District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-102
Revised August 1, 2011
Submit one copy to appropriate District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

1 API Number	2 Pool Code	3 Pool Name
30015-42034	98018	WC-015 G04 S262728A; BS

4 Property Code	5 Property Name	6 Well Number
40358	KLEIN 33 FEDERAL COM	5H

7 OGRID No.	8 Operator Name	9 Elevation
215099	CIMAREX ENERGY CO.	3186'

10 Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
3	33	26S	27E		210	SOUTH	1980	WEST	EDDY

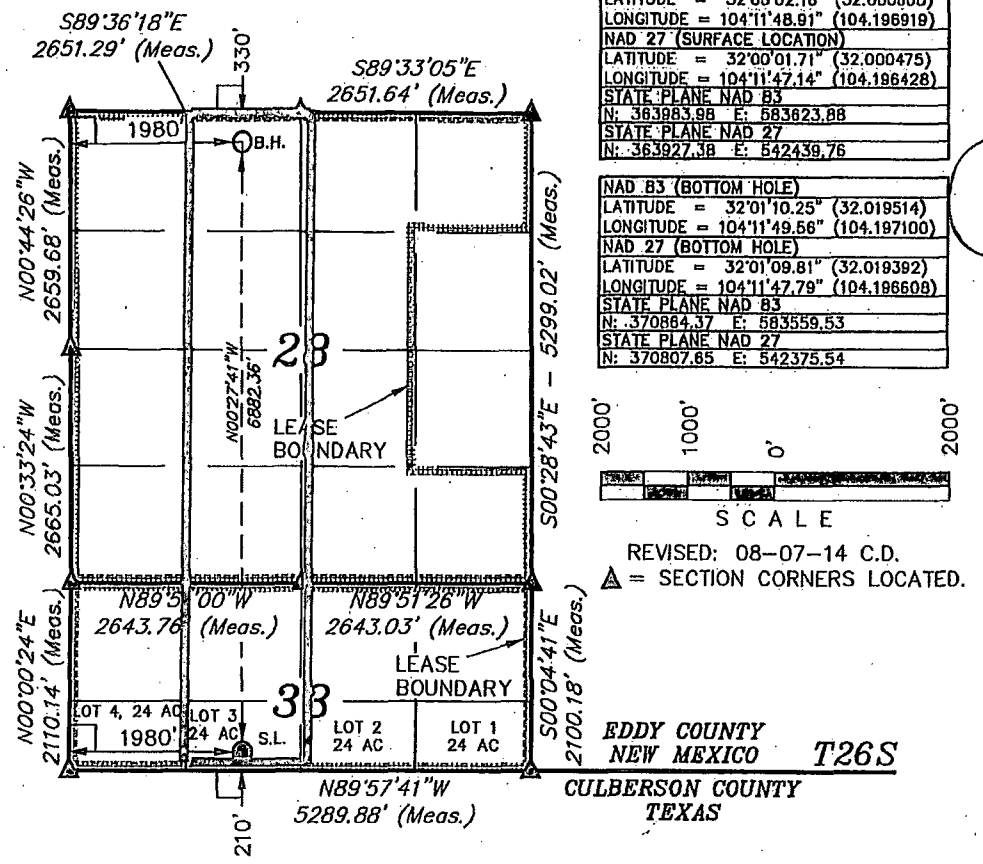
11 Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
C	28	26S	27E		330	NORTH	1980	WEST	EDDY

12 Dedicated Acres	13 Joint or Infill	14 Consolidation Code	15 Order No.
223.40			

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.

16



NAD 83 (SURFACE LOCATION)
LATITUDE = 32°00'02.16" (32.000600)
LONGITUDE = 104°11'48.91" (104.196919)
NAD 27 (SURFACE LOCATION)
LATITUDE = 32°00'01.71" (32.000475)
LONGITUDE = 104°11'47.14" (104.196428)
STATE PLANE NAD 83
N: 363983.98 E: 583823.88
STATE PLANE NAD 27
N: 363927.38 E: 542439.76

NAD 83 (BOTTOM HOLE)
LATITUDE = 32°01'10.25" (32.019514)
LONGITUDE = 104°11'49.56" (104.197100)
NAD 27 (BOTTOM HOLE)
LATITUDE = 32°01'09.81" (32.019392)
LONGITUDE = 104°11'47.79" (104.196608)
STATE PLANE NAD 83
N: 370864.37 E: 583559.53
STATE PLANE NAD 27
N: 370807.65 E: 542375.54

2000' 1000' 0' 2000'

SCALE

REVISED: 08-07-14 C.D.

△ = SECTION CORNERS LOCATED.

17 OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Signature — Date: 8-6-14

Terri Stathem
Printed Name

tstathem@cimarex.com
E-mail Address

18 SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

August 29, 2013
Date of Survey

Signature and Seal of Professional Surveyor:

PROFESSIONAL SURVEYOR
NEW MEXICO
12446
NELSON J. MARSHALL
08-07-14

Certificate Number:

Application to Drill
Klein 33 Federal Com 5H
Cimarex Energy Co.
UL: 3, Sec. 33, 26S, 37E
Eddy 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 210 FSL & 1980 FWL, Sec. 33, 26S, 27E
BHL 660 FNL & 1980 FWL; Sec. 28, 26S, 27E

2. Elevation Above Sea Level: 3,186' 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: 14,100 MD 7,410 TVD Pilot Hole TD: N/A

6. Estimated Tops of Geological Markers:

Formation	Est Top	Bearing
Salado	1429	N/A
Castille	1891	N/A
Bell Canyon	2047	N/A
Cherry Canyon	3037	N/A
Brushy Canyon	4182	N/A
Brushy Canyon Lower	5453	N/A
Bone Spring	5646	Hydrocarbons
Bone Spring A Shale	5768	Hydrocarbons
Bone Spring C Shale	6267	Hydrocarbons
1st Bone Spring Ss	6610	Hydrocarbons
2nd Bone Spring Ss	7058	Hydrocarbons
2nd BS Ss Lower	7434	Hydrocarbons
3rd Bone Spring Ss	7579	Hydrocarbons

7. Possible Mineral Bearing Formation: Shown above

7A. OSE Ground Water Estimated Depth: 100'

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	Conditon	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	400	400	17 1/2	13-3/8"	48.00	H-40	ST&C	New	172	8.3	4.29		10.02	19,200	16,767	19.20
Intermediate	0	1925	1925	12 1/4	9-5/8"	36.00	J-55	LT&C	New	1001	10.0		2.02	3.52	69,300	58,720	7.71
Production	0	6831	6831	8 3/4	5-1/2"	17.00	L-80	LT&C	New	3196	9.0	1.97		2.42	125,970	108,661	3.11
Production	6831	14100	7410	8 3/4	5-1/2"	17.00	L-80	BT&C	New	3467	9.0	1.81		2.23	9,843	8,491	46.76

