14-136

OCD Artesia
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FEB 28 2014
NMOCD ARTESIA

Form 3160-3
(March 2012)

FORM APPROVED
OMB No. 1004-0137
Expires October 31, 2014

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.
SHL\BHL: NMNM117116

6. If Indian, Allotee or Tribe Name

1a. Type of Work: [X] DRILL [ ] REENTER

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

1b. Type of Well: [X] Oil Well [ ] Gas Well [ ] Other [X] Single Zone [ ] Multiple Zone

8. Lease Name and Well No.
Cabrera 34 Federal #3H <40432>

2. Name of Operator
Cimarex Energy Co. <215099>

9. API Well No.
30-015-42122

3a. Address
202 S. Cheyenne Ave., Ste 1000, Tulsa, OK 74103

3b. Phone No. (*include area code*)
918-585-1100

10. Field and Pool, or Exploratory
WC-015 G-04 S262728A; B.S.
~~Wildcat Bone Spring~~ <98098>

4. Location of Well (*Report location clearly and in accordance with any State requirements.**)
At Surface: 1070 FSL & 210 FEL
At proposed prod. Zone: 400 FNL & 330 FWL *Bone Spring*

11. Sec., T. R. M. or Blk. and Survey and Area
34, 26S, 27E

14. Distance in miles and direction from nearest town or post office*
Whites City, NM is 17 miles northwest of location.

12. County or Parish: Eddy

13. State: NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line if any)	16. No of acres in lease	17. Spacing Unit dedicated to this well
210	NMNM117116=1365.00 acres	160.00

18. Distance from proposed* location to nearest well, drilling, completed, applied for, on this lease, ft.	19. Proposed Depth	20. BLM/BIA Bond No. on File
40' to the #2H	Pilot Hole TD: 8,000 12,255 MD 7,603 TVD	NM2575; NMB000835

21. Elevations (Show whether DF, KDB, RT, GL, etc.)	22. Approximate date work will start*	23. Estimated duration
3238 GR	2/17/14	35 days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, shall be attached to this form:

1. Well plat certified by a registered surveyor
2. A Drilling Plan
3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO shall be filed with the appropriate Forest Service Office).
4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5. Operator Certification
6. Such other site specific information and/or plans as may be required by the authorized officer.

25. Signature	Name (*Printed/Typed*)	Date
	Terri Stathem	11/4/13

Title: Regulatory Compliance

Approved By (*Signature*) /S/ STEPHEN J. CAFFEY	Name (Printed/Typed)	Date FEB 24 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

Approval Subject to General Requirements & Special Stipulations Attached

SEE ATTACHED FOR CONDITIONS OF APPROVAL

Operator Certification Statement
Cabrera 34 Federal #3H
Cimarex Energy Co.
UL: A, Sec. 34, 26S, 27E
Eddy Co., NM

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 4 day of November, 2013

NAME: Aricka Easterling
Aricka Easterling
TITLE: Regulatory Compliance
ADDRESS: 202 S. Cheyenne Ave., Ste 1000, Tulsa, OK 74103
TELEPHONE: 918-585-1100
EMAIL: AEasterling@cimarex.com
Field Representative: Same as above

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 Rd., 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 and Natural Resources Department

OIL CONSERVATION DIVISION

1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

Form C-102
Revised August 1, 2011

Submit one copy to appropriate District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
30015- 42122	98018	WC-015 G-04 ~~Wildcat Bone Spring~~ S262128A

Property Code	Property Name	Well Number
40432	CABRERA 34 FEDERAL	3H

OGRID No.	Operator Name	Elevation
215099	CIMAREX ENERGY CO.	3238'

Surface Location

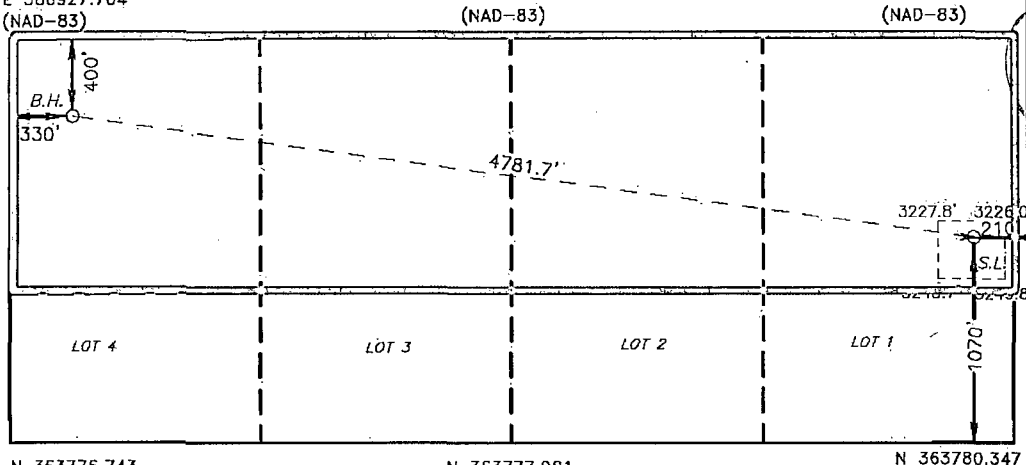
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	34	26 S	27 E		1070	SOUTH	210	EAST	EDDY

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
D	34	26 S	27 E		400	NORTH	330	WEST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
160			2-24 12255

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



PROPOSED BOTTOM HOLE LOCATION
Lat = N 32°00'16.88"
Long = W 104°11'06.67"
NMSPCE- N 365477.277
E 587258.666
(NAD-83)

SURFACE LOCATION
Lat = N 32°00'10.61"
Long = W 104°10'11.64"
NMSPCE- N 364849.870
E 591997.929
(NAD-83)

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 11/4/13 Date

Terri Stathem
Printed Name

tstathem@cimarex.com
Email Address

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 supervison, and that the same is true and correct to the best of my belief.

AUGUST 23, 2013
Date Surveyed

Signature & Seal of Professional Surveyor

NEW MEXICO 7977 REGISTERED PROFESSIONAL SURVEYOR

Certificate No. Gary L. Jones 7977

BASIN SURVEYS 29251

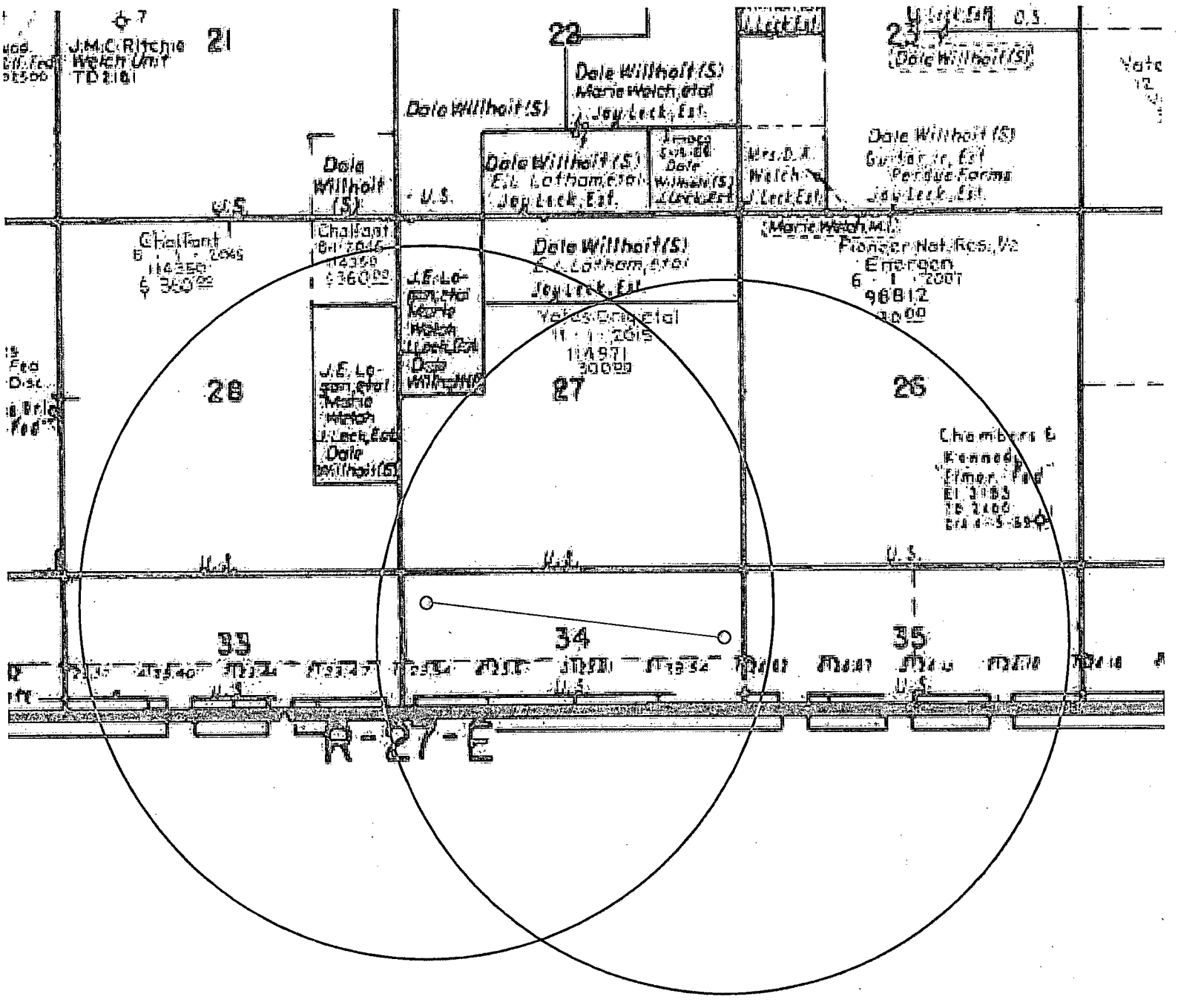
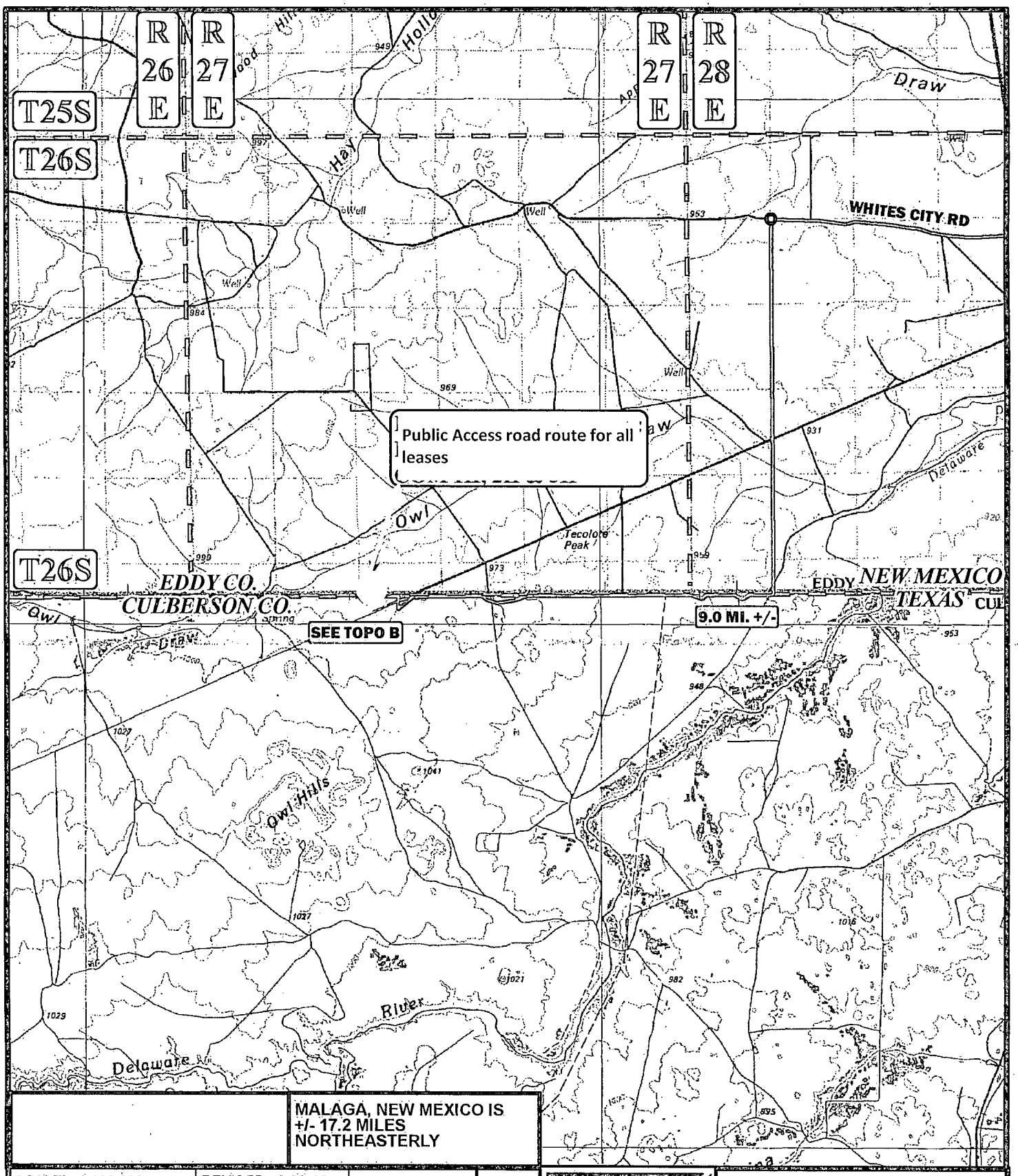


