Dispersant + LCM + Retarder, 5.55 gps water
	TOC: 4720 4650	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: 9,398' 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.

Application to Drill
Red Hills Unit 29H
Cimarex Energy Co.
UL: D, Sec. 4, 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 14498'	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.

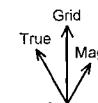
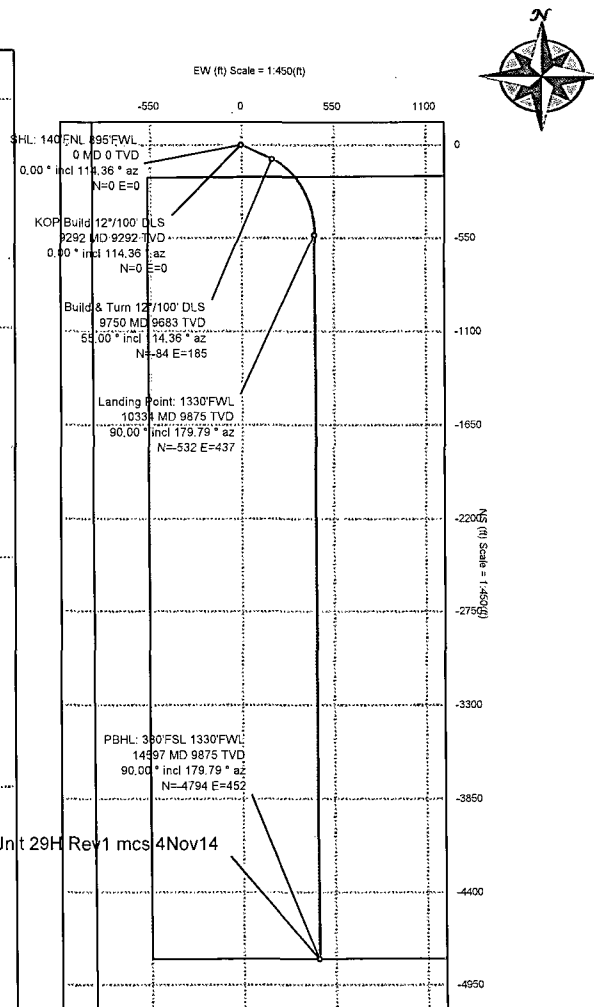
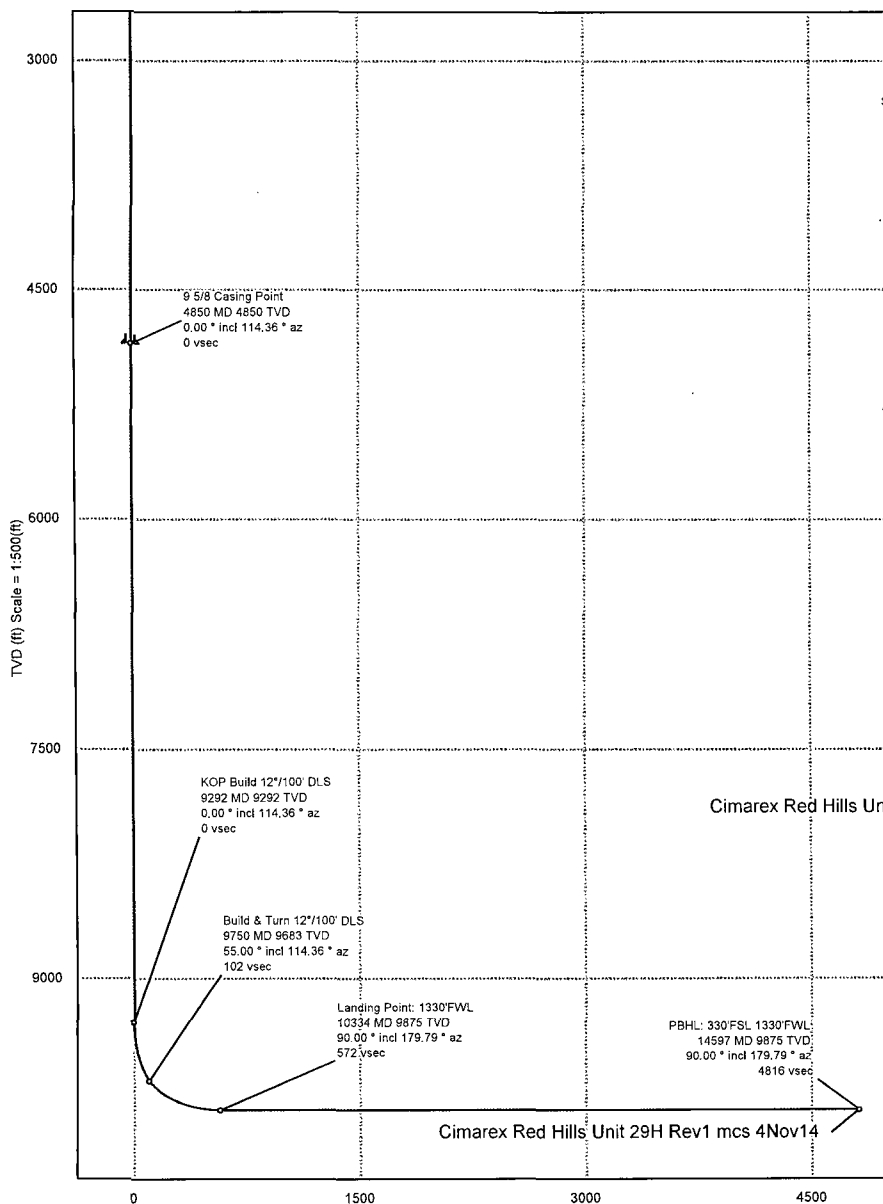
15. Other Facets of Operations:

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**



Borehole:	Well:	Field:	Structure:
Original Borehole	Red Hills Unit #29H	NM Lea County	TBD

Gravity & Magnetic Parameters	Surface Location	Miscellaneous
Model: HDGM 2014 Dip: 59.834° Date: 04-Nov-2014	NAD83 New Mexico State Plane, Eastern Zone, US Feet	Red Hills Unit
MagDec: 7.095° FS: 48206.678nT Gravity FS: 998.686mgn (9.80665 Based)	Lat: N 32 4 45.86 Northing: 3904331NUS Grid Conv: 0.3986°	Slot: #29H TVD Ref: Ground Level(3354ft above MSL)
	Lon: W 103 34 58.41 Easting: 773767.5ftUS Scale Fact: 0.99997097	Plan: Rev1 mcs 4Nov14



Grid North
Tot Corr (M->G 6.696°)
Mag Dec (7.095°)
Grid Conv (0.399°)