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
Klein 33 Federal Com 5H
Cimarex Energy Co.
UL: 3, Sec. 33, 26S, 37E
Eddy 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. During the running of the casing, the operator will stop and fill the casing as need to ensure it does not collapse.
	Burst	A 1.125 design with a surface pressure equal to the fracture gradient at setting depth less gas gradient to surface.
Production and\or 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	60	1.75	13.50	104	Class C + Bentonite + Calcium Chloride + LCM, 8.829 gps water
	Tail	195	1.34	14.80	260	Class C + LCM, 6.320 gps water
	TOC: 0		**31% Excess**			**Centralizers per Onshore Order 2.III.B.1f**
Intermediate	Lead	352	1.88	12.90	661	35:65 (Poz:C) + Salt + Bentonite + LCM + Retarder, 9.650 gps water
	Tail	112	1.34	14.80	150	Class C + Retarder + LCM, 6.320 gps water
	TOC: 0		**44% Excess**			
Production	Lead	688	2.33	11.90	1603	35:65(Poz:H) + Salt + Bentonite + Retarder + Dispersant, 13.400 gps water
	Tail	1643	1.23	14.50	2020	50:50 (Poz:H) + Salt + Bentonite + Fluid Loss + Dispersant + Retarder + Antifoam, 5.530 gps water
	TOC: 1725		**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: 6,831' EOC: 7,839'

Set Surface and Intermediate casing strings. Drill production hole to KOP. Continue drillling 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 2M 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 2000 psi high.

The Annular Preventer will be tested to 250 psi low and 1000 psi high on the surface casing, and 250 low and 1000 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
Klein 33 Federal Com 5H
Cimarex Energy Co.
UL: 3, Sec. 33, 26S, 37E
Eddy Co., NM

11. Proposed Mud Circulating System:

Depth	Mud Weight	Visc	Fluid Loss	Type Mud
0' to 400'	7.80 - 8.30	28	NC	FW Spud Mud
400' to 1925'	9.50 - 10.00	30-32	NC	Brine Water
1925' to 14100'	8.50 - 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 1925 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 H_2S from the surface to the Bone Spring formations to meet the BLM's minimum requirements for the submission of an "H_2S Drilling Operation Plan" or "Public Protection Plan" for the drilling and completion of this well. Since we have an H_2S Safety package on all wells, attached is an "H_2S 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: 3335 psi Estimated BHT: 140°

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.
Bone Spring pay will be perforated and stimulated.
The proposed well will be tested and potentialed as **Oil**

CIMAREX | Cactus 112 | **Cimarex** | Rev2 | PATHFINDER A Schlumberger Company

Borehole:	Well:	Field:	Structure:
Original Borehole	Klein 33 Federal.Com #5H	NM Eddy County	Cactus 112

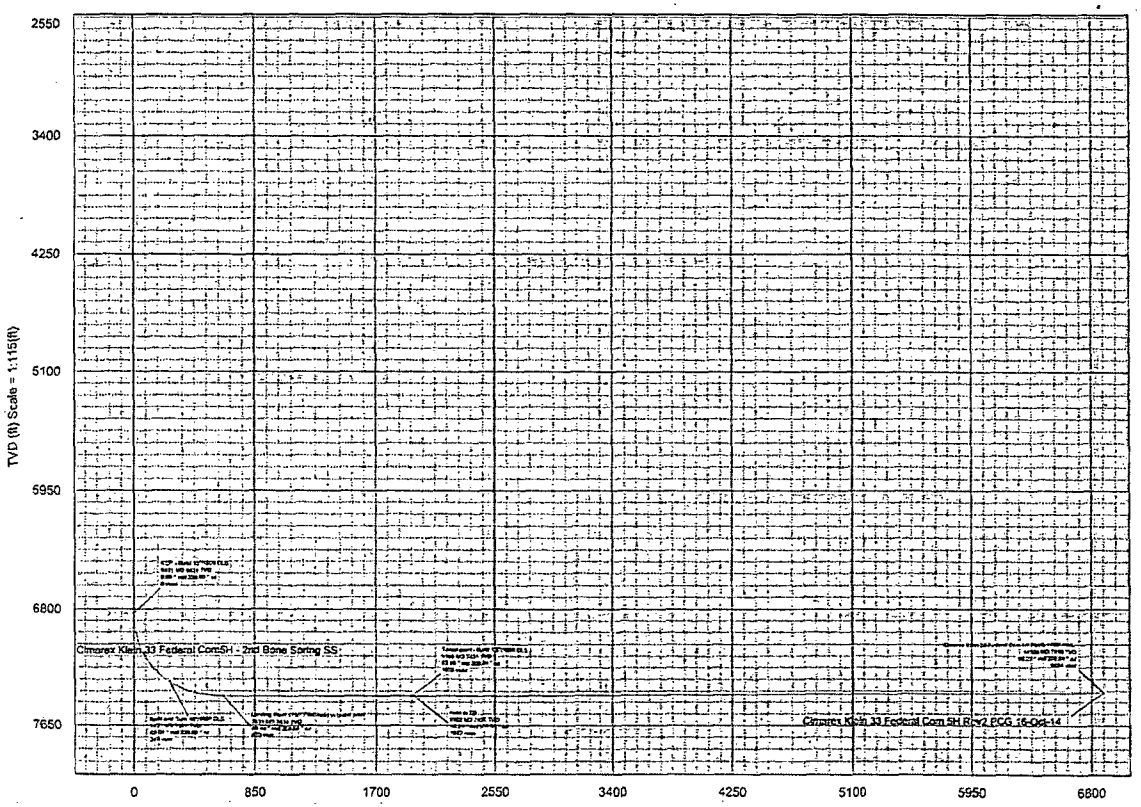
Gravity & Magnetic Parameters: Model: HDGM 2014 | Dip: 59.724° | Date: 16-Oct-2014 | MagDec: 7.633° | FS: 48217.166nT | Gravity FS: 998.665mgn (9.80065 Based)

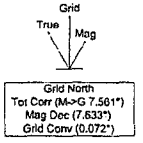
Surface Location: NAD83 New Mexico State Plane, Eastern Zone, US Feet | Lat: N 32 0 2.16 | Lon: W 104 11 48.01 | Northing: 363983.98ftUS | Easting: 583623.88ftUS | Grid Conv: 0.0723° | Scale Fact: 0.99991114