Exhibit D – Rig Diagram
Cabrera 34 Federal 3H
Cimarex Energy Co.
34-26S-27E
SHL 1070 FSL & 210 FEL
BHL 400 FNL & 330 FWL
Eddy County, NM



MALAGA, NEW MEXICO IS +/- 17.2 MILES NORTHEASTERLY

SCALE: 1:100,000	REVISED: 9-23-13	
DRAWN BY: J.L.H.	REV:10-16-13J.L.G.	
DATE DRAWN: 09-04-13		

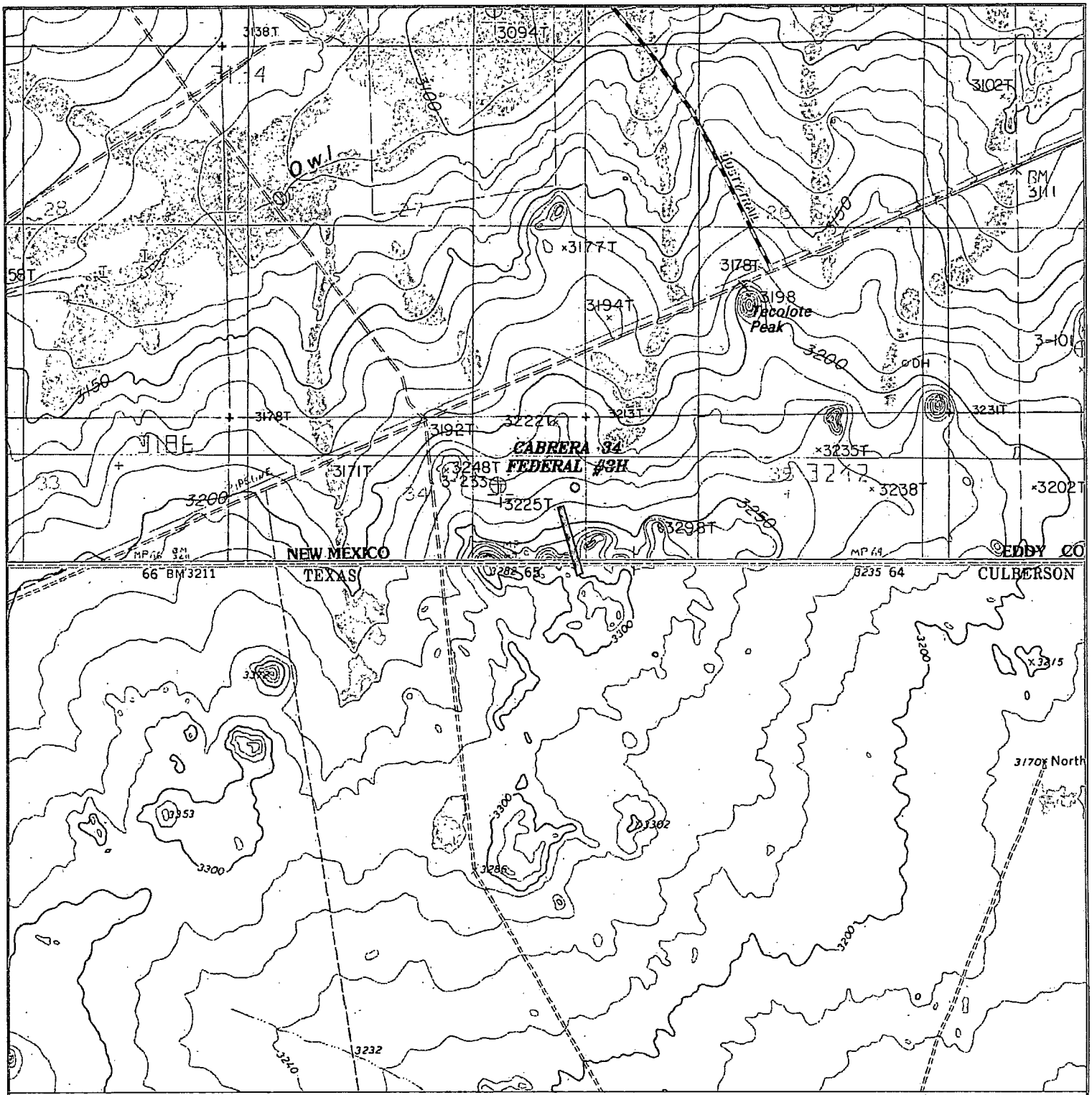
N

CIMAREX ENERGY CO.

UINTAH ENGINEERING & LAND SURVEYING
Corporate Office * 85 South 200 East
Vernal, UT 84078 * (435) 789-1017

ACCESS ROAD MAP | TOPO A

Exhibit B



CABRERA 34 FEDERAL #3H
Located 1070' FSL and 210' FEL
Section 34, Township 26 South, Range 27 East,
N.M.P.M., Eddy County, New Mexico.

basin surveys
focused on excellence in the oilfield
P.O. Box 1786
1120 N. West County Rd.
Hobbs, New Mexico 88241
(575) 393-7316 - Office
(575) 392-2206 - Fax
basinsurveys.com