Vertical Section (ft) Azim = 174.407° Scale = 1:500(ft) Origin = 0N/-S, 0E/-W

Critical Points

Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)/S(-)	E(+)/W(-)	DLS
SHL: 140°FNL 895°FWL	0.00	0.00	114.36	0.00	0.00	0.00	0.00	
9 5/8 Casing Point	4850.00	0.00	114.36	4850.00	0.00	0.00	0.00	0.00
KOP Build 12"/100' DLS	9291.82	0.00	114.36	9291.82	0.00	0.00	0.00	0.00
Avalon Shale	9745.07	54.39	114.36	9680.00	99.58	-82.26	181.70	12.00
Build & Turn 12"/100' DLS	9750.15	55.00	114.36	9682.94	101.65	-83.97	185.48	12.00
Landing Point: 1330°FWL	10334.19	90.00	179.79	9875.00	571.97	-531.95	436.61	12.00
PBHL: 330°FSL 1330°FWL	14596.71	90.00	179.79	9875.00	4815.71	-4794.44	452.48	0.00

D E C	CONTROLLED	
Plan ref	Cimarex Red Hills Unit 29H Rev1 mcs 4Nov14	
Drawing ref		
Copy number	1 of 1	
Date	11-Nov-2014	

1	Originator	
2	DE Sign Off Authority	
3	D&M Line Manager	
4	Client	

Copy number for



Cimarex Red Hills Unit 29H Rev1 mcs 4Nov14 Proposal Geodetic Report

(Non-Def Plan)

Report Date: November 05, 2014 - 03:32 PM
 Client:
 Field: NM Lea County (NAD 83)
 Structure / Slot: Cimarex Red Hills Unit #29H / Red Hills Unit #29H
 Well: Red Hills Unit #29H
 Borehole: Original Borehole
 UWI / API#: Unknown / Unknown
 Survey Name: Cimarex Red Hills Unit 29H Rev1 mcs 4Nov14
 Survey Date: January 08, 2014
 Tort / AHD / DDI / ERD Ratio: 125.085 ° / 5007.494 ft / 5.967 / 0.507
 Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
 Location Lat / Long: N 32° 4' 45.85655", W 103° 34' 58.41204"
 Location Grid N/E Y/X: N 393433.000 ftUS, E 773767.500 ftUS
 CRS Grid Convergence Angle: 0.3986 °
 Grid Scale Factor: 0.99997097
 Version / Patch: 2.7.1043.0

Survey / DLS Computation: Minimum Curvature / Lubinski
 Vertical Section Azimuth: 174.407 ° (Grid North)
 Vertical Section Origin: 0.000 ft, 0.000 ft
 TVD Reference Datum: Ground Level
 TVD Reference Elevation: 3354.000 ft above MSL
 Seabed / Ground Elevation: 3354.000 ft above MSL
 Magnetic Declination: 7.095 °
 Total Gravity Field Strength: 998.6863mgn (9.80665 Based)
 Gravity Model: DOX
 Total Magnetic Field Strength: 48206.678 nT
 Magnetic Dip Angle: 59.834 °
 Declination Date: November 04, 2014
 Magnetic Declination Model: HDGM 2014
 North Reference: Grid North
 Grid Convergence Used: 0.3986 °
 Total Corr Mag North->Grid North: 6.6965 °
 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: 140'FNL 895'FWL	0.00	0.00	114.36	0.00	0.00	0.00	0.00	N/A	393433.00	773767.50	N 32 4 45.86	W 103 34 58.41
9 5/8 Casing Point	4850.00	0.00	114.36	4850.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32 4 45.86	W 103 34 58.41
KOP Build 12"/100' DLS	9291.82	0.00	114.36	9291.82	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32 4 45.86	W 103 34 58.41
Avalon Shale Build & Turn 12"/100' DLS	9745.07	54.39	114.36	9680.00	99.58	-82.26	181.70	12.00	393350.74	773949.20	N 32 4 45.03	W 103 34 56.31
	9750.15	55.00	114.36	9682.94	101.65	-83.97	185.48	12.00	393349.03	773952.97	N 32 4 45.01	W 103 34 56.26
Landing Point: 1330'FWL	10334.19	90.00	179.79	9875.00	571.97	-531.95	436.61	12.00	392901.06	774204.09	N 32 4 40.56	W 103 34 53.38
PBHL: 330'FSL 1330'FWL	14596.71	90.00	179.79	9875.00	4815.71	-4794.44	452.48	0.00	388638.71	774219.97	N 32 3 58.38	W 103 34 53.54

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	14596.711	1/100.000	30.000	30.000	SLB_MWD-POOR	Original Borehole / Cimarex Red Hills Unit 29H Rev1 mcs 4Nov14



**Cimarex Red Hills Unit 29H Rev1 mcs 4Nov14 Proposal Geodetic Report -
100ft Interpolated
(Non-Def Plan)**



Report Date: November 05, 2014 - 03:33 PM
Client:
Field: NM Lea County (NAD 83)
Structure / Slot: Cimarex Red Hills Unit #29H / Red Hills Unit #29H
Well: Red Hills Unit #29H
Borehole: Original Borehole
UWI / API#: Unknown / Unknown
Survey Name: Cimarex Red Hills Unit 29H Rev1 mcs 4Nov14
Survey Date: January 08, 2014
Tort / AHD / DDI / ERD Ratio: 125.085 ° / 5007.494 ft / 5.967 / 0.507
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 4' 45.85655", W 103° 34' 58.41204"
Location Grid N/E Y/X: N 393433.000 ftUS, E 773767.500 ftUS
CRS Grid Convergence Angle: 0.3986 °
Grid Scale Factor: 0.99997097
Version / Patch: 2.7.1043.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 174.407 ° (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: Ground Level
TVD Reference Elevation: 3354.000 ft above MSL
Seabed / Ground Elevation: 3354.000 ft above MSL
Magnetic Declination: 7.095 °
Total Gravity Field Strength: 998.6863mgn (9.80665 Based)
Gravity Model: DOX
Total Magnetic Field Strength: 48206.678 nT
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Total Corr Mag North->Grid North: 6.6965 °
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: 140'FNL 895'FWL	0.00	0.00	114.36	0.00	0.00	0.00	0.00	N/A	393433.00	773767.50	N 32 4 45.86	W 103 34 58.41
	100.00	0.00	114.36	100.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32 4 45.86	W 103 34 58.41
	200.00	0.00	114.36	200.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32 4 45.86	W 103 34 58.41
	300.00	0.00	114.36	300.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32 4 45.86	W 103 34 58.41
	400.00	0.00	114.36	400.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32 4 45.86	W 103 34 58.41
	500.00	0.00	114.36	500.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32 4 45.86	W 103 34 58.41
	600.00	0.00	114.36	600.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32 4 45.86	W 103 34 58.41
	700.00	0.00	114.36	700.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32 4 45.86	W 103 34 58.41
	800.00	0.00	114.36	800.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32 4 45.86	W 103 34 58.41
	900.00	0.00	114.36	900.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32 4 45.86	W 103 34 58.41
	1000.00	0.00	114.36	1000.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32 4 45.86	W 103 34 58.41
	1100.00	0.00	114.36	1100.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32 4 45.86	W 103 34 58.41
	1200.00	0.00	114.36	1200.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32 4 45.86	W 103 34 58.41
	1300.00	0.00	114.36	1300.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32 4 45.86	W 103 34 58.41
	1400.00	0.00	114.36	1400.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32 4 45.86	W 103 34 58.41
	1500.00	0.00	114.36	1500.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32 4 45.86	W 103 34 58.41
	1600.00	0.00	114.36	1600.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32 4 45.86	W 103 34 58.41
	1700.00	0.00	114.36	1700.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32 4 45.86	W 103 34 58.41
	1800.00	0.00	114.36	1800.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32 4 45.86	W 103 34 58.41
	1900.00	0.00	114.36	1900.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32 4 45.86	W 103 34 58.41
	2000.00	0.00	114.36	2000.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32 4 45.86	W 103 34 58.41
	2100.00	0.00	114.36	2100.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32 4 45.86	W 103 34 58.41