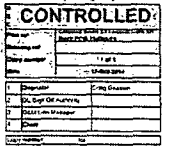
Miscellaneous: Slot: Klein 33 Federal Com #5H | Plan: Rev2 PCG 16-Oct-14 | TVD Ref: RKB(3210ft above MSL)

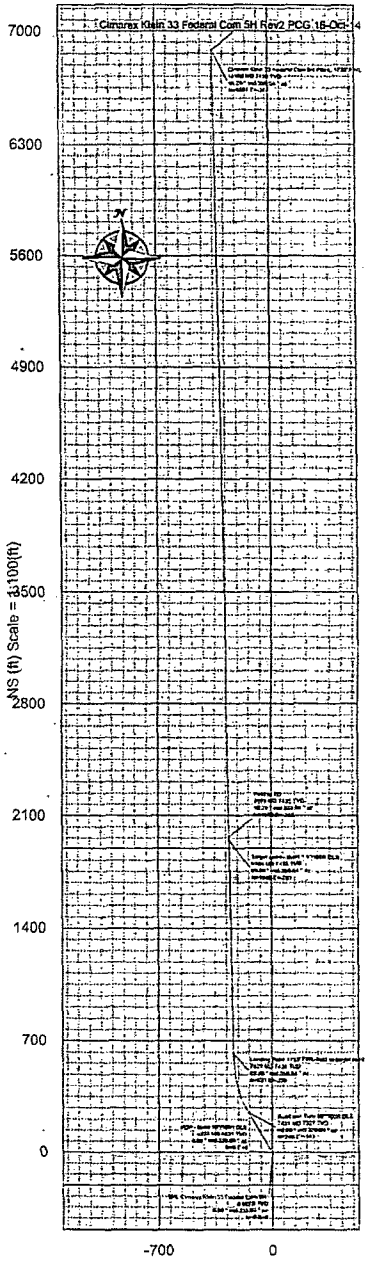
Critical Points

Comments	Survey MD (ft)	Inclination (deg)	Azimuth (deg)	TVD (ft)	SubSeaTVD	VS (ft)	NS (ft)	EW (ft)	Latitude (deg)	Longitude (deg)	Easting (ftUS)	Northing (ftUS)	DLS (°/100ft)	Tool Face (deg)
SHL Cimarex Klein 33 Federal Com 5H	0.00	0.00	330.00	0.00	-3210.00	0.00	0.00	0.00	N 32 0 2.155	W 104 11 48.910	583623.88	363983.98		330.00
KOP - Build 10°/100ft DLS	6831.20	0.00	330.00	6831.20	3621.20	0.00	0.00	0.00	N 32 0 2.155	W 104 11 48.910	583623.88	363983.98	0.00	330.00
Build and Turn 10°/100ft DLS	7431.20	60.00	330.00	7327.40	4117.40	249.39	248.10	-143.24	N 32 0 4.612	W 104 11 50.570	583480.65	364232.06	10.00	48.03
Landing Point 1750' FWL-hold to target point	7838.90	89.96	359.04	7434.00	4224.00	622.80	620.65	-239.01	N 32 0 8.300	W 104 11 51.677	583384.89	364604.57	10.00	0.00
Target point - Build 1.5°/100ft DLS	9166.14	89.96	359.04	7434.95	4224.95	1950.00	1947.70	-261.37	N 32 0 21.432	W 104 11 51.917	583362.54	365931.50	0.00	0.00
Hold to TD	9188.21	90.29	359.04	7434.90	4224.90	1972.07	1969.76	-261.74	N 32 0 21.650	W 104 11 51.921	583362.16	365953.56	1.50	64.37
Cimarex Klein 33 Federal Com 5H PBHL 1700' FWL	14100.22	90.29	359.04	7410.00	4200.00	6883.87	6881.02	-344.38	N 32 1 10.250	W 104 11 52.810	583279.53	370864.37	0.00	









Cimarex Klein 33 Federal Com 5H Rev2 PCG 16-Oct-14 Proposal Geodetic Report

(Def Plan)

Report Date:	October 17, 2014 - 11:41 AM	**Survey / DLS Computation:**	Minimum Curvature / Lubinski
Client:	Cimarex	**Vertical Section Azimuth:**	359.478 ° (Grid North)
Field:	NM Eddy County (NAD 83)	**Vertical Section Origin:**	0.000 ft, 0.000 ft
Structure / Slot:	Cimarex Klein 33 Federal Com #5H / Cimarex Klein 33 Federal Com #5H	**TVD Reference Datum:**	RKB
Well:	Cimarex Klein 33 Federal Com #5H	**TVD Reference Elevation:**	3210.000 ft above
Borehole:	Original Borehole	**Seabed / Ground Elevation:**	3186.000 ft above
UWI / API#:	Cactus 112 / Unknown	**Magnetic Declination:**	7.633 °
Survey Name:	Cimarex Klein 33 Federal Com 5H Rev2 PCG 16-Oct-14	**Total Gravity Field Strength:**	998.6863mgn (9.80665 Based)
Survey Date:	October 01, 2013	**Gravity Model:**	DOX
Tort / AHD / DDI / ERD Ratio:	101.085 ° / 6936.405 ft / 6.124 / 0.933	**Total Magnetic Field Strength:**	48217.166 nT
Coordinate Reference System:	NAD83 New Mexico State Plane, Eastern Zone, US Feet	**Magnetic Dip Angle:**	59.724 °
Location Lat / Long:	N 32° 0' 2.15516", W 104° 11' 48.91047"	**Declination Date:**	October 16, 2014
Location Grid N/E Y/X:	N 363983.980 ftUS, E 583623.880 ftUS	**Magnetic Declination Model:**	HDGM 2014
CRS Grid Convergence Angle:	0.0723 °	**North Reference:**	Grid North
Grid Scale Factor:	0.99991114	**Grid Convergence Used:**	0.0723 °
Version / Patch:	2.7.1043.0	**Total Corr Mag North->Grid North:**	7.5608 °
		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 Klein 33 Federal Com 5H	0.00	0.00	330.00	0.00	0.00	0.00	0.00	N/A	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
KOP - Build 10°/100ft DLS	6831.20	0.00	330.00	6831.20	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
Build and Turn 10°/100ft DLS	7431.20	60.00	330.00	7327.40	249.39	248.10	-143.24	10.00	364232.06	583480.65	N 32 0 4.61	W 104 11 50.57
Landing Point 1750' FWL-hold to target point	7838.90	89.96	359.04	7434.00	622.80	620.65	-239.01	10.00	364604.57	583384.89	N 32 0 8.30	W 104 11 51.68
Target point - Build 1.5°/100ft DLS	9166.14	89.96	359.04	7434.95	1950.00	1947.70	-261.37	0.00	365931.50	583362.54	N 32 0 21.43	W 104 11 51.92
Hold to TD	9188.21	90.29	359.04	7434.90	1972.07	1969.76	-261.74	1.50	365953.56	583362.16	N 32 0 21.65	W 104 11 51.92
Cimarex Klein 33 Federal Com 5H PBHL 1700' FWL	14100.22	90.29	359.04	7410.00	6883.87	6881.02	-344.38	0.00	370864.37	583279.53	N 32 1 10.25	W 104 11 52.81