W.O. Number: 29251	
Survey Date: 8-23-2013	
Scale: 1" = 2000'	
Date: 8-29-2013	

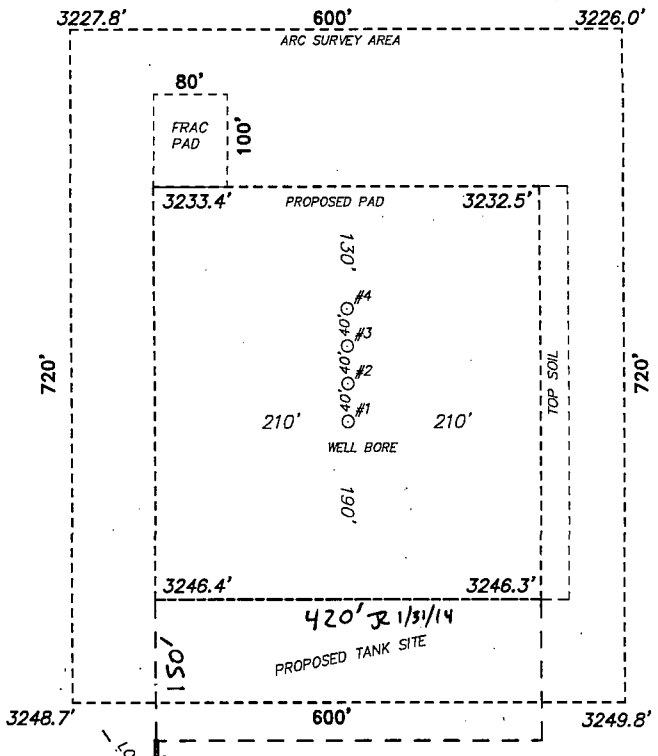
N

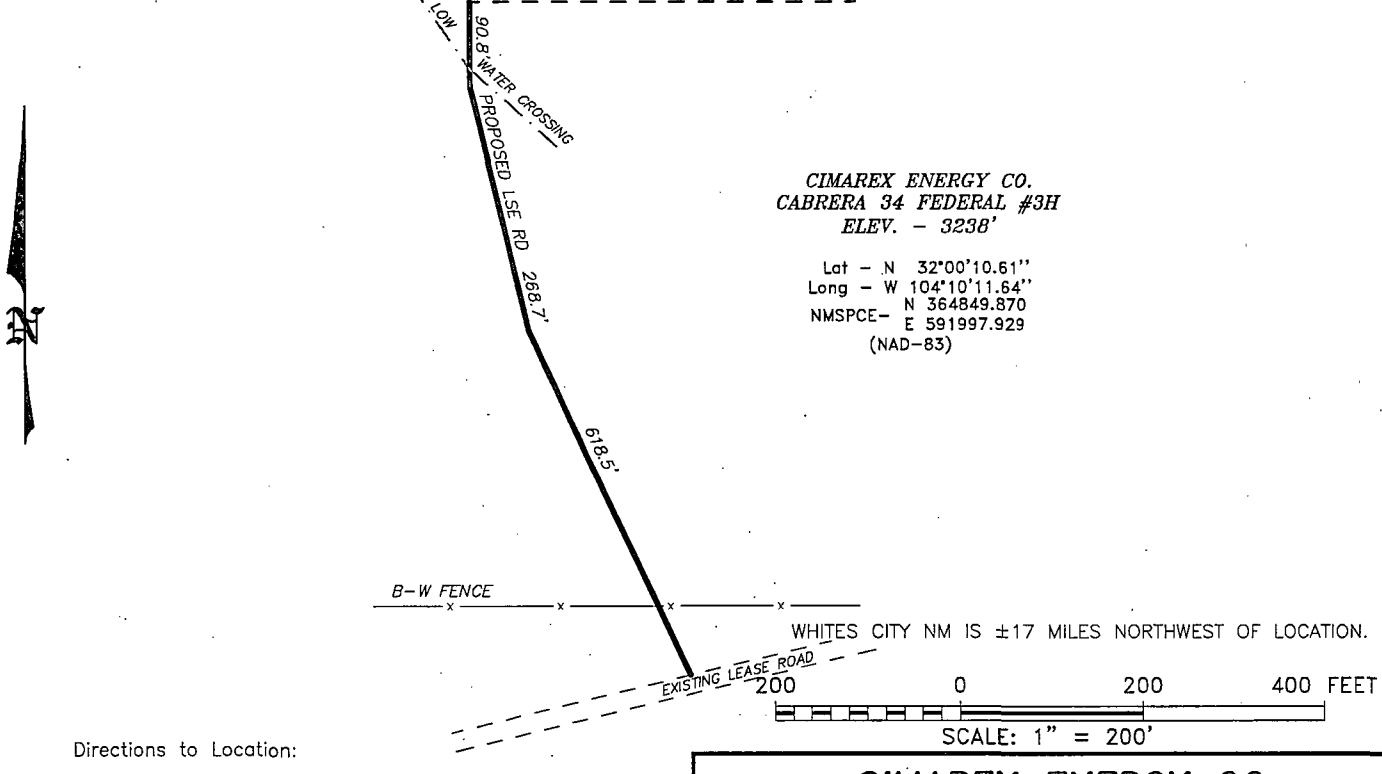
CIMAREX ENERGY CO.

Exhibit C

SECTION 34, TOWNSHIP 26 SOUTH, RANGE 27 EAST, N.M.P.M.,

EDDY COUNTY, **NEW MEXICO.**





CIMAREX ENERGY CO.
CABRERA 34 FEDERAL #3H
ELEV. – 3238'

Lat – N 32°00'10.61"
Long – W 104°10'11.64"
NMSPCE– N 364849.870
E 591997.929
(NAD–83)

WHITES CITY NM IS ±17 MILES NORTHWEST OF LOCATION.

Directions to Location:

FROM HIGHWAY 285 AND WHITES CITY GO WEST 3.1 MILES TURN SOUTH AND GO 4.5 MILES THEN GO WEST 3.2 MILES TO PROPOSED ROAD.

CIMAREX ENERGY CO.

REF: CABRERA 34 FEDERAL #3H

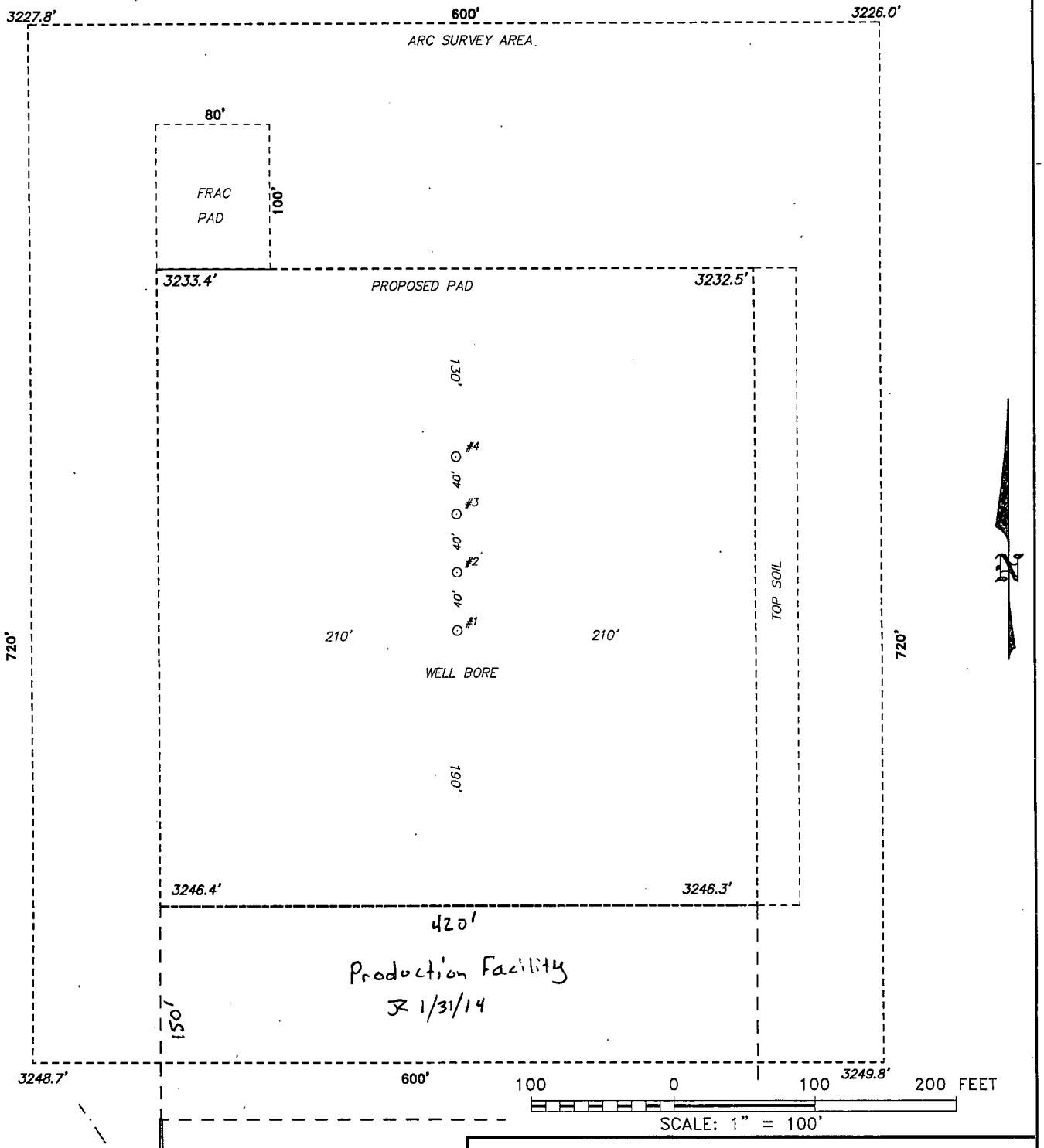
THE CABRERA 34 FEDERAL #3H LOCATED 1070' FROM THE SOUTH LINE AND 210' FROM THE EAST LINE OF SECTION 34, TOWNSHIP 26 SOUTH, RANGE 27 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO.

BASIN SURVEYS P.O. BOX 1786 – HOBBS, NEW MEXICO

W.O. Number: 29251	Drawn By: J. GOAD		
Date: 8-29-2013	Disk: JG – 29249-2950-2951	Survey Date: 8-23-2013	Sheet 1 of 1 Sheets

SECTION 34, TOWNSHIP 26 SOUTH, RANGE 27 EAST, N.M.P.M.,

EDDY COUNTY, **NEW MEXICO.**



CIMAREX ENERGY CO.

REF: CABRERA 34 FEDERAL #3H

THE CABRERA 34 FEDERAL #3H LOCATED 1070' FROM THE SOUTH LINE AND 210' FROM THE EAST LINE OF SECTION 34, TOWNSHIP 26 SOUTH, RANGE 27 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO.

BASIN SURVEYS P.O. BOX 1786 – HOBBS, NEW MEXICO

W.O. Number: 29251	Drawn By: J. GOAD		
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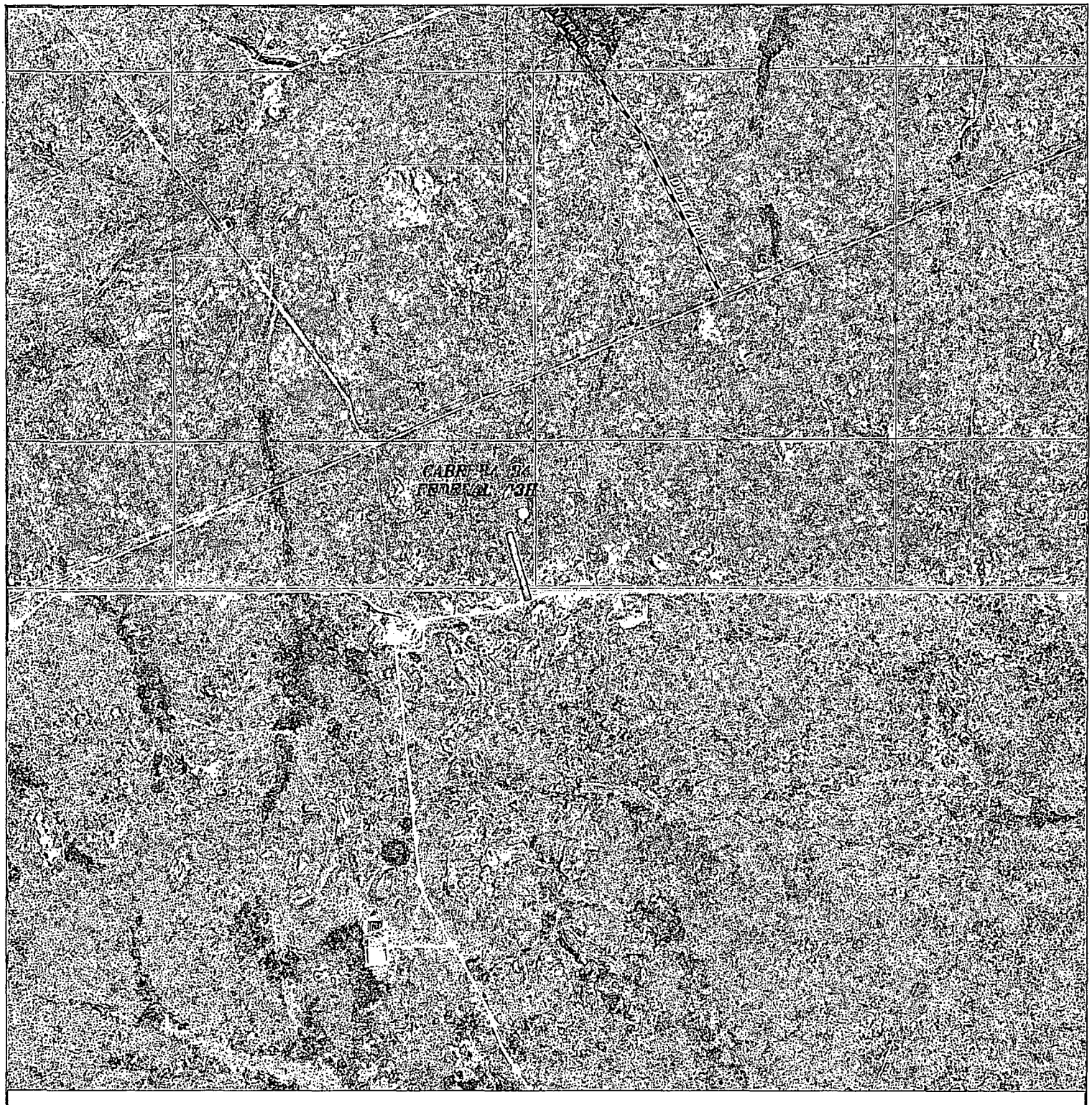

CABRERA 34 FEDERAL #3H
Located 1070' FSL and 210' FEL
Section 34, Township 26 South, Range 27 East,
N.M.P.M., Eddy County, New Mexico.