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 ° ' ")	
	2200.00	0.00	114.36	2200.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34	58.41
	2300.00	0.00	114.36	2300.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34	58.41
	2400.00	0.00	114.36	2400.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34	58.41
	2500.00	0.00	114.36	2500.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34	58.41
	2600.00	0.00	114.36	2600.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34	58.41
	2700.00	0.00	114.36	2700.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34	58.41
	2800.00	0.00	114.36	2800.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34	58.41
	2900.00	0.00	114.36	2900.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34	58.41
	3000.00	0.00	114.36	3000.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34	58.41
	3100.00	0.00	114.36	3100.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34	58.41
	3200.00	0.00	114.36	3200.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34	58.41
	3300.00	0.00	114.36	3300.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34	58.41
	3400.00	0.00	114.36	3400.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34	58.41
	3500.00	0.00	114.36	3500.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34	58.41
	3600.00	0.00	114.36	3600.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34	58.41
	3700.00	0.00	114.36	3700.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34	58.41
	3800.00	0.00	114.36	3800.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34	58.41
	3900.00	0.00	114.36	3900.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34	58.41
	4000.00	0.00	114.36	4000.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34	58.41
	4100.00	0.00	114.36	4100.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34	58.41
	4200.00	0.00	114.36	4200.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34	58.41
	4300.00	0.00	114.36	4300.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34	58.41
	4400.00	0.00	114.36	4400.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34	58.41
	4500.00	0.00	114.36	4500.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34	58.41
	4600.00	0.00	114.36	4600.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34	58.41
	4700.00	0.00	114.36	4700.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34	58.41
	4800.00	0.00	114.36	4800.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34	58.41
9 5/8 Casing Point	4850.00	0.00	114.36	4850.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34	58.41
	4900.00	0.00	114.36	4900.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34	58.41
	5000.00	0.00	114.36	5000.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34	58.41
	5100.00	0.00	114.36	5100.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34	58.41
	5200.00	0.00	114.36	5200.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34	58.41
	5300.00	0.00	114.36	5300.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34	58.41
	5400.00	0.00	114.36	5400.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34	58.41
	5500.00	0.00	114.36	5500.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34	58.41
	5600.00	0.00	114.36	5600.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34	58.41
	5700.00	0.00	114.36	5700.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34	58.41
	5800.00	0.00	114.36	5800.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34	58.41
	5900.00	0.00	114.36	5900.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34	58.41
	6000.00	0.00	114.36	6000.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34	58.41
	6100.00	0.00	114.36	6100.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34	58.41
	6200.00	0.00	114.36	6200.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34	58.41
	6300.00	0.00	114.36	6300.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34	58.41
	6400.00	0.00	114.36	6400.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34	58.41
	6500.00	0.00	114.36	6500.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34	58.41
	6600.00	0.00	114.36	6600.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34	58.41
	6700.00	0.00	114.36	6700.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34	58.41

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 ° ' ")
	6800.00	0.00	114.36	6800.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34 58.41
	6900.00	0.00	114.36	6900.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34 58.41
	7000.00	0.00	114.36	7000.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34 58.41
	7100.00	0.00	114.36	7100.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34 58.41
	7200.00	0.00	114.36	7200.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34 58.41
	7300.00	0.00	114.36	7300.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34 58.41
	7400.00	0.00	114.36	7400.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34 58.41
	7500.00	0.00	114.36	7500.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34 58.41
	7600.00	0.00	114.36	7600.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34 58.41
	7700.00	0.00	114.36	7700.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34 58.41
	7800.00	0.00	114.36	7800.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34 58.41
	7900.00	0.00	114.36	7900.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34 58.41
	8000.00	0.00	114.36	8000.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34 58.41
	8100.00	0.00	114.36	8100.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34 58.41
	8200.00	0.00	114.36	8200.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34 58.41
	8300.00	0.00	114.36	8300.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34 58.41
	8400.00	0.00	114.36	8400.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34 58.41
	8500.00	0.00	114.36	8500.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34 58.41
	8600.00	0.00	114.36	8600.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34 58.41
	8700.00	0.00	114.36	8700.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34 58.41
	8800.00	0.00	114.36	8800.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34 58.41
	8900.00	0.00	114.36	8900.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34 58.41
	9000.00	0.00	114.36	9000.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34 58.41
	9100.00	0.00	114.36	9100.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34 58.41
	9200.00	0.00	114.36	9200.00	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34 58.41
KOP Build 12°/100' DLS	9291.82	0.00	114.36	9291.82	0.00	0.00	0.00	0.00	393433.00	773767.50	N 32	4 45.86	W 103 34 58.41
	9300.00	0.98	114.36	9300.00	0.03	-0.03	0.06	12.00	393432.97	773767.56	N 32	4 45.86	W 103 34 58.41
	9400.00	12.98	114.36	9399.08	6.09	-5.03	11.12	12.00	393427.97	773778.62	N 32	4 45.81	W 103 34 58.28
	9500.00	24.98	114.36	9493.47	22.30	-18.42	40.69	12.00	393414.58	773808.19	N 32	4 45.67	W 103 34 57.94
	9600.00	36.98	114.36	9579.04	47.95	-39.62	87.50	12.00	393393.39	773855.00	N 32	4 45.46	W 103 34 57.40
	9700.00	48.98	114.36	9652.07	81.93	-67.68	149.50	12.00	393365.32	773916.99	N 32	4 45.18	W 103 34 56.68
Avalon Shale Build & Turn 12°/100' DLS	9745.07	54.39	114.36	9680.00	99.58	-82.26	181.70	12.00	393350.74	773949.20	N 32	4 45.03	W 103 34 56.31
	9750.15	55.00	114.36	9682.94	101.65	-83.97	185.48	12.00	393349.03	773952.97	N 32	4 45.01	W 103 34 56.26
	9800.00	56.72	121.28	9710.94	124.37	-103.23	221.92	12.00	393329.77	773989.41	N 32	4 44.82	W 103 34 55.84
	9900.00	61.22	134.28	9762.63	183.17	-155.72	289.26	12.00	393277.28	774056.75	N 32	4 44.30	W 103 34 55.06
	10000.00	66.86	146.07	9806.51	257.42	-224.72	346.51	12.00	393208.29	774114.00	N 32	4 43.61	W 103 34 54.40
	10100.00	73.30	156.85	9840.66	343.86	-307.20	391.16	12.00	393125.81	774158.65	N 32	4 42.79	W 103 34 53.89
	10200.00	80.26	166.90	9863.57	438.73	-399.57	421.27	12.00	393033.44	774188.75	N 32	4 41.87	W 103 34 53.55
	10300.00	87.50	176.53	9874.25	537.87	-497.79	435.51	12.00	392935.22	774202.99	N 32	4 40.90	W 103 34 53.39
Landing Point: 1330'FWL	10334.19	90.00	179.79	9875.00	571.97	-531.95	436.61	12.00	392901.06	774204.09	N 32	4 40.56	W 103 34 53.38
	10400.00	90.00	179.79	9875.00	637.49	-597.76	436.85	0.00	392835.26	774204.34	N 32	4 39.91	W 103 34 53.38
	10500.00	90.00	179.79	9875.00	737.05	-697.76	437.22	0.00	392735.27	774204.71	N 32	4 38.92	W 103 34 53.39
	10600.00	90.00	179.79	9875.00	836.61	-797.76	437.60	0.00	392635.27	774205.08	N 32	4 37.93	W 103 34 53.39
	10700.00	90.00	179.79	9875.00	936.17	-897.76	437.97	0.00	392535.27	774205.45	N 32	4 36.94	W 103 34 53.39
	10800.00	90.00	179.79	9875.00	1035.72	-997.75	438.34	0.00	392435.28	774205.83	N 32	4 35.95	W 103 34 53.40