Survey Type: Def Plan

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")

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	24.000	1/100.000	30.000	30.000	SLB_MWD-POOR-Depth Only	Original Borehole / Cimarex Klein 33 Federal Com 5H Rev2 PCG 16-
	1	24.000	9611.000	1/100.000	30.000	30.000	SLB_MWD-POOR	Original Borehole / Cimarex Klein 33 Federal Com 5H Rev2 PCG 16-
	1	9611.000	14100.220	1/100.000	30.000	30.000	SLB_MWD-STD	Original Borehole / Cimarex Klein 33 Federal Com 5H Rev2 PCG 16-

Cimarex Klein 33 Federal Com 5H Rev2 PCG 16-Oct-14 Proposal Geodetic Report - 100ft Interpolated

(Def Plan)

Report Date:	October 17, 2014 - 11:41 AM	**Survey / DLS Computation:**	Minimum Curvature / Lubinski
Client:	Cimarex	**Vertical Section Azimuth:**	359.478 ° (Grid North)
Field:	NM Eddy County (NAD 83)	**Vertical Section Origin:**	0.000 ft, 0.000 ft
Structure / Slot:	Cimarex Klein 33 Federal Com #5H / Cimarex Klein 33 Federal Com #5H	**TVD Reference Datum:**	RKB
Well:	Cimarex Klein 33 Federal Com #5H	**TVD Reference Elevation:**	3210.000 ft above
Borehole:	Original Borehole	**Seabed / Ground Elevation:**	3186.000 ft above
UWI / API#:	Cactus 112 / Unknown	**Magnetic Declination:**	7.633 °
Survey Name:	Cimarex Klein 33 Federal Com 5H Rev2 PCG 16-Oct-14	**Total Gravity Field Strength:**	998.6863mgn (9.80665 Based)
Survey Date:	October 01, 2013	**Gravity Model:**	DOX
Tort / AHD / DDI / ERD Ratio:	101.085 ° / 6936.405 ft / 6.124 / 0.933	**Total Magnetic Field Strength:**	48217.166 nT
Coordinate Reference System:	NAD83 New Mexico State Plane, Eastern Zone, US Feet	**Magnetic Dip Angle:**	59.724 °
Location Lat / Long:	N 32° 0' 2.15516", W 104° 11' 48.91047"	**Declination Date:**	October 16, 2014
Location Grid N/E Y/X:	N 363983.980 ftUS, E 583623.880 ftUS	**Magnetic Declination Model:**	HDGM 2014
CRS Grid Convergence Angle:	0.0723 °	**North Reference:**	Grid North
Grid Scale Factor:	0.99991114	**Grid Convergence Used:**	0.0723 °
Version / Patch:	2.7.1043.0	**Total Corr Mag North->Grid North:**	7.5608 °
		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 Klein 33 Federal Com 5H	0.00	0.00	330.00	0.00	0.00	0.00	0.00	N/A	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	100.00	0.00	330.00	100.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	200.00	0.00	330.00	200.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	300.00	0.00	330.00	300.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	400.00	0.00	330.00	400.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	500.00	0.00	330.00	500.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	600.00	0.00	330.00	600.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	700.00	0.00	330.00	700.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	800.00	0.00	330.00	800.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	900.00	0.00	330.00	900.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	1000.00	0.00	330.00	1000.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	1100.00	0.00	330.00	1100.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	1200.00	0.00	330.00	1200.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	1300.00	0.00	330.00	1300.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	1400.00	0.00	330.00	1400.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	1500.00	0.00	330.00	1500.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	1600.00	0.00	330.00	1600.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	1700.00	0.00	330.00	1700.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	1800.00	0.00	330.00	1800.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	1900.00	0.00	330.00	1900.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91

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	330.00	2000.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	2100.00	0.00	330.00	2100.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	2200.00	0.00	330.00	2200.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	2300.00	0.00	330.00	2300.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	2400.00	0.00	330.00	2400.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	2500.00	0.00	330.00	2500.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	2600.00	0.00	330.00	2600.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	2700.00	0.00	330.00	2700.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	2800.00	0.00	330.00	2800.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	2900.00	0.00	330.00	2900.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	3000.00	0.00	330.00	3000.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	3100.00	0.00	330.00	3100.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	3200.00	0.00	330.00	3200.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	3300.00	0.00	330.00	3300.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	3400.00	0.00	330.00	3400.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	3500.00	0.00	330.00	3500.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	3600.00	0.00	330.00	3600.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	3700.00	0.00	330.00	3700.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	3800.00	0.00	330.00	3800.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	3900.00	0.00	330.00	3900.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	4000.00	0.00	330.00	4000.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	4100.00	0.00	330.00	4100.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	4200.00	0.00	330.00	4200.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	4300.00	0.00	330.00	4300.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	4400.00	0.00	330.00	4400.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	4500.00	0.00	330.00	4500.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	4600.00	0.00	330.00	4600.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	4700.00	0.00	330.00	4700.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	4800.00	0.00	330.00	4800.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	4900.00	0.00	330.00	4900.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	5000.00	0.00	330.00	5000.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	5100.00	0.00	330.00	5100.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	5200.00	0.00	330.00	5200.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	5300.00	0.00	330.00	5300.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	5400.00	0.00	330.00	5400.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	5500.00	0.00	330.00	5500.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	5600.00	0.00	330.00	5600.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	5700.00	0.00	330.00	5700.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	5800.00	0.00	330.00	5800.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	5900.00	0.00	330.00	5900.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	6000.00	0.00	330.00	6000.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	6100.00	0.00	330.00	6100.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	6200.00	0.00	330.00	6200.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	6300.00	0.00	330.00	6300.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	6400.00	0.00	330.00	6400.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	6500.00	0.00	330.00	6500.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	6600.00	0.00	330.00	6600.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91