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focused on excellence in the oilfield

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(575) 393-7316 - Office
(575) 392-2206 - Fax
basinsurveys.com

W.O. Number: 29251

Scale: 1" = 2000'

YELLOW TINT - USA LAND
BLUE TINT - STATE LAND
NATURAL COLOR - FEE LAND

N

CIMAREX ENERGY CO.

Application to Drill
Cabrera 34 Federal #3H
Cimarex Energy Co.
UL: A, Sec. 34, 26S, 27E
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 1070 FSL & 210 FEL
BHL 400 FNL & 330 FWL

2. Elevation Above Sea Level: 3,238' 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: 12,255 MD 7,603 TVD Pilot Hole TD: 8,000

6. Estimated Tops of Geological Markers:

Formation	Est Top	Bearing
Rustler	50	N/A
Salado	1554	N/A
Castille	2055	N/A
Bell Canyon	2228	N/A
Cherry Canyon	3231	N/A
Brushy Canyon	4392	N/A
Brushy Canyon Lower	5650	N/A
Bone Spring	5886	Hydrocarbons
Bone Spring A Shale	5985	Hydrocarbons
Bone Spring C Shale	6517	Hydrocarbons
1st Bone Spring Ss	6823	Hydrocarbons
2nd Bone Spring Ss	7293	Hydrocarbons
2nd BS Ss Horz Target	7683	Hydrocarbons
3rd BS Limestone	7778	Hydrocarbons
TD (Pilot Hole)	8000	Hydrocarbons

7. Possible Mineral Bearing Formation: Shown above

7A. OSE Ground Water Estimated Depth: 50'

8. Casing Program:

See COA

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	~~2200~~ 2100'	~~2200~~	12 1/4	9-5/8"	36.00	J-55	LT&C	New	1144	10.0		1.77	3.08	79,200	67,108	6.75
Production	0	7201	7201	8 3/4	5-1/2"	17.00	L-80	LT&C	New	3370	9.0	1.87		2.30	129,251	111,491	3.03
Production	7201	12255	7603	8 3/4	5-1/2"	17.00	L-80	BT&C	New	3558	9.0	1.77		2.18	6,834	5,895	67.35

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
Cabrera 34 Federal #3H
Cimarex Energy Co.
UL: A, Sec. 34, 26S, 27E
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.
	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 See COA	Lead	79	1.75	13.50	138	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		**44% Excess**			**Centralizers per Onshore Order 2.III.B.1f**
Intermediate	Lead	521	1.88	12.90	978	35:65 (poz/C) + Salt + Bentonite + LCM + retarder, 9.65 gps water
	Tail	129	1.34	14.80	172	Class C + retarder + LCM, 6.32 gps water
	TOC: 0		**82% Excess**			
Production See COA	Lead	614	2.40	11.90	1472	35:65 (poz/H) + salt + Sodium Metasilcate + Bentonite + Fluid Loss + Dispersant + LCM + Retarder, 13.80 gps water
	Tail	1415	1.24	14.50	1754	50:50 (poz/H) + Bentonite + Salt + Fluid Loss + Dispersant + LCM + Retarder, 5.55 gps water
	TOC: ~~2000~~		**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: 8,000' KOP: 7,201' EOC: 7,959'

Set OH mechanical whipstock w/ 749 ft of 2.875 tubing and pump 30 bbls of Mudpush @ 12 ppg, followed by 355 sks Type H cement, dispersant 0.080 gals/sk, retarder 0.045 gals/sk @ 17.50 ppg, 0.94 cuft/sk, & 0% excess from pilot hole TD to KOP. KO lateral and drill through the curve to TD. Run production csg to TD and cement.

Application to Drill
Cabrera 34 Federal #3H
Cimarex Energy Co.
UL: A, Sec. 34, 26S, 27E
Eddy Co., NM

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.
See COA
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.
See COA
11. Proposed Mud Circulating System:

Depth	Mud Weight	Visc	Fluid Loss	Type Mud
0' to 400'	8.30	28	NC	FW Spud Mud
400' to 2200' 2100'	10.00	30-32	NC	Brine Water
2200' to 12255'	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 2200 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: 3600 psi Estimated BHT: 141°

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**

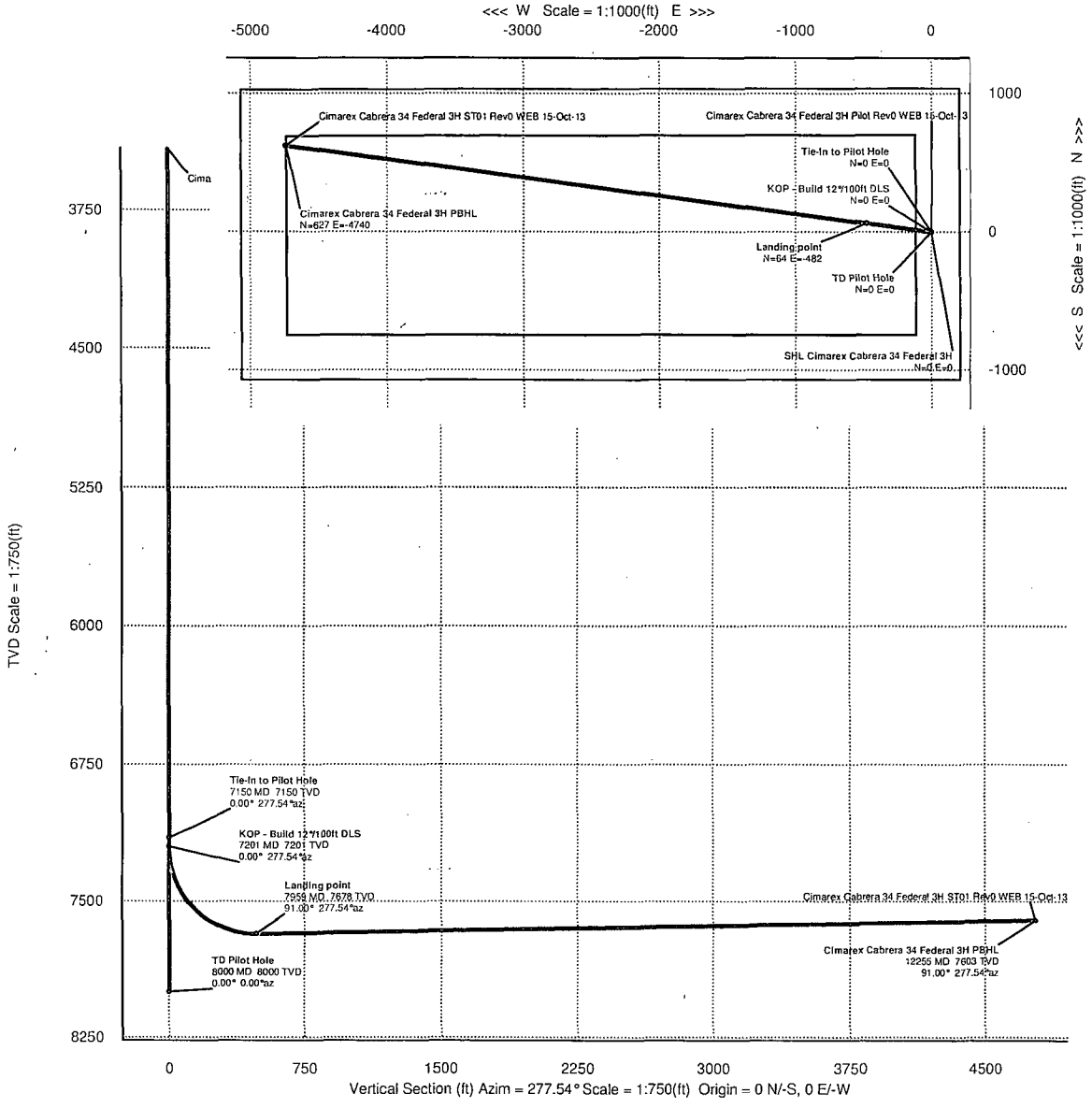
Cimarex

PATHFINDER
A Schlumberger Company

WELL	FIELD	STRUCTURE
Cabrera 34 Federal 3H	NM Eddy County	TBD

Magnetic Parameters				Surface Location				Miscellaneous	
Model: BGGM 2013	Dip: 59.803°	Date: October 15, 2013		Lat: N 32 0 10.609	Northing: 364849.87 sUS	Grid Conv: 0.687°		Slot: Cimarex Cabrera 34 Federal 3H/0 Ref:	Ground level(3238ft above MSL)
	Mag Dec: 7.559°	FS: 48162.7nT		Lon: W 104 10 11.644	Easting: 591997.93 sUS	Scale Fact: 0.99991203		Plan: ST01 Rev0 WEB 15-Oct-13 Srvy Date: October 15, 2013	

Grid North
Tot Corr (M->G 7.5821°)
Mag Dec (7.559°)
Grid Conv (0.687°)



Critical Points

Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+) / S(-)	E(+) / W(-)	DLS
Tie-In to Pilot Hole	7150.00	0.00	277.54	7150.00	0.00	0.00	0.00	
KOP - Build 12°/100ft DLS	7200.50	0.00	277.54	7200.50	0.00	0.00	0.00	0.00
Landing point	7959.00	91.00	277.54	7678.00	485.91	63.76	-481.71	12.00
Cimarex Cabrera 34 Federal 3H PBHL	12254.79	91.00	277.54	7603.00	4781.04	627.46	-4739.69	0.00

Cimarex Cabrera 34 Federal 3H ST01 Rev0 WEB 15-Oct-13 Proposal Report
100' Interpolated
(Non-Def Plan)