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 ° ' ")
	10900.00	90.00	179.79	9875.00	1135.28	-1097.75	438.71	0.00	392335.28	774206.20	N 32	4 34.96	W 103 34 53.40
	11000.00	90.00	179.79	9875.00	1234.84	-1197.75	439.09	0.00	392235.28	774206.57	N 32	4 33.97	W 103 34 53.41
	11100.00	90.00	179.79	9875.00	1334.40	-1297.75	439.46	0.00	392135.29	774206.94	N 32	4 32.98	W 103 34 53.41
	11200.00	90.00	179.79	9875.00	1433.96	-1397.75	439.83	0.00	392035.29	774207.32	N 32	4 32.00	W 103 34 53.41
	11300.00	90.00	179.79	9875.00	1533.52	-1497.75	440.20	0.00	391935.30	774207.69	N 32	4 31.01	W 103 34 53.42
	11400.00	90.00	179.79	9875.00	1633.08	-1597.75	440.58	0.00	391835.30	774208.06	N 32	4 30.02	W 103 34 53.42
	11500.00	90.00	179.79	9875.00	1732.64	-1697.75	440.95	0.00	391735.30	774208.43	N 32	4 29.03	W 103 34 53.42
	11600.00	90.00	179.79	9875.00	1832.20	-1797.75	441.32	0.00	391635.31	774208.81	N 32	4 28.04	W 103 34 53.43
	11700.00	90.00	179.79	9875.00	1931.76	-1897.75	441.69	0.00	391535.31	774209.18	N 32	4 27.05	W 103 34 53.43
	11800.00	90.00	179.79	9875.00	2031.32	-1997.75	442.07	0.00	391435.31	774209.55	N 32	4 26.06	W 103 34 53.44
	11900.00	90.00	179.79	9875.00	2130.88	-2097.75	442.44	0.00	391335.32	774209.92	N 32	4 25.07	W 103 34 53.44
	12000.00	90.00	179.79	9875.00	2230.44	-2197.75	442.81	0.00	391235.32	774210.30	N 32	4 24.08	W 103 34 53.44
	12100.00	90.00	179.79	9875.00	2330.00	-2297.75	443.18	0.00	391135.33	774210.67	N 32	4 23.09	W 103 34 53.45
	12200.00	90.00	179.79	9875.00	2429.56	-2397.74	443.56	0.00	391035.33	774211.04	N 32	4 22.10	W 103 34 53.45
	12300.00	90.00	179.79	9875.00	2529.12	-2497.74	443.93	0.00	390935.33	774211.41	N 32	4 21.11	W 103 34 53.45
	12400.00	90.00	179.79	9875.00	2628.68	-2597.74	444.30	0.00	390835.34	774211.79	N 32	4 20.12	W 103 34 53.46
	12500.00	90.00	179.79	9875.00	2728.24	-2697.74	444.67	0.00	390735.34	774212.16	N 32	4 19.13	W 103 34 53.46
	12600.00	90.00	179.79	9875.00	2827.80	-2797.74	445.05	0.00	390635.34	774212.53	N 32	4 18.14	W 103 34 53.47
	12700.00	90.00	179.79	9875.00	2927.36	-2897.74	445.42	0.00	390535.35	774212.90	N 32	4 17.15	W 103 34 53.47
	12800.00	90.00	179.79	9875.00	3026.92	-2997.74	445.79	0.00	390435.35	774213.28	N 32	4 16.16	W 103 34 53.47
	12900.00	90.00	179.79	9875.00	3126.48	-3097.74	446.16	0.00	390335.36	774213.65	N 32	4 15.17	W 103 34 53.48
	13000.00	90.00	179.79	9875.00	3226.04	-3197.74	446.54	0.00	390235.36	774214.02	N 32	4 14.18	W 103 34 53.48
	13100.00	90.00	179.79	9875.00	3325.59	-3297.74	446.91	0.00	390135.36	774214.39	N 32	4 13.19	W 103 34 53.49
	13200.00	90.00	179.79	9875.00	3425.15	-3397.74	447.28	0.00	390035.37	774214.77	N 32	4 12.20	W 103 34 53.49
	13300.00	90.00	179.79	9875.00	3524.71	-3497.74	447.65	0.00	389935.37	774215.14	N 32	4 11.22	W 103 34 53.49
	13400.00	90.00	179.79	9875.00	3624.27	-3597.74	448.03	0.00	389835.38	774215.51	N 32	4 10.23	W 103 34 53.50
	13500.00	90.00	179.79	9875.00	3723.83	-3697.74	448.40	0.00	389735.38	774215.88	N 32	4 9.24	W 103 34 53.50
	13600.00	90.00	179.79	9875.00	3823.39	-3797.74	448.77	0.00	389635.38	774216.26	N 32	4 8.25	W 103 34 53.50
	13700.00	90.00	179.79	9875.00	3922.95	-3897.73	449.14	0.00	389535.39	774216.63	N 32	4 7.26	W 103 34 53.51
	13800.00	90.00	179.79	9875.00	4022.51	-3997.73	449.52	0.00	389435.39	774217.00	N 32	4 6.27	W 103 34 53.51
	13900.00	90.00	179.79	9875.00	4122.07	-4097.73	449.89	0.00	389335.39	774217.37	N 32	4 5.28	W 103 34 53.52
	14000.00	90.00	179.79	9875.00	4221.63	-4197.73	450.26	0.00	389235.40	774217.75	N 32	4 4.29	W 103 34 53.52
	14100.00	90.00	179.79	9875.00	4321.19	-4297.73	450.63	0.00	389135.40	774218.12	N 32	4 3.30	W 103 34 53.52
	14200.00	90.00	179.79	9875.00	4420.75	-4397.73	451.01	0.00	389035.41	774218.49	N 32	4 2.31	W 103 34 53.53
	14300.00	90.00	179.79	9875.00	4520.31	-4497.73	451.38	0.00	388935.41	774218.86	N 32	4 1.32	W 103 34 53.53
	14400.00	90.00	179.79	9875.00	4619.87	-4597.73	451.75	0.00	388835.41	774219.24	N 32	4 0.33	W 103 34 53.53
	14500.00	90.00	179.79	9875.00	4719.43	-4697.73	452.12	0.00	388735.42	774219.61	N 32	3 59.34	W 103 34 53.54
PBHL: 330°FSL 1330°FSL	14596.71	90.00	179.79	9875.00	4815.71	-4794.44	452.48	0.00	388638.71	774219.97	N 32	3 58.38	W 103 34 53.54