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 ° ' ")
	6700.00	0.00	330.00	6700.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	6800.00	0.00	330.00	6800.00	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
KOP - Build 10°/100ft DLS	6831.20	0.00	330.00	6831.20	0.00	0.00	0.00	0.00	363983.98	583623.88	N 32 0 2.16	W 104 11 48.91
	6900.00	6.88	330.00	6899.83	3.59	3.57	-2.06	10.00	363987.55	583621.82	N 32 0 2.19	W 104 11 48.93
	7000.00	16.88	330.00	6997.57	21.49	21.38	-12.34	10.00	364005.36	583611.54	N 32 0 2.37	W 104 11 49.05
	7100.00	26.88	330.00	7090.25	53.89	53.61	-30.95	10.00	364037.59	583592.93	N 32 0 2.69	W 104 11 49.27
	7200.00	36.88	330.00	7175.06	99.81	99.29	-57.33	10.00	364083.26	583566.56	N 32 0 3.14	W 104 11 49.57
	7300.00	46.88	330.00	7249.42	157.85	157.03	-90.66	10.00	364141.00	583533.23	N 32 0 3.71	W 104 11 49.96
	7400.00	56.88	330.00	7311.07	226.25	225.08	-129.95	10.00	364209.04	583493.94	N 32 0 4.38	W 104 11 50.42
Build and Turn 10°/100ft DLS	7431.20	60.00	330.00	7327.40	249.39	248.10	-143.24	10.00	364232.06	583480.65	N 32 0 4.61	W 104 11 50.57
	7500.00	64.72	335.65	7359.33	303.85	302.30	-170.99	10.00	364286.25	583452.90	N 32 0 5.15	W 104 11 50.89
	7600.00	71.92	343.12	7396.29	391.03	389.19	-203.52	10.00	364373.14	583420.38	N 32 0 6.01	W 104 11 51.27
	7700.00	79.38	349.99	7421.09	485.35	483.31	-225.92	10.00	364467.25	583397.98	N 32 0 6.94	W 104 11 51.53
	7800.00	86.98	356.53	7432.96	583.94	581.80	-237.51	10.00	364565.72	583386.39	N 32 0 7.92	W 104 11 51.66
Landing Point 1750' FWL-hold to target point	7838.90	89.96	359.04	7434.00	622.80	620.65	-239.01	10.00	364604.57	583384.89	N 32 0 8.30	W 104 11 51.68
	7900.00	89.96	359.04	7434.04	683.90	681.74	-240.04	0.00	364665.66	583383.86	N 32 0 8.90	W 104 11 51.69
	8000.00	89.96	359.04	7434.12	783.89	781.72	-241.73	0.00	364765.63	583382.17	N 32 0 9.89	W 104 11 51.71
	8100.00	89.96	359.04	7434.19	883.89	881.71	-243.41	0.00	364865.61	583380.49	N 32 0 10.88	W 104 11 51.72
	8200.00	89.96	359.04	7434.26	983.89	981.69	-245.10	0.00	364965.59	583378.81	N 32 0 11.87	W 104 11 51.74
	8300.00	89.96	359.04	7434.33	1083.88	1081.68	-246.78	0.00	365065.56	583377.12	N 32 0 12.86	W 104 11 51.76
	8400.00	89.96	359.04	7434.40	1183.88	1181.67	-248.46	0.00	365165.54	583375.44	N 32 0 13.85	W 104 11 51.78
	8500.00	89.96	359.04	7434.47	1283.88	1281.65	-250.15	0.00	365265.52	583373.75	N 32 0 14.84	W 104 11 51.80
	8600.00	89.96	359.04	7434.54	1383.87	1381.64	-251.83	0.00	365365.49	583372.07	N 32 0 15.83	W 104 11 51.81
	8700.00	89.96	359.04	7434.62	1483.87	1481.62	-253.52	0.00	365465.47	583370.39	N 32 0 16.82	W 104 11 51.83
	8800.00	89.96	359.04	7434.69	1583.87	1581.61	-255.20	0.00	365565.45	583368.70	N 32 0 17.81	W 104 11 51.85
	8900.00	89.96	359.04	7434.76	1683.86	1681.60	-256.89	0.00	365665.42	583367.02	N 32 0 18.80	W 104 11 51.87
	9000.00	89.96	359.04	7434.83	1783.86	1781.58	-258.57	0.00	365765.40	583365.33	N 32 0 19.79	W 104 11 51.89
	9100.00	89.96	359.04	7434.90	1883.86	1881.57	-260.25	0.00	365865.38	583363.65	N 32 0 20.78	W 104 11 51.91
Target point - Build 1.5°/100ft DLS	9166.14	89.96	359.04	7434.95	1950.00	1947.70	-261.37	0.00	365931.50	583362.54	N 32 0 21.43	W 104 11 51.92
Hold to TD	9188.21	90.29	359.04	7434.90	1972.07	1969.76	-261.74	1.50	365953.56	583362.16	N 32 0 21.65	W 104 11 51.92
	9200.00	90.29	359.04	7434.84	1983.86	1981.55	-261.94	0.00	365965.35	583361.97	N 32 0 21.77	W 104 11 51.92
	9300.00	90.29	359.04	7434.34	2083.85	2081.54	-263.62	0.00	366065.33	583360.28	N 32 0 22.76	W 104 11 51.94
	9400.00	90.29	359.04	7433.83	2183.85	2181.52	-265.31	0.00	366165.30	583358.60	N 32 0 23.75	W 104 11 51.96
	9500.00	90.29	359.04	7433.32	2283.84	2281.51	-266.99	0.00	366265.28	583356.91	N 32 0 24.74	W 104 11 51.98
	9600.00	90.29	359.04	7432.82	2383.84	2381.49	-268.67	0.00	366365.25	583355.23	N 32 0 25.72	W 104 11 52.00
	9700.00	90.29	359.04	7432.31	2483.83	2481.47	-270.36	0.00	366465.23	583353.55	N 32 0 26.71	W 104 11 52.01
	9800.00	90.29	359.04	7431.80	2583.83	2581.46	-272.04	0.00	366565.20	583351.86	N 32 0 27.70	W 104 11 52.03
	9900.00	90.29	359.04	7431.30	2683.83	2681.44	-273.73	0.00	366665.18	583350.18	N 32 0 28.69	W 104 11 52.05
	10000.00	90.29	359.04	7430.79	2783.82	2781.43	-275.41	0.00	366765.16	583348.50	N 32 0 29.68	W 104 11 52.07
	10100.00	90.29	359.04	7430.29	2883.82	2881.41	-277.09	0.00	366865.13	583346.81	N 32 0 30.67	W 104 11 52.09
	10200.00	90.29	359.04	7429.78	2983.81	2981.40	-278.78	0.00	366965.11	583345.13	N 32 0 31.66	W 104 11 52.10
	10300.00	90.29	359.04	7429.27	3083.81	3081.38	-280.46	0.00	367065.08	583343.45	N 32 0 32.65	W 104 11 52.12
	10400.00	90.29	359.04	7428.77	3183.80	3181.37	-282.14	0.00	367165.06	583341.76	N 32 0 33.64	W 104 11 52.14