PATHFINDER
A Schlumberger Company

Report Date:	October 15, 2013 - 06:33 PM	**Survey / DLS Computation:**	Minimum Curvature / Lubinski
Client:	Cimarex	**Vertical Section Azimuth:**	277.541 ° (Grid North)
Field:	NM Eddy County (NAD 83)	**Vertical Section Origin:**	0.000 ft, 0.000 ft
Structure / Slot:	TBD / Cimarex Cabrera 34 Federal 3H	**TVD Reference Datum:**	Ground level
Well:	Cimarex Cabrera 34 Federal 3H	**TVD Reference Elevation:**	3238.000 ft above MSL
Borehole:	ST01 Borehole	**Seabed / Ground Elevation:**	3238.000 ft above MSL
UWI / API#:	Unknown / Unknown	**Magnetic Declination:**	7.669 °
Survey Name:	Cimarex Cabrera 34 Federal 3H ST01 Rev0 WEB 15-Oct-13	**Total Gravity Field Strength:**	998.4849mgn (9.80665 Based)
Survey Date:	October 15, 2013	**Total Magnetic Field Strength:**	48162.703 nT
Tort / AHD / DDI / ERD Ratio:	91.003 ° / 4781.042 ft / 5.842 / 0.623	**Magnetic Dip Angle:**	59.802 °
Coordinate Reference System:	NAD83 New Mexico State Plane, Eastern Zone, US Feet	**Declination Date:**	October 15, 2013
Location Lat / Long:	N 32° 0' 10.60942", W 104° 10' 11.64422"	**Magnetic Declination Model:**	BGGM 2013
Location Grid N/E Y/X:	N 364849.870 ftUS, E 591997.929 ftUS	**North Reference:**	Grid North
CRS Grid Convergence Angle:	0.0866 °	**Grid Convergence Used:**	0.0866 °
Grid Scale Factor:	0.99991203	**Total Corr Mag North->Grid North:**	7.5821 °
		Local Coord Referenced To:	Structure Reference Point

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")	Closure (ft)	Closure Azimuth (°)	DLS (°/100ft)
SHL Cimarex Cabrera 34 Federal 3H	0.00	0.00	0.00	0.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	N/A
	100.00	0.00	277.54	100.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	200.00	0.00	277.54	200.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	300.00	0.00	277.54	300.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	400.00	0.00	277.54	400.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	500.00	0.00	277.54	500.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	600.00	0.00	277.54	600.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	700.00	0.00	277.54	700.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	800.00	0.00	277.54	800.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	900.00	0.00	277.54	900.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	1000.00	0.00	277.54	1000.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	1100.00	0.00	277.54	1100.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	1200.00	0.00	277.54	1200.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	1300.00	0.00	277.54	1300.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	1400.00	0.00	277.54	1400.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	1500.00	0.00	277.54	1500.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	1600.00	0.00	277.54	1600.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	1700.00	0.00	277.54	1700.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	1800.00	0.00	277.54	1800.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	1900.00	0.00	277.54	1900.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	2000.00	0.00	277.54	2000.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	2100.00	0.00	277.54	2100.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	2200.00	0.00	277.54	2200.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	2300.00	0.00	277.54	2300.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	2400.00	0.00	277.54	2400.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	2500.00	0.00	277.54	2500.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	2600.00	0.00	277.54	2600.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	2700.00	0.00	277.54	2700.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	2800.00	0.00	277.54	2800.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")	Closure (ft)	Closure Azimuth (°)	DLS (°/100ft)
	2900.00	0.00	277.54	2900.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	3000.00	0.00	277.54	3000.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	3100.00	0.00	277.54	3100.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	3200.00	0.00	277.54	3200.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	3300.00	0.00	277.54	3300.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	3400.00	0.00	277.54	3400.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	3500.00	0.00	277.54	3500.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	3600.00	0.00	277.54	3600.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	3700.00	0.00	277.54	3700.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	3800.00	0.00	277.54	3800.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	3900.00	0.00	277.54	3900.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	4000.00	0.00	277.54	4000.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	4100.00	0.00	277.54	4100.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	4200.00	0.00	277.54	4200.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	4300.00	0.00	277.54	4300.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	4400.00	0.00	277.54	4400.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	4500.00	0.00	277.54	4500.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	4600.00	0.00	277.54	4600.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	4700.00	0.00	277.54	4700.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	4800.00	0.00	277.54	4800.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	4900.00	0.00	277.54	4900.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	5000.00	0.00	277.54	5000.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	5100.00	0.00	277.54	5100.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	5200.00	0.00	277.54	5200.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	5300.00	0.00	277.54	5300.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	5400.00	0.00	277.54	5400.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	5500.00	0.00	277.54	5500.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	5600.00	0.00	277.54	5600.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	5700.00	0.00	277.54	5700.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	5800.00	0.00	277.54	5800.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	5900.00	0.00	277.54	5900.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	6000.00	0.00	277.54	6000.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	6100.00	0.00	277.54	6100.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	6200.00	0.00	277.54	6200.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	6300.00	0.00	277.54	6300.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	6400.00	0.00	277.54	6400.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	6500.00	0.00	277.54	6500.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	6600.00	0.00	277.54	6600.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	6700.00	0.00	277.54	6700.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	6800.00	0.00	277.54	6800.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	6900.00	0.00	277.54	6900.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	7000.00	0.00	277.54	7000.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	7100.00	0.00	277.54	7100.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
Tie-In to Pilot Hole	7150.00	0.00	277.54	7150.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	7200.00	0.00	277.54	7200.00	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
KOP - Build 12°/100ft DLS	7200.50	0.00	277.54	7200.50	0.00	0.00	0.00	364849.87	591997.93	N 32 0 10.61	W 104 10 11.64	0.00	0.00	0.00
	7300.00	11.94	277.54	7299.28	10.33	1.36	-10.24	364851.23	591987.69	N 32 0 10.62	W 104 10 11.76	10.33	277.54	12.00
	7400.00	23.93	277.54	7394.25	41.07	5.39	-40.71	364855.26	591957.22	N 32 0 10.66	W 104 10 12.12	41.07	277.54	12.00
	7500.00	35.93	277.54	7480.75	90.87	11.92	-90.09	364861.79	591907.85	N 32 0 10.73	W 104 10 12.69	90.87	277.54	12.00
	7600.00	47.93	277.54	7555.01	157.58	20.68	-156.21	364870.54	591841.73	N 32 0 10.82	W 104 10 13.46	157.58	277.54	12.00
	7700.00	59.93	277.54	7613.78	238.26	31.26	-236.20	364881.13	591761.75	N 32 0 10.92	W 104 10 14.39	238.26	277.54	12.00
	7800.00	71.92	277.54	7654.50	329.39	43.22	-326.54	364893.09	591671.42	N 32 0 11.04	W 104 10 15.44	329.39	277.54	12.00
	7900.00	83.92	277.54	7675.39	427.00	56.03	-423.31	364905.89	591574.66	N 32 0 11.17	W 104 10 16.56	427.00	277.54	12.00
Landing point	7959.00	91.00	277.54	7678.00	485.91	63.76	-481.71	364913.62	591516.27	N 32 0 11.25	W 104 10 17.24	485.91	277.54	12.00