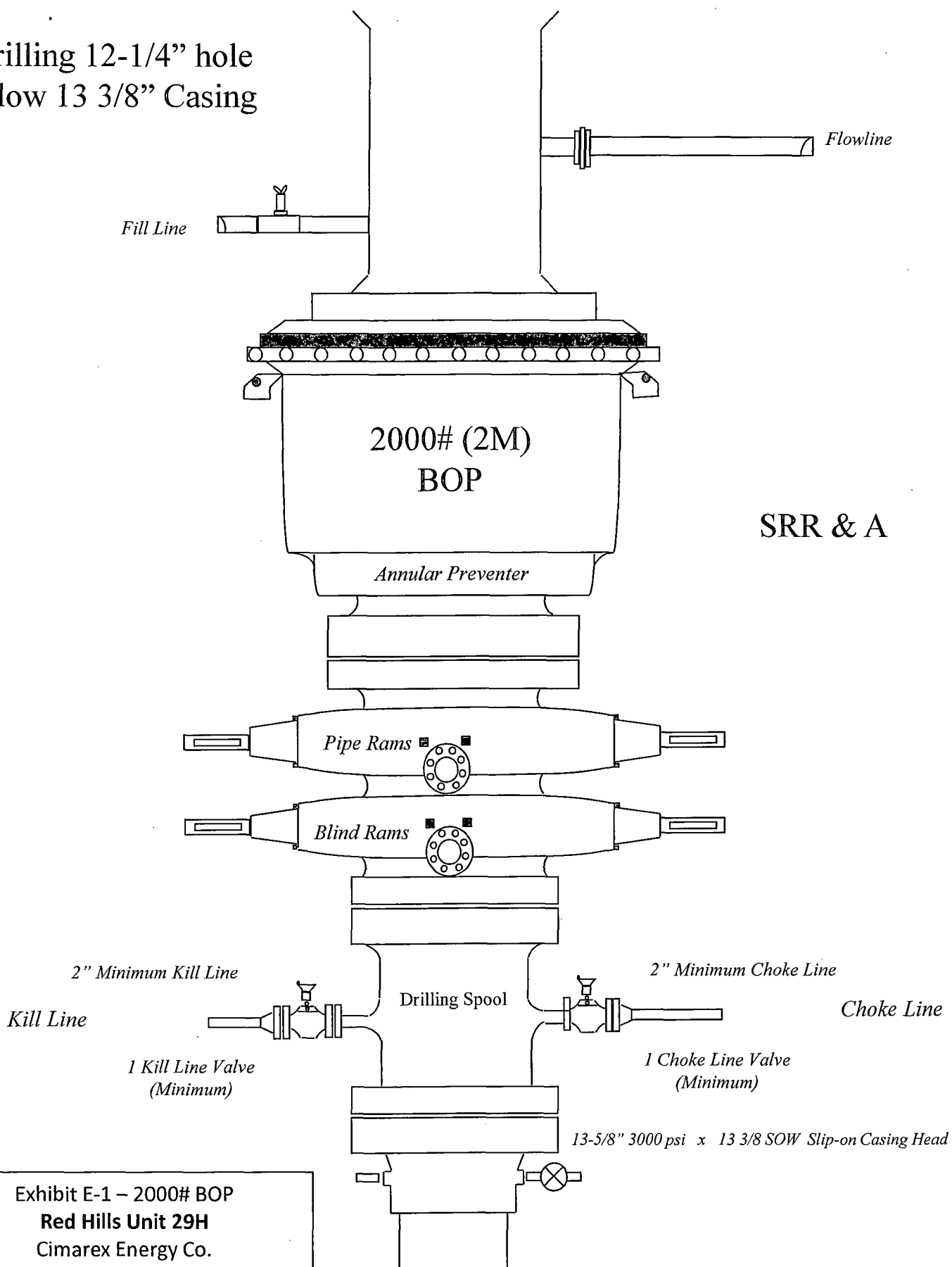
Survey Type: Non-Def Plan

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	14596.711	1/100.000	30.000	30.000	SLB_MWD-POOR	Original Borehole / Cimarex Red Hills Unit 29H Rev1 mcs 4Nov14				

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



SRR & A

Exhibit E-1 – 2000# BOP
Red Hills Unit 29H
Cimarex Energy Co.
Sec. 4-26S-33E
SHL 140' FNL & 895' FWL
BHL 330' FSL & 1330' FWL
Lea County, NM