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	10500.00	90.29	359.04	7428.26	3283.80	3281.35	-283.83	0.00	367265.03	583340.08	N 32 0 34.63	W 104 11 52.16
	10600.00	90.29	359.04	7427.75	3383.80	3381.34	-285.51	0.00	367365.01	583338.40	N 32 0 35.62	W 104 11 52.18
	10700.00	90.29	359.04	7427.25	3483.79	3481.32	-287.19	0.00	367464.98	583336.71	N 32 0 36.61	W 104 11 52.19
	10800.00	90.29	359.04	7426.74	3583.79	3581.30	-288.88	0.00	367564.96	583335.03	N 32 0 37.60	W 104 11 52.21
	10900.00	90.29	359.04	7426.23	3683.78	3681.29	-290.56	0.00	367664.93	583333.35	N 32 0 38.59	W 104 11 52.23
	11000.00	90.29	359.04	7425.73	3783.78	3781.27	-292.24	0.00	367764.91	583331.67	N 32 0 39.58	W 104 11 52.25
	11100.00	90.29	359.04	7425.22	3883.77	3881.26	-293.92	0.00	367864.89	583329.98	N 32 0 40.57	W 104 11 52.27
	11200.00	90.29	359.04	7424.71	3983.77	3981.24	-295.61	0.00	367964.86	583328.30	N 32 0 41.56	W 104 11 52.29
	11300.00	90.29	359.04	7424.21	4083.77	4081.23	-297.29	0.00	368064.84	583326.62	N 32 0 42.54	W 104 11 52.30
	11400.00	90.29	359.04	7423.70	4183.76	4181.21	-298.97	0.00	368164.81	583324.93	N 32 0 43.53	W 104 11 52.32
	11500.00	90.29	359.04	7423.19	4283.76	4281.20	-300.65	0.00	368264.79	583323.25	N 32 0 44.52	W 104 11 52.34
	11600.00	90.29	359.04	7422.69	4383.75	4381.18	-302.34	0.00	368364.76	583321.57	N 32 0 45.51	W 104 11 52.36
	11700.00	90.29	359.04	7422.18	4483.75	4481.17	-304.02	0.00	368464.74	583319.89	N 32 0 46.50	W 104 11 52.38
	11800.00	90.29	359.04	7421.67	4583.74	4581.15	-305.70	0.00	368564.71	583318.21	N 32 0 47.49	W 104 11 52.39
	11900.00	90.29	359.04	7421.16	4683.74	4681.14	-307.38	0.00	368664.69	583316.52	N 32 0 48.48	W 104 11 52.41
	12000.00	90.29	359.04	7420.66	4783.74	4781.12	-309.07	0.00	368764.67	583314.84	N 32 0 49.47	W 104 11 52.43
	12100.00	90.29	359.04	7420.15	4883.73	4881.10	-310.75	0.00	368864.64	583313.16	N 32 0 50.46	W 104 11 52.45
	12200.00	90.29	359.04	7419.64	4983.73	4981.09	-312.43	0.00	368964.62	583311.48	N 32 0 51.45	W 104 11 52.47
	12300.00	90.29	359.04	7419.14	5083.72	5081.07	-314.11	0.00	369064.59	583309.80	N 32 0 52.44	W 104 11 52.48
	12400.00	90.29	359.04	7418.63	5183.72	5181.06	-315.79	0.00	369164.57	583308.11	N 32 0 53.43	W 104 11 52.50
	12500.00	90.29	359.04	7418.12	5283.71	5281.04	-317.48	0.00	369264.54	583306.43	N 32 0 54.42	W 104 11 52.52
	12600.00	90.29	359.04	7417.61	5383.71	5381.03	-319.16	0.00	369364.52	583304.75	N 32 0 55.41	W 104 11 52.54
	12700.00	90.29	359.04	7417.11	5483.71	5481.01	-320.84	0.00	369464.49	583303.07	N 32 0 56.40	W 104 11 52.56
	12800.00	90.29	359.04	7416.60	5583.70	5581.00	-322.52	0.00	369564.47	583301.39	N 32 0 57.39	W 104 11 52.57
	12900.00	90.29	359.04	7416.09	5683.70	5680.98	-324.20	0.00	369664.44	583299.71	N 32 0 58.38	W 104 11 52.59
	13000.00	90.29	359.04	7415.58	5783.69	5780.97	-325.89	0.00	369764.42	583298.02	N 32 0 59.36	W 104 11 52.61
	13100.00	90.29	359.04	7415.08	5883.69	5880.95	-327.57	0.00	369864.40	583296.34	N 32 1 0.35	W 104 11 52.63
	13200.00	90.29	359.04	7414.57	5983.68	5980.93	-329.25	0.00	369964.37	583294.66	N 32 1 1.34	W 104 11 52.65
	13300.00	90.29	359.04	7414.06	6083.68	6080.92	-330.93	0.00	370064.35	583292.98	N 32 1 2.33	W 104 11 52.66
	13400.00	90.29	359.04	7413.55	6183.68	6180.90	-332.61	0.00	370164.32	583291.30	N 32 1 3.32	W 104 11 52.68
	13500.00	90.29	359.04	7413.05	6283.67	6280.89	-334.29	0.00	370264.30	583289.62	N 32 1 4.31	W 104 11 52.70
	13600.00	90.29	359.04	7412.54	6383.67	6380.87	-335.97	0.00	370364.27	583287.94	N 32 1 5.30	W 104 11 52.72
	13700.00	90.29	359.04	7412.03	6483.66	6480.86	-337.65	0.00	370464.25	583286.26	N 32 1 6.29	W 104 11 52.74
	13800.00	90.29	359.04	7411.52	6583.66	6580.84	-339.34	0.00	370564.22	583284.58	N 32 1 7.28	W 104 11 52.76
	13900.00	90.29	359.04	7411.02	6683.66	6680.83	-341.02	0.00	370664.20	583282.90	N 32 1 8.27	W 104 11 52.77
	14000.00	90.29	359.04	7410.51	6783.65	6780.81	-342.70	0.00	370764.17	583281.21	N 32 1 9.26	W 104 11 52.79
	14100.00	90.29	359.04	7410.00	6883.65	6880.80	-344.38	0.00	370864.15	583279.53	N 32 1 10.25	W 104 11 52.81
Cimarex Klein 33 Federal Com 5H PBHL 1700' FWL	14100.22	90.29	359.04	7410.00	6883.87	6881.02	-344.38	0.00	370864.37	583279.53	N 32 1 10.25	W 104 11 52.81