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")	Closure (ft)	Closure Azimuth (°)	DLS (°/100ft)
	8000.00	91.00	277.54	7677.28	526.90	69.14	-522.34	364919.00	591475.64	N 32 0 11.30	W 104 10 17.71	526.90	277.54	0.00
	8100.00	91.00	277.54	7675.54	626.88	82.26	-621.46	364932.12	591376.52	N 32 0 11.43	W 104 10 18.86	626.88	277.54	0.00
	8200.00	91.00	277.54	7673.79	726.87	95.38	-720.58	364945.24	591277.41	N 32 0 11.56	W 104 10 20.01	726.87	277.54	0.00
	8300.00	91.00	277.54	7672.05	826.85	108.50	-819.70	364958.36	591178.30	N 32 0 11.70	W 104 10 21.16	826.85	277.54	0.00
	8400.00	91.00	277.54	7670.30	926.84	121.62	-918.82	364971.48	591079.19	N 32 0 11.83	W 104 10 22.31	926.84	277.54	0.00
	8500.00	91.00	277.54	7668.56	1026.82	134.74	-1017.94	364984.60	590980.08	N 32 0 11.96	W 104 10 23.46	1026.82	277.54	0.00
	8600.00	91.00	277.54	7666.81	1126.81	147.86	-1117.06	364997.72	590880.97	N 32 0 12.09	W 104 10 24.61	1126.81	277.54	0.00
	8700.00	91.00	277.54	7665.07	1226.79	160.98	-1216.18	365010.84	590781.86	N 32 0 12.22	W 104 10 25.76	1226.79	277.54	0.00
	8800.00	91.00	277.54	7663.32	1326.77	174.10	-1315.30	365023.96	590682.75	N 32 0 12.35	W 104 10 26.92	1326.77	277.54	0.00
	8900.00	91.00	277.54	7661.58	1426.76	187.22	-1414.42	365037.08	590583.63	N 32 0 12.48	W 104 10 28.07	1426.76	277.54	0.00
	9000.00	91.00	277.54	7659.83	1526.74	200.34	-1513.54	365050.19	590484.52	N 32 0 12.61	W 104 10 29.22	1526.74	277.54	0.00
	9100.00	91.00	277.54	7658.08	1626.73	213.46	-1612.66	365063.31	590385.41	N 32 0 12.75	W 104 10 30.37	1626.73	277.54	0.00
	9200.00	91.00	277.54	7656.34	1726.71	226.59	-1711.78	365076.43	590286.30	N 32 0 12.88	W 104 10 31.52	1726.71	277.54	0.00
	9300.00	91.00	277.54	7654.59	1826.70	239.71	-1810.90	365089.55	590187.19	N 32 0 13.01	W 104 10 32.67	1826.70	277.54	0.00
	9400.00	91.00	277.54	7652.85	1926.68	252.83	-1910.02	365102.67	590088.08	N 32 0 13.14	W 104 10 33.82	1926.68	277.54	0.00
	9500.00	91.00	277.54	7651.10	2026.67	265.95	-2009.14	365115.80	589988.97	N 32 0 13.27	W 104 10 34.97	2026.67	277.54	0.00
	9600.00	91.00	277.54	7649.36	2126.65	279.07	-2108.26	365128.92	589889.86	N 32 0 13.40	W 104 10 36.12	2126.65	277.54	0.00
	9700.00	91.00	277.54	7647.61	2226.64	292.19	-2207.38	365142.04	589790.74	N 32 0 13.53	W 104 10 37.27	2226.64	277.54	0.00
	9800.00	91.00	277.54	7645.87	2326.62	305.31	-2306.50	365155.16	589691.63	N 32 0 13.66	W 104 10 38.42	2326.62	277.54	0.00
	9900.00	91.00	277.54	7644.12	2426.61	318.44	-2405.62	365168.28	589592.52	N 32 0 13.80	W 104 10 39.57	2426.61	277.54	0.00
	10000.00	91.00	277.54	7642.37	2526.59	331.56	-2504.74	365181.40	589493.41	N 32 0 13.93	W 104 10 40.73	2526.59	277.54	0.00
	10100.00	91.00	277.54	7640.63	2626.58	344.68	-2603.86	365194.52	589394.30	N 32 0 14.06	W 104 10 41.88	2626.58	277.54	0.00
	10200.00	91.00	277.54	7638.88	2726.56	357.80	-2702.98	365207.64	589295.19	N 32 0 14.19	W 104 10 43.03	2726.56	277.54	0.00
	10300.00	91.00	277.54	7637.14	2826.55	370.93	-2802.10	365220.76	589196.08	N 32 0 14.32	W 104 10 44.18	2826.55	277.54	0.00
	10400.00	91.00	277.54	7635.39	2926.53	384.05	-2901.22	365233.88	589096.97	N 32 0 14.45	W 104 10 45.33	2926.53	277.54	0.00
	10500.00	91.00	277.54	7633.64	3026.52	397.17	-3000.34	365247.00	588997.86	N 32 0 14.58	W 104 10 46.48	3026.52	277.54	0.00
	10600.00	91.00	277.54	7631.90	3126.50	410.29	-3099.46	365260.13	588898.75	N 32 0 14.71	W 104 10 47.63	3126.50	277.54	0.00
	10700.00	91.00	277.54	7630.15	3226.49	423.42	-3198.58	365273.25	588799.64	N 32 0 14.85	W 104 10 48.78	3226.49	277.54	0.00
	10800.00	91.00	277.54	7628.41	3326.47	436.54	-3297.70	365286.37	588700.52	N 32 0 14.98	W 104 10 49.93	3326.47	277.54	0.00
	10900.00	91.00	277.54	7626.66	3426.45	449.66	-3396.82	365299.49	588601.41	N 32 0 15.11	W 104 10 51.08	3426.45	277.54	0.00
	11000.00	91.00	277.54	7624.91	3526.44	462.79	-3495.94	365312.61	588502.30	N 32 0 15.24	W 104 10 52.23	3526.44	277.54	0.00
	11100.00	91.00	277.54	7623.17	3626.42	475.91	-3595.06	365325.74	588403.19	N 32 0 15.37	W 104 10 53.38	3626.42	277.54	0.00
	11200.00	91.00	277.54	7621.42	3726.41	489.03	-3694.18	365338.86	588304.08	N 32 0 15.50	W 104 10 54.54	3726.41	277.54	0.00
	11300.00	91.00	277.54	7619.67	3826.39	502.16	-3793.30	365351.98	588204.97	N 32 0 15.63	W 104 10 55.69	3826.39	277.54	0.00
	11400.00	91.00	277.54	7617.93	3926.38	515.28	-3892.42	365365.10	588105.86	N 32 0 15.76	W 104 10 56.84	3926.38	277.54	0.00
	11500.00	91.00	277.54	7616.18	4026.36	528.40	-3991.54	365378.23	588006.75	N 32 0 15.90	W 104 10 57.99	4026.36	277.54	0.00
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	11700.00	91.00	277.54	7612.69	4226.33	554.65	-4189.78	365404.47	587808.53	N 32 0 16.16	W 104 11 0.29	4226.33	277.54	0.00
	11800.00	91.00	277.54	7610.94	4326.32	567.77	-4288.90	365417.59	587709.42	N 32 0 16.29	W 104 11 1.44	4326.32	277.54	0.00
	11900.00	91.00	277.54	7609.20	4426.30	580.90	-4388.02	365430.72	587610.31	N 32 0 16.42	W 104 11 2.59	4426.30	277.54	0.00
	12000.00	91.00	277.54	7607.45	4526.29	594.02	-4487.14	365443.84	587511.19	N 32 0 16.55	W 104 11 3.74	4526.29	277.54	0.00
	12100.00	91.00	277.54	7605.70	4626.27	607.15	-4586.26	365456.96	587412.08	N 32 0 16.68	W 104 11 4.89	4626.27	277.54	0.00
	12200.00	91.00	277.54	7603.96	4726.26	620.27	-4685.38	365470.09	587312.97	N 32 0 16.81	W 104 11 6.04	4726.26	277.54	0.00
Cimarex Cabrera 34 Federal 3H PBHL	12254.79	91.00	277.54	7603.00	4781.04	627.46	-4739.69	365477.28	587258.67	N 32 0 16.89	W 104 11 6.67	4781.04	277.54	0.00

Survey Type: Non-Def Plan

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

Survey Program:

Description	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Survey Tool Type	Borehole / Survey

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")	Closure (ft)	Closure Azimuth (°)	DLS (°/100ft)
		0.000	7150.000		1/100.000	30.000	30.000	SLB_MWD-POOR		Pilot Borehole / Cimarex Cabrera 34 Federal 3H Pilot Rev0 WEB 15-				
		7150.000	12254.794		1/100.000	30.000	30.000	SLB_MWD-STD		ST01 Borehole / Cimarex Cabrera 34 Federal 3H ST01 Rev0 WEB				

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

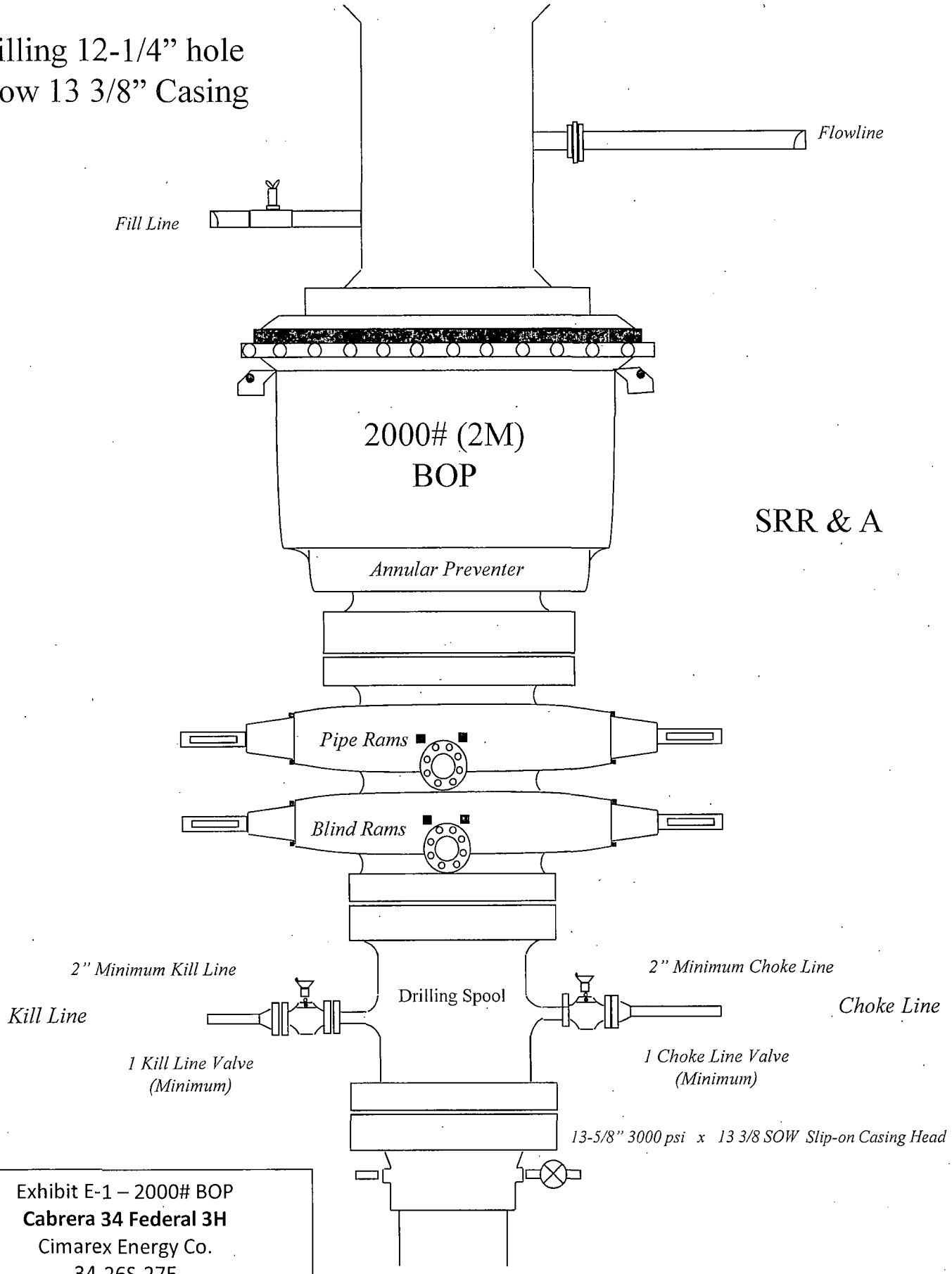
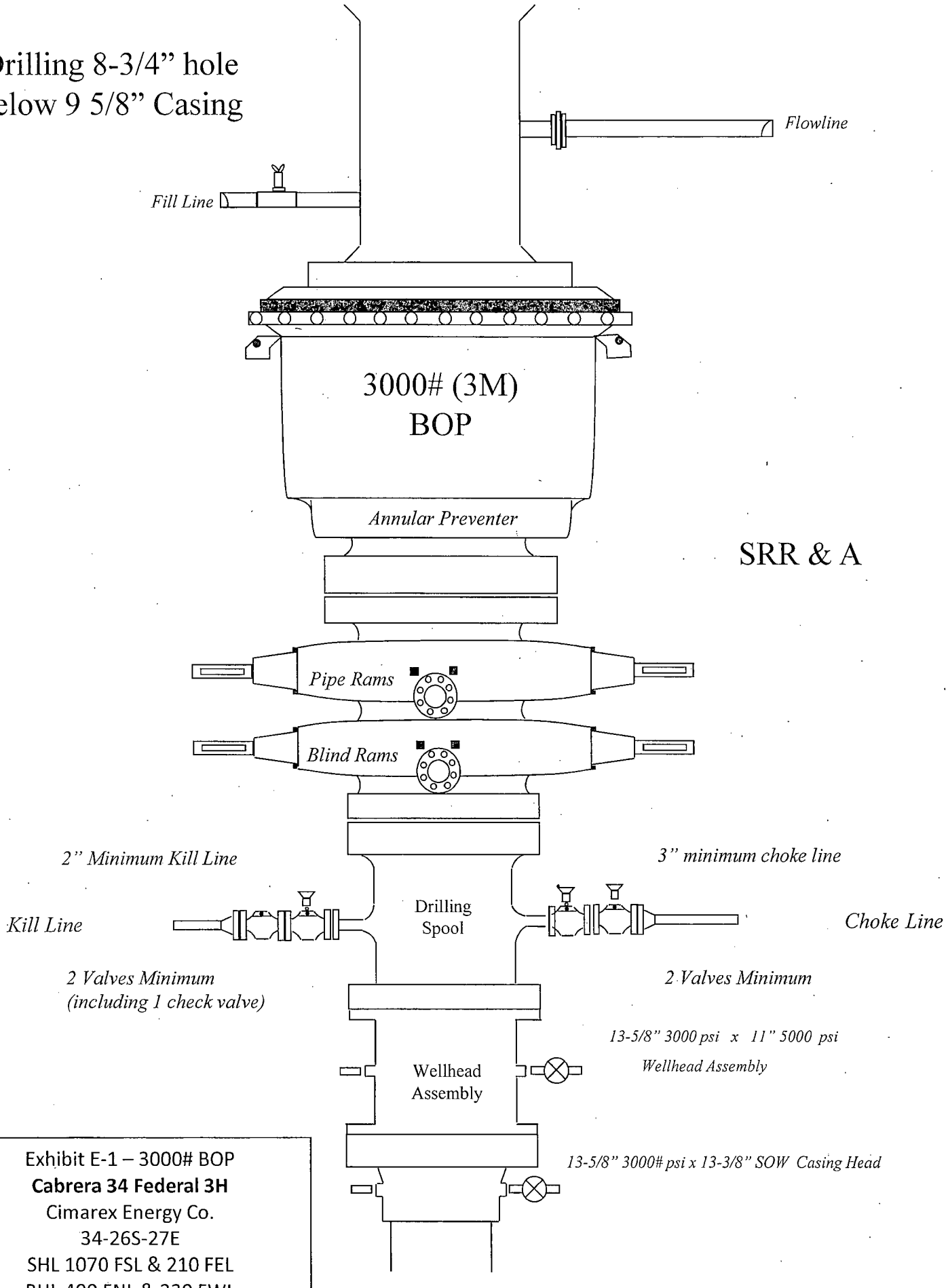