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

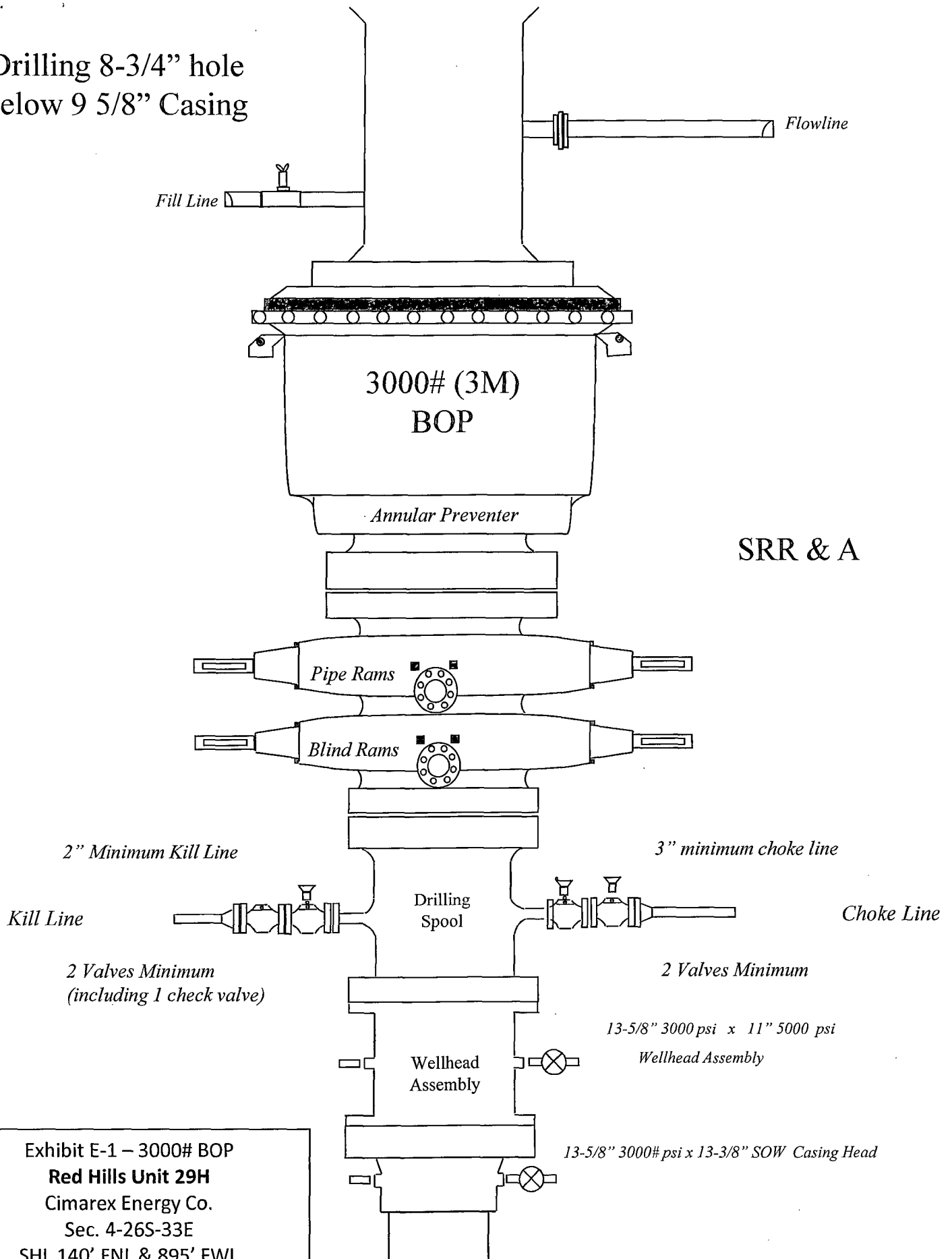


Exhibit E-1 – 3000# BOP

Red Hills Unit 29H

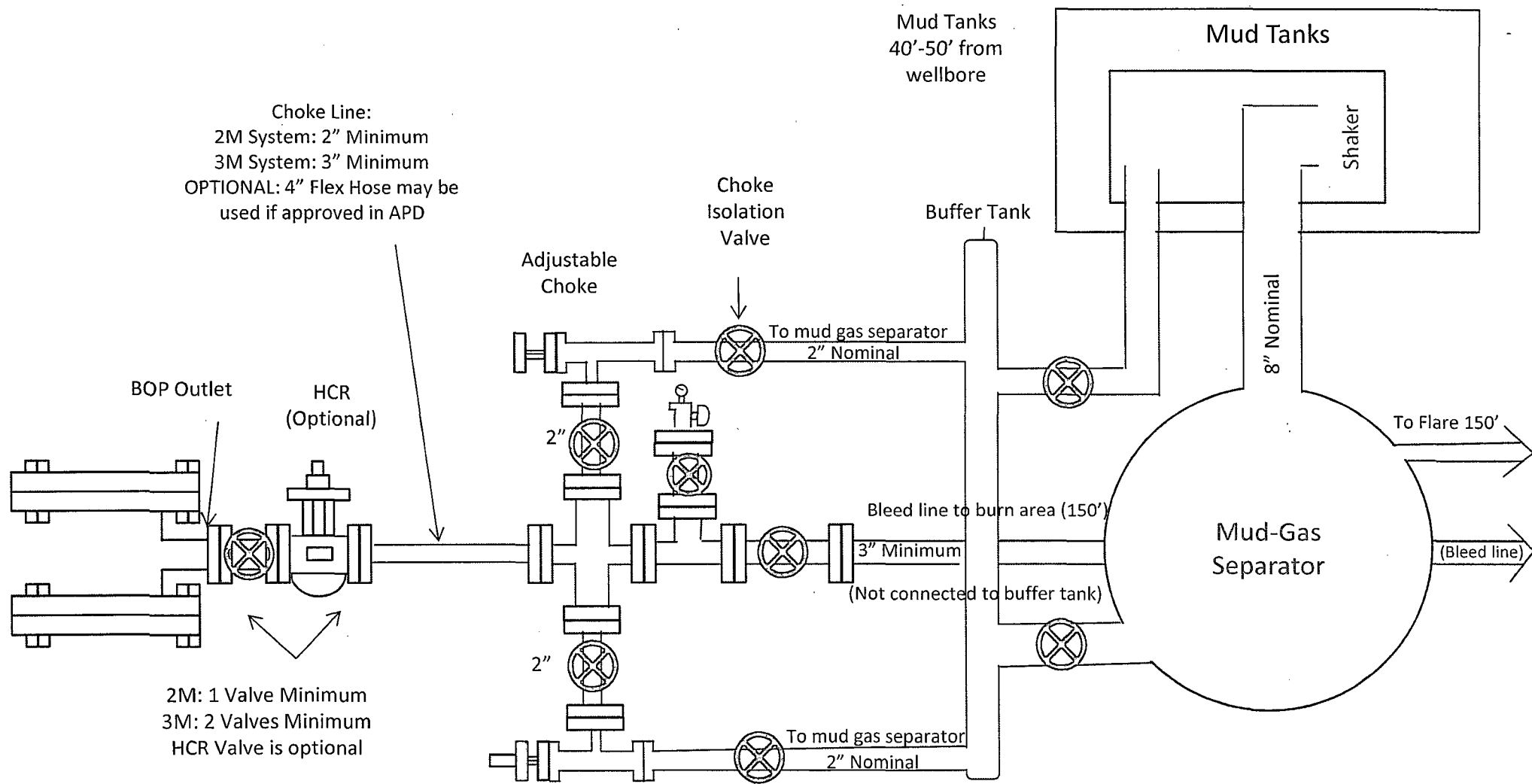
Cimarex Energy Co.