Survey Type: 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	24.000	1/100.000	30.000	30.000	SLB_MWD-POOR-Depth Only	Original Borehole / Cimarex Klein 33 Federal Com 5H Rev2 PCG 16-
	1	24.000	9611.000	1/100.000	30.000	30.000	SLB_MWD-POOR	Original Borehole / Cimarex Klein 33 Federal Com 5H Rev2 PCG 16-
	1	9611.000	14100.220	1/100.000	30.000	30.000	SLB_MWD-STD	Original Borehole / Cimarex Klein 33 Federal Com 5H Rev2 PCG 16-

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

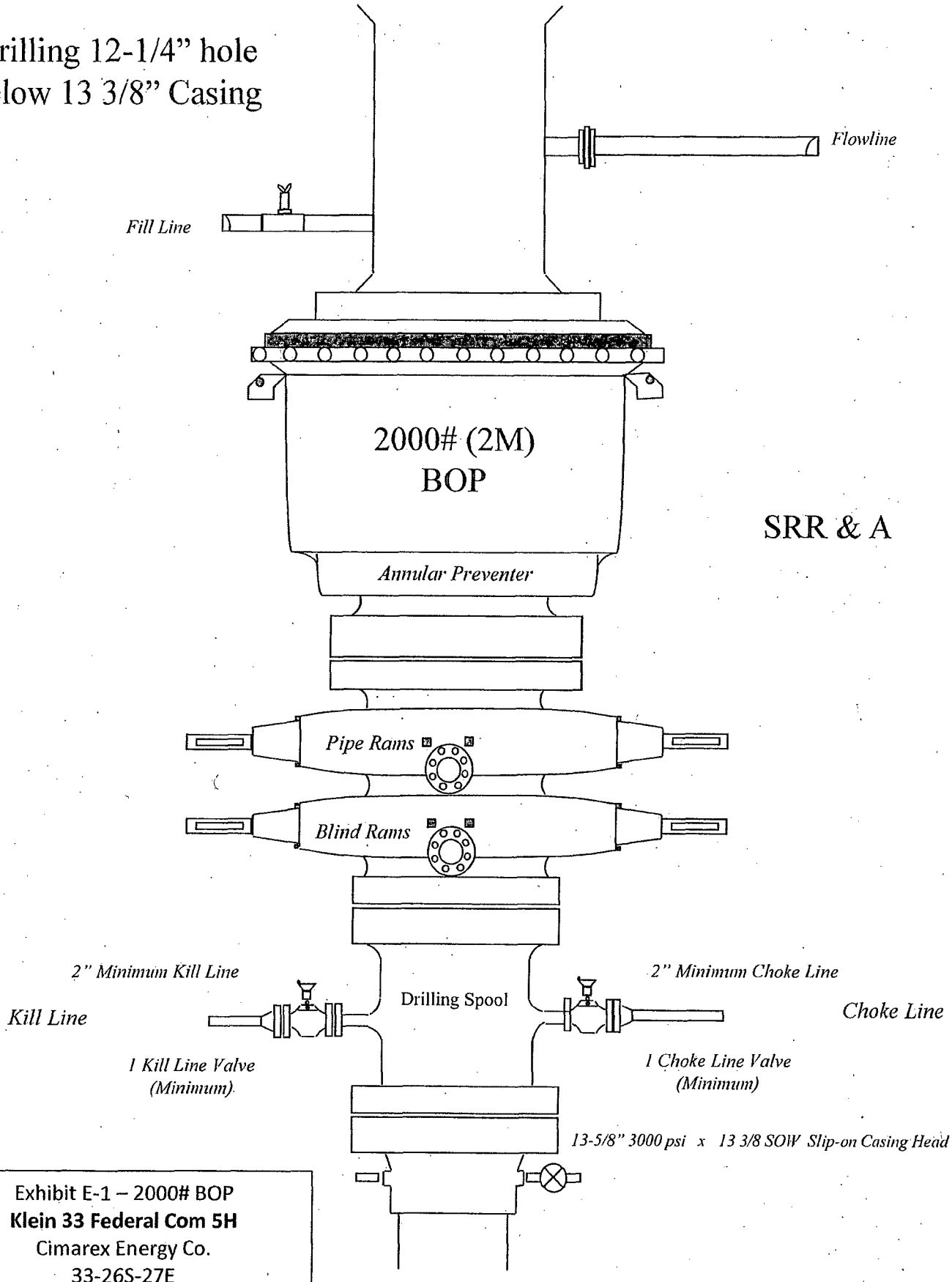
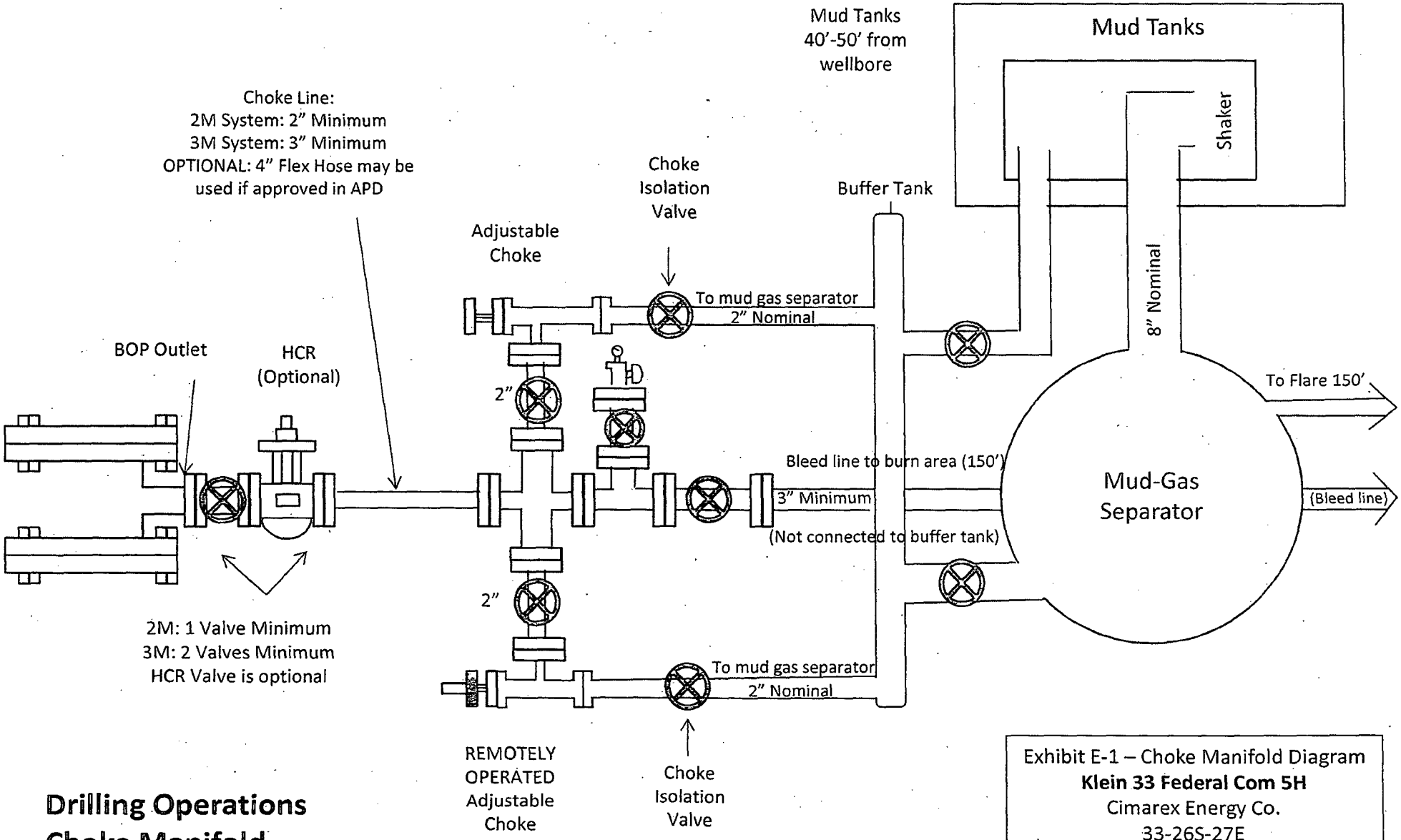