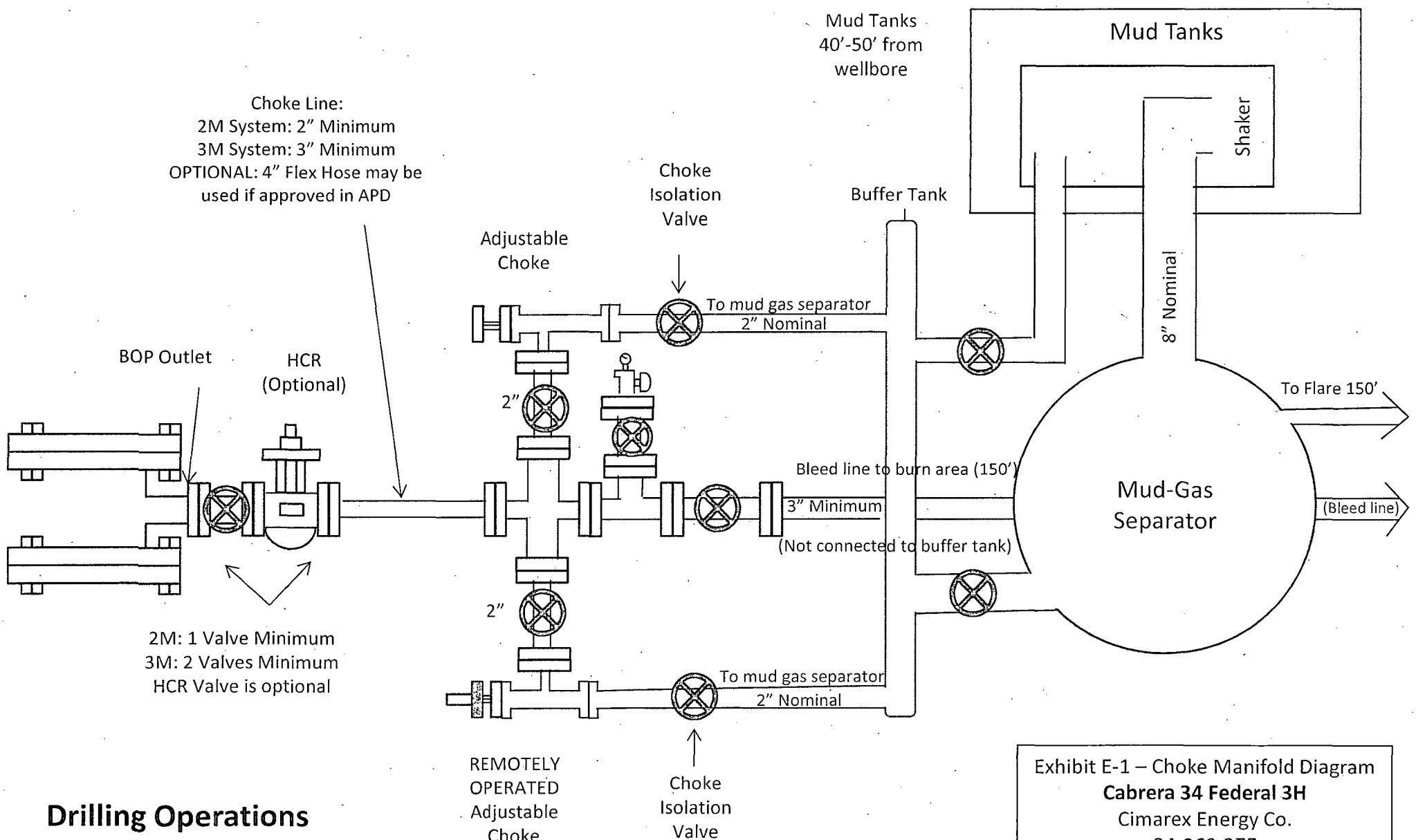
Exhibit E-1 – 2000# BOP
Cabrera 34 Federal 3H
Cimarex Energy Co.
34-26S-27E
SHL 1070 FSL & 210 FEL
BHL 400 FNL & 330 FWL
Eddy County, NM

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



SRR & A

Exhibit E-1 – 3000# BOP
Cabrera 34 Federal 3H
Cimarex Energy Co.
34-26S-27E
SHL 1070 FSL & 210 FEL
BHL 400 FNL & 330 FWL
Eddy County, NM



Drilling Operations
Choke Manifold
2M/3M Service

Exhibit E-1 – Choke Manifold Diagram
Cabrera 34 Federal 3H
Cimarex Energy Co.
34-26S-27E
SHL 1070 FSL & 210 FEL
BHL 400 FNL & 330 FWL
Eddy County, NM

Exhibit F-1 – Co-Flex Hose Hydrostatic Test
Cabrera 34 Federal 3H
Cimarex Energy Co.
34-26S-27E
SHL 1070 FSL & 210 FEL
BHL 400 FNL & 330 FWL
Eddy County, NM

Midwest Hose & Specialty, Inc.

INTERNAL HYDROSTATIC TEST REPORT

Customer:	P.O. Number:
Oderco Inc	odyd-271

HOSE SPECIFICATIONS

Type:	Hose Length:
Stainless Steel Armor Choke & Kill Hose	45'ft.

I.D.	O.D.
4 INCHES	9 INCHES

WORKING PRESSURE	TEST PRESSURE	BURST PRESSURE
10,000 PSI	15,000 PSI	0 PSI

COUPLINGS

Stem Part No.	Ferrule No.
OKC OKC	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:	Hose Serial Number:
79793	OKC

Comments:

Date:	Tested:	Approved:
3/8/2011		

Midwest Hose & Specialty, Inc.

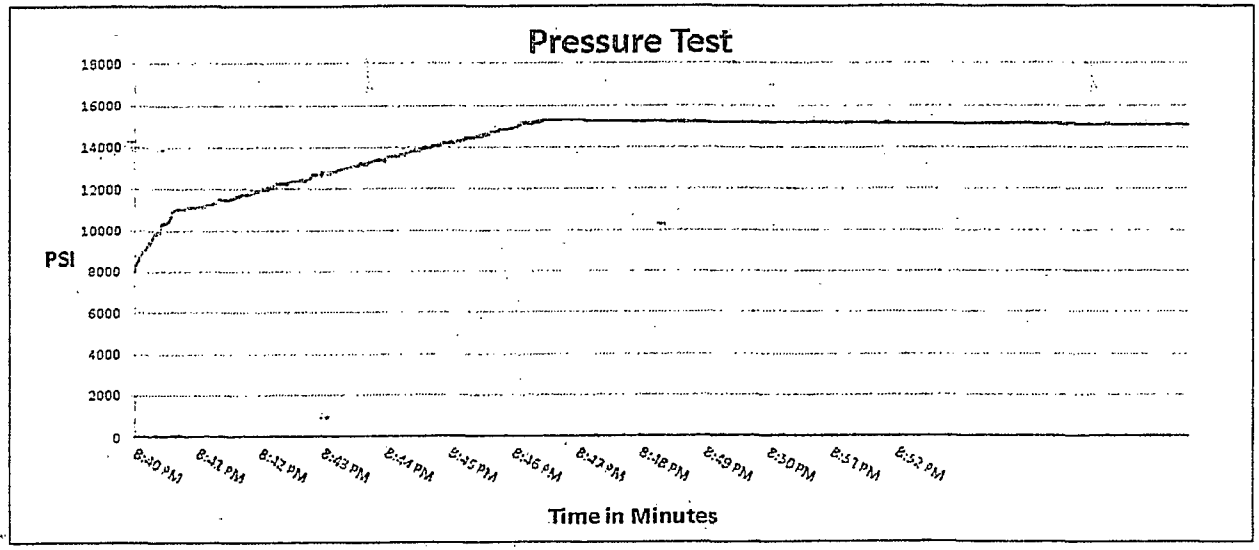
Internal Hydrostatic Test Graph

March 3, 2011

Customer: Houston

Pick Ticket #: 94260

Hose Specifications		Verification	
Hose Type: C & K	Length: 45'	Type of Fitting: 4 1/16 10K	Coupling Method: Swage
I.D.: 4"	O.D.: 6.09"	Die Size: 6.38"	Final O.D.: 6.25"
Working Pressure: 10000 PSI	Burst Pressure: Standard Safety Multiplier Applies	Hose Serial #: 5544	Hose Assembly Serial #: 79793



Test Pressure	Time Held at Test Pressure	Actual Burst Pressure	Peak Pressure
15000 PSI	11 Minutes		15483 PSI

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

Tested By: *Zac Mcconnell*

Approved By: *Kim Thomas*

Exhibit F-1 – Co-Flex Hose Hydrostatic Test
Cabrera 34 Federal 3H
Cimarex Energy Co.
34-26S-27E
SHL 1070 FSL & 210 FEL
BHL 400 FNL & 330 FWL
Eddy County, NM

Midwest Hose & Specialty, Inc.

Exhibit F -3– Co-Flex Hose
Cabrera 34 Federal 3H
Cimarex Energy Co.
34-26S-27E
SHL 1070 FSL & 210 FEL
BHL 400 FNL & 330 FWL
Eddy County, NM

Specification Sheet
Choke & Kill Hose

The Midwest Hose & Specialty Choke & Kill hose is manufactured with only premium componets.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 vermculite 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, unibolt 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)

P.O. Box 96558 – 1421 S.E. 29th St. Oklahoma City, OK 73143 * (405) 670-6718 * Fax: (405) 670-6816

Exhibit F-2 – Co-Flex Hose
Cabrera 34 Federal 3H
Cimarex Energy Co.
34-26S-27E
SHL 1070 FSL & 210 FEL
BHL 400 FNL & 330 FWL
Eddy County, NM

Midwest Hose
& Specialty, Inc.

Certificate of Conformity

Customer: DEM	**PO** ODYD-271

SPECIFICATIONS

Sales Order 79793	**Dated:** 3/8/2011

We hereby cerify 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

Exhibit F – Co-Flex Hose

Cabrera 34 Federal 3H

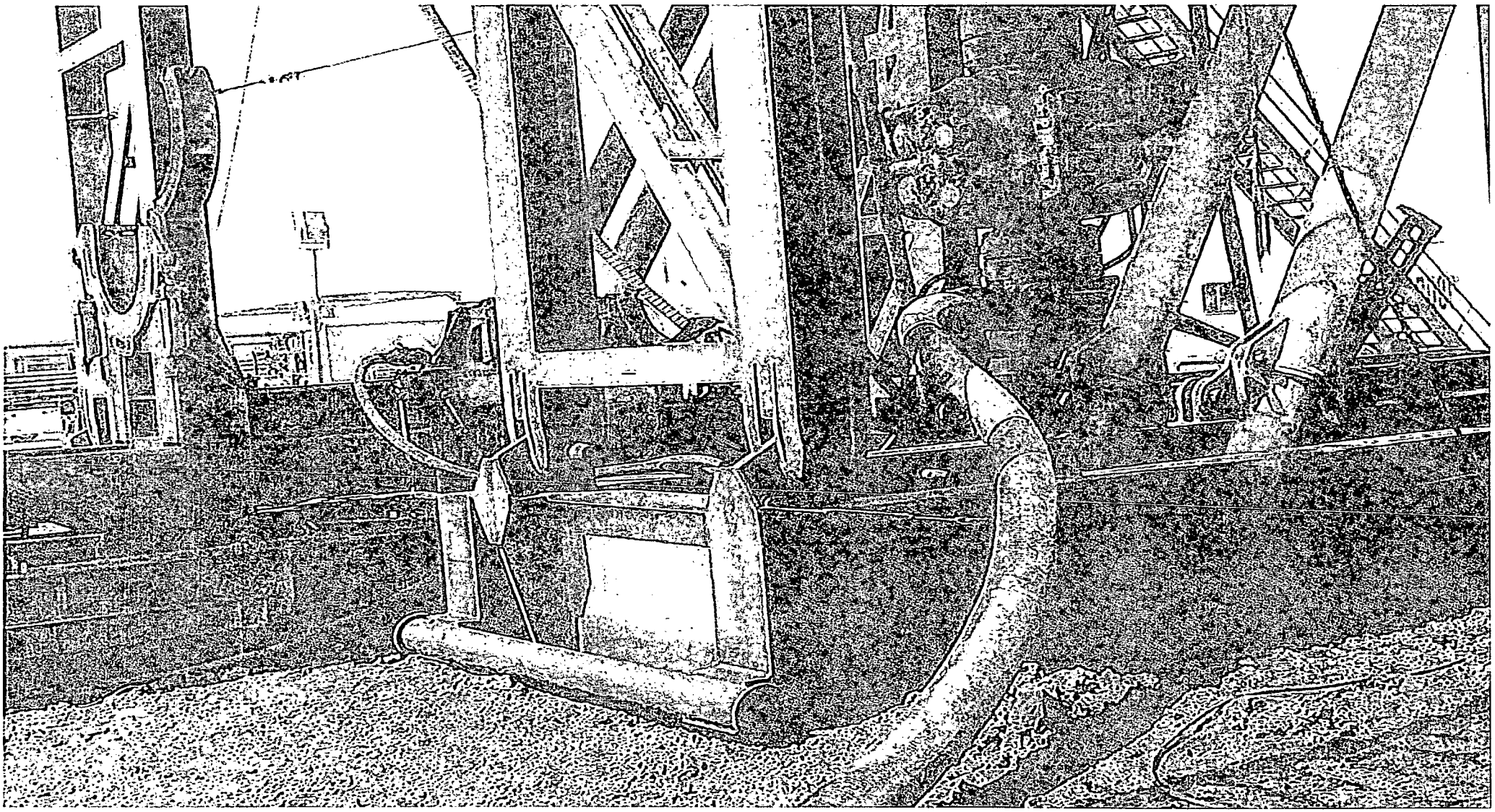
Cimarex Energy Co.

34-26S-27E

SHL 1070 FSL & 210 FEL

BHL 400 FNL & 330 FWL

Eddy County, NM



Hydrogen Sulfide Drilling Operations Plan
Cabrera 34 Federal 3H
Cimarex Energy Co.
UL: A, Sec. 34-26S-27E
Eddy Co., NM

1 All Company and Contract personnel admitted on location must be trained by a qualified H2S safety instructor to the following:
   A. Characteristics of H_2S
   B. Physical effects and hazards
   C. Principal and operation of H2S detectors, warning system and briefing areas.
   D. Evacuation procedure, routes and first aid.
   E. Proper use of safety equipment & life support systems
   F. Essential personnel meeting Medical Evaluation criteria will receive additional training on the proper use of 30 minute pressure demand air packs.

2 H_2S Detection and Alarm Systems:
   A. H2S sensors/detectors to be located on the drilling rig floor, in the base of the sub structure/cellar area, on the mud pits in the shale shaker area. Additional H2S detectors may play placed as deemed necessary.
   B. An audio alarm system will be installed on the derrick floor and in the top doghouse.

3 Windsock and/or wind streamers:
   A. Windsock at mudpit area should be high enough to be visible.
   B. Windsock on the rig floor and / or top doghouse should be high enough to be visible.

4 Condition Flags and Signs
   A. Warning sign on access road to location.
   B. Flags to be displayed on sign at entrance to location. Green flag indicates normal safe condition. Yellow flag indicates potential pressure and danger. Red flag indicates danger (H_2S present in dangerous concentration). Only H2S trained and certified personnel admitted to location.

5 Well control equipment:
   A. See exhibit "E-1"

6 Communication:
   A. While working under masks chalkboards will be used for communication.
   B. Hand signals will be used where chalk board is inappropriate.
   C. Two way radio will be used to communicate off location in case of emergency help is required. In most cases cellular telephones will be available at most drilling foreman's trailer or living quarters.

7 Drillstem Testing:
No DSTs r cores are planned at this time.

8 Drilling contractor supervisor will be required to be familiar with the effects H_2S has on tubular goods and other mechanical equipment.

9 If H_2S is encountered, mud system will be altered if necessary to maintain control of formation. A mud gas seperator will be brought into service along with H_2S scavengers if necessary.

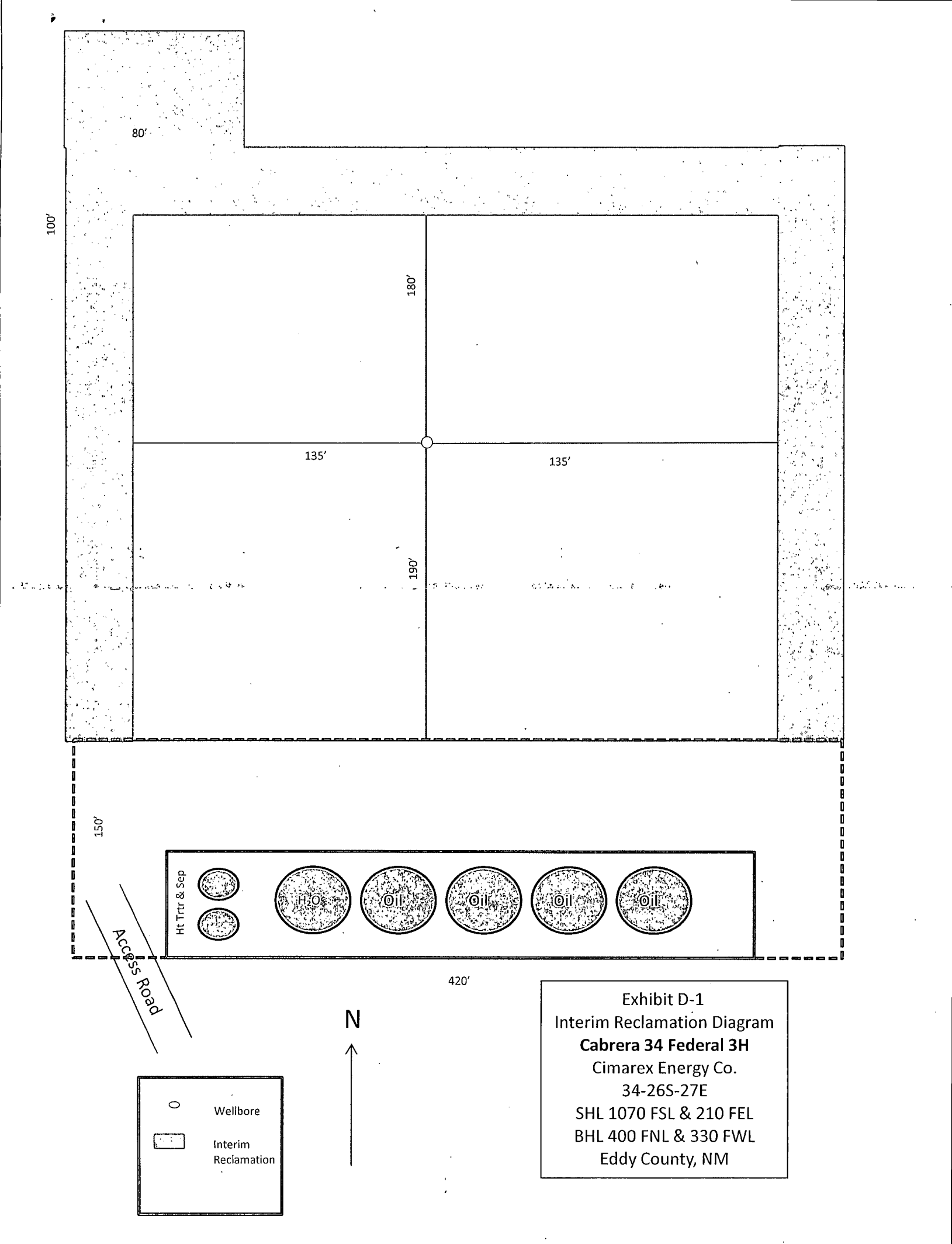


Exhibit D-1
Interim Reclamation Diagram
Cabrera 34 Federal 3H
Cimarex Energy Co.
34-26S-27E
SHL 1070 FSL & 210 FEL
BHL 400 FNL & 330 FWL
Eddy County, NM