Sec. 4-26S-33E

SHL 140' FNL & 895' FWL

BHL 330' FSL & 1330' FWL

Lea County, NM



Drilling Operations Choke Manifold 2M/3M Service

Exhibit E-1 – Choke Manifold Diagram
Red Hills Unit 29H
Cimarex Energy Co.
Sec. 4-26S-33E
SHL 140' FNL & 895' FWL
BHL 330' FSL & 1330' FWL
Lea County, NM

Exhibit F-1 – Co-Flex Hose Hydrostatic Test

Red Hills Unit 29H

Cimarex Energy Co.

Sec. 4-26S-33E

SHL 140' FNL & 895' FWL

BHL 330' FSL & 1330' 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 10,000 PSI	TEST PRESSURE 15,000 PSI	BURST PRESSURE 0 PSI	
COUPLINGS			
Stem Part No. OKC OKC		Ferrule No. OKC OKC	
Type of Coupling: Swage-It			
PROCEDURE			
<u>Hose assembly pressure tested with water at ambient temperature.</u>			
TIME HELD AT TEST PRESSURE 15 MIN.		ACTUAL BURST PRESSURE: 0 PSI	
Hose Assembly Serial Number: 79793		Hose Serial Number: OKC	
Comments:			
Date: 3/8/2011	Tested: <i>A. J. J. J.</i>		Approved: <i>Kevin J. J.</i>



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

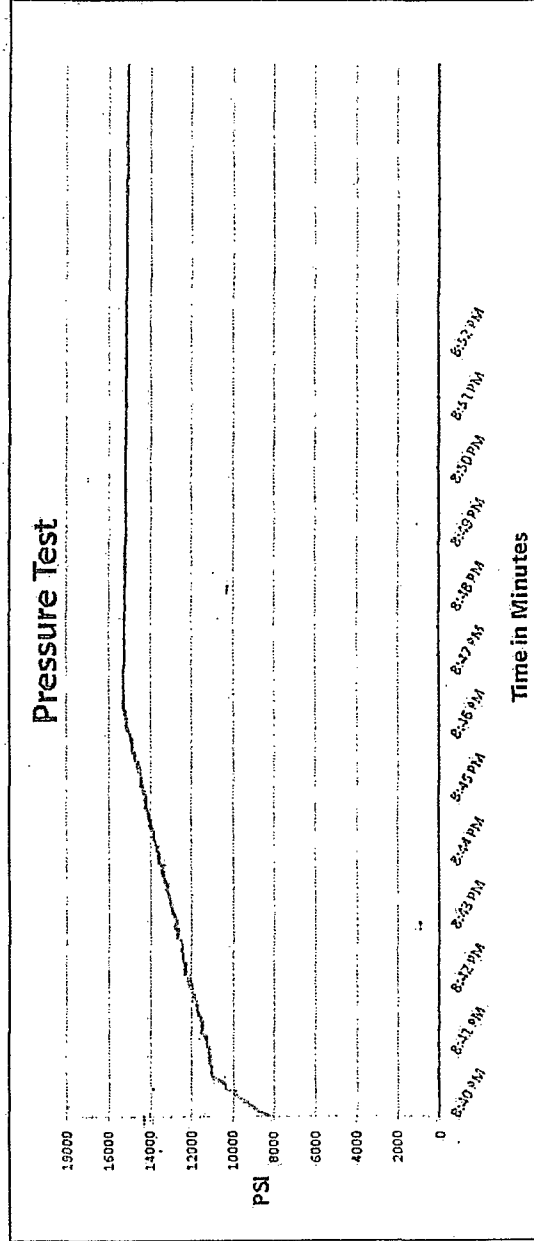
Length
45'
O.D.
6.09"
Burst Pressure
Standard Safety Multiplier Applies

Verification

Type of Fitting
41/1610K
Die Size
6.38"
Hose Serial #
5544

Coupling Method
Swage
Final O.D.
6.25"
Hose Assembly Serial #
79793

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]

Exhibit F-2 - Co-Flex Hose
Red Hills Unit 29H
Cimarex Energy Co.
Sec. 4-26S-33E
SHL 140' FNL & 895' FWL
BHL 330' FSL & 1330' 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:
<i>James H. Hester</i>		3/8/2011



Midwest Hose
& Specialty, Inc.

Exhibit F -3- Co-Flex Hose
Red Hills Unit 29H
Cimarex Energy Co.
Sec. 4-26S-33E
SHL 140' FNL & 895' FWL
BHL 330' FSL & 1330' 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)

Exhibit F – Co-Flex Hose

Red Hills Unit 29H

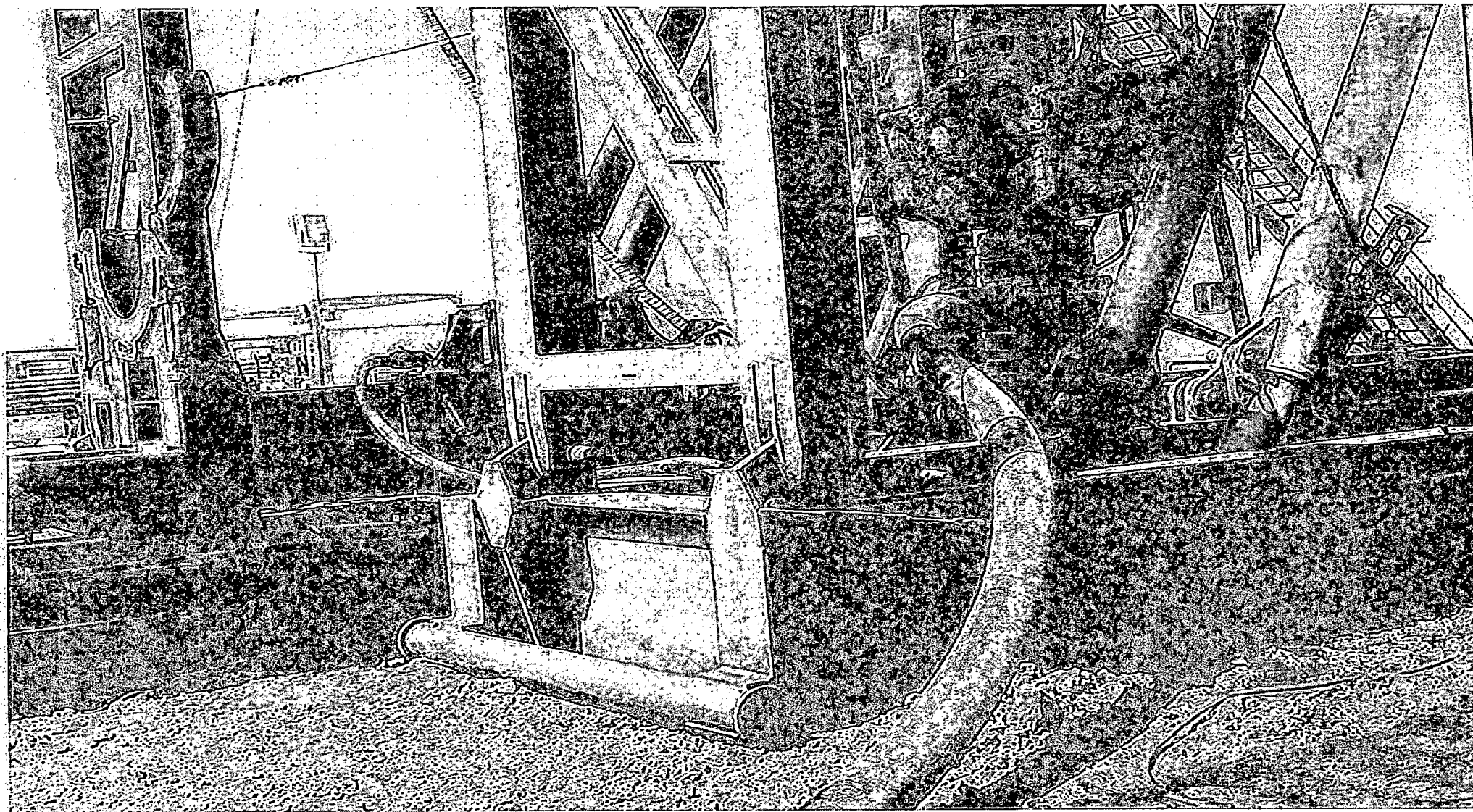
Cimarex Energy Co.

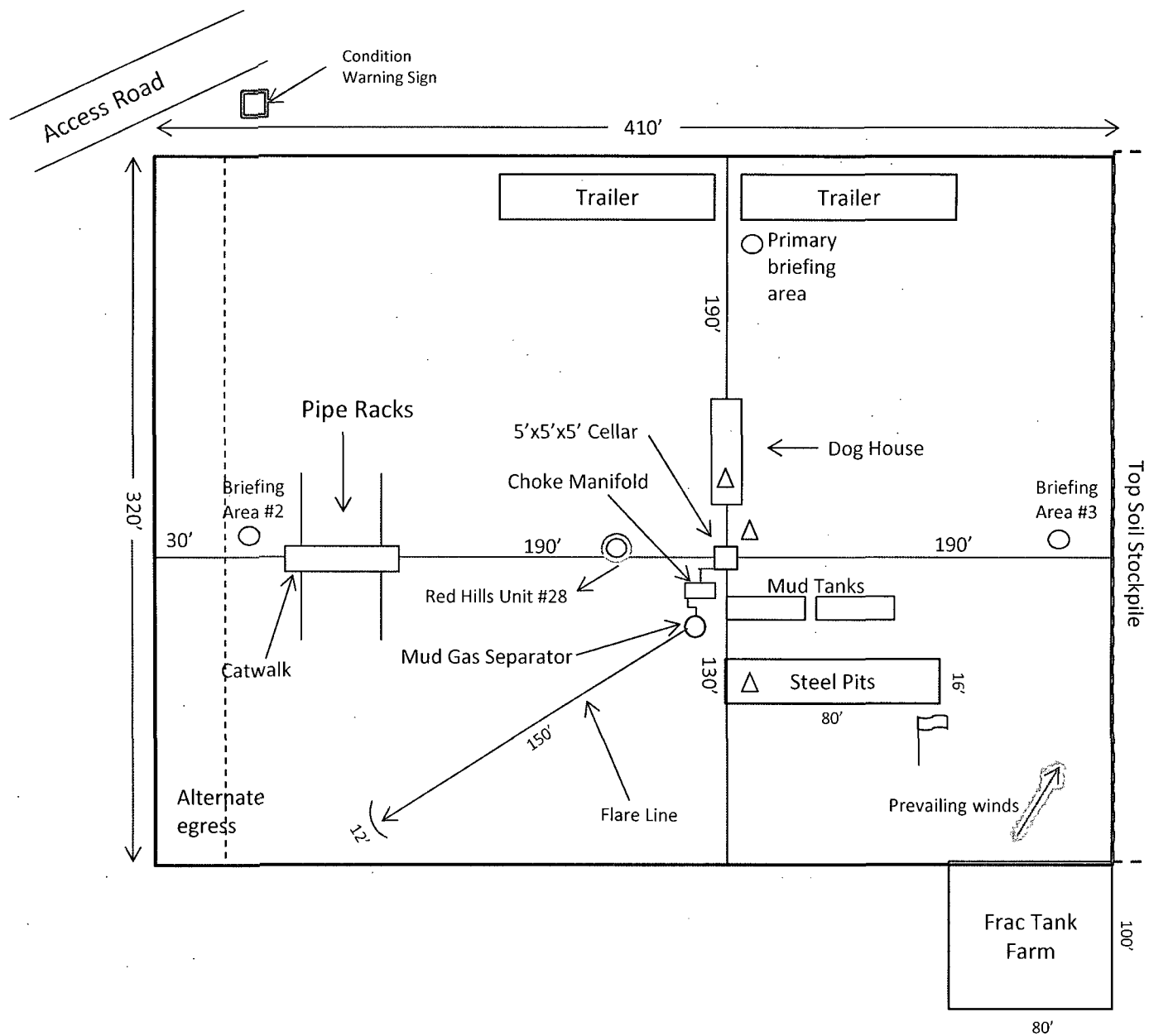
Sec. 4-26S-33E

SHL 140' FNL & 895' FWL

BHL 330' FSL & 1330' FWL

Lea County, NM





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



Exhibit D – Rig Layout Diagram
Red Hills Unit 29H
 Cimarex Energy Co.
 Sec. 4-26S-33E
 SHL 140' FNL & 895' FWL
 BHL 330' FSL & 1330' FWL
 Lea County, NM