Exhibit E-1 – 2000# BOP
Klein 33 Federal Com 5H
Cimarex Energy Co.
33-26S-27E
SHL 210 FSL & 1980 FWL
BHL 660 FNL & 1980 FWL
Eddy County, NM



Drilling Operations
Choke Manifold
2M/3M Service

Exhibit E-1 – Choke Manifold Diagram
Klein 33 Federal Com 5H
Cimarex Energy Co.
33-26S-27E
SHL 210 FSL & 1980 FWL
BHL 660 FNL & 1980 FWL
Eddy County, NM

CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Cimarex Energy Co. of Colorado
LEASE NO.:	NMNM-114350
WELL NAME & NO.:	Klein 33 Federal Com 5H
SURFACE HOLE FOOTAGE:	0210' FSL & 1980' FWL
BOTTOM HOLE FOOTAGE	330' FNL & 1980' FWL Sec. 28, T. 26 S., R 27 E
LOCATION:	Section 33, T. 26 S., R 27 E., NMPM
COUNTY:	Eddy County, New Mexico

I. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

The BLM is to be notified in advance for a representative to witness:

a. Spudding well (minimum of 24 hours)
b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
c. BOPE tests (minimum of 4 hours)

☒ **Eddy County**
Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220, (575) 361-2822

1. **Although Hydrogen Sulfide has not been reported in the area, it is always a potential hazard. If Hydrogen Sulfide is encountered, report measured amounts and formations to the BLM.**

2. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval. **If the drilling rig is removed without approval – an Incident of Non-Compliance will be written and will be a "Major" violation.**

3. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works is located, this does not include the dog house or stairway area.

4. **The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The top and bottom of Salt are to be recorded on the Completion Report.**

B. CASING

Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.).

Centralizers required on surface casing per Onshore Order 2.III.B.1.f.

Wait on cement (WOC) time prior to drilling out for a primary cement job will be a minimum 18 hours for a water basin, 24 hours in the potash area, or 500 pounds compressive strength, whichever is greater for all casing strings. DURING THIS WOC TIME, NO DRILL PIPE, ETC. SHALL BE RUN IN THE HOLE. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. IF OPERATOR DOES NOT HAVE THE WELL SPECIFIC CEMENT DETAILS ONSITE PRIOR TO PUMPING THE CEMENT FOR EACH CASING STRING, THE WOC WILL BE 30 HOURS. See individual casing strings for details regarding lead cement slurry requirements.

No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.

Medium Cave/Karst
Possibility of water flows in the Castile and Delaware.
Possibility of lost circulation in the Salado and Delaware.
Abnormal pressures may be encountered within the 3rd Bone Spring and Wolfcamp formations.

1. The **13-3/8** inch surface casing shall be set at approximately **400** feet and cemented to the surface. **If salt is encountered, set casing at least 25 feet above the salt. Excess calculates to 10% - Additional cement may be required.**

    a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.

    b. Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.

c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.

d. If cement falls back, remedial cementing will be done prior to drilling out that string.

2. The minimum required fill of cement behind the **9-5/8** inch intermediate casing, which shall be set at approximately **1925** feet, is:

☒ Cement to surface. If cement does not circulate see B.1.a, c-d above. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst.**

If 75% or greater lost circulation occurs while drilling the intermediate casing hole, the cement on the production casing must come to surface.

Centralizers approved as written.

3. The minimum required fill of cement behind the **5-1/2** inch production casing is:

☒ Cement should tie-back at least 200 feet into previous casing string. Operator shall provide method of verification. **Excess calculates to 16% - Additional cement may be required.**

4. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

C. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.

2. Variance approved to use flex line from BOP to choke manifold. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. **Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.** If the BLM inspector questions the straightness of the hose, a BLM engineer will be contacted and will review in the

field or via picture supplied by inspector to determine if changes are required (operator shall expect delays if this occurs).

3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **2000 (2M)** psi.

4. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.

    a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

    b. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (18 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).

    c. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.

    d. The results of the test shall be reported to the appropriate BLM office.

    e. All tests are required to be recorded on a calibrated test chart. **A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.**

    f. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.

D. DRILL STEM TEST

If drill stem tests are performed, Onshore Order 2.III.D shall be followed.

E. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

CRW 122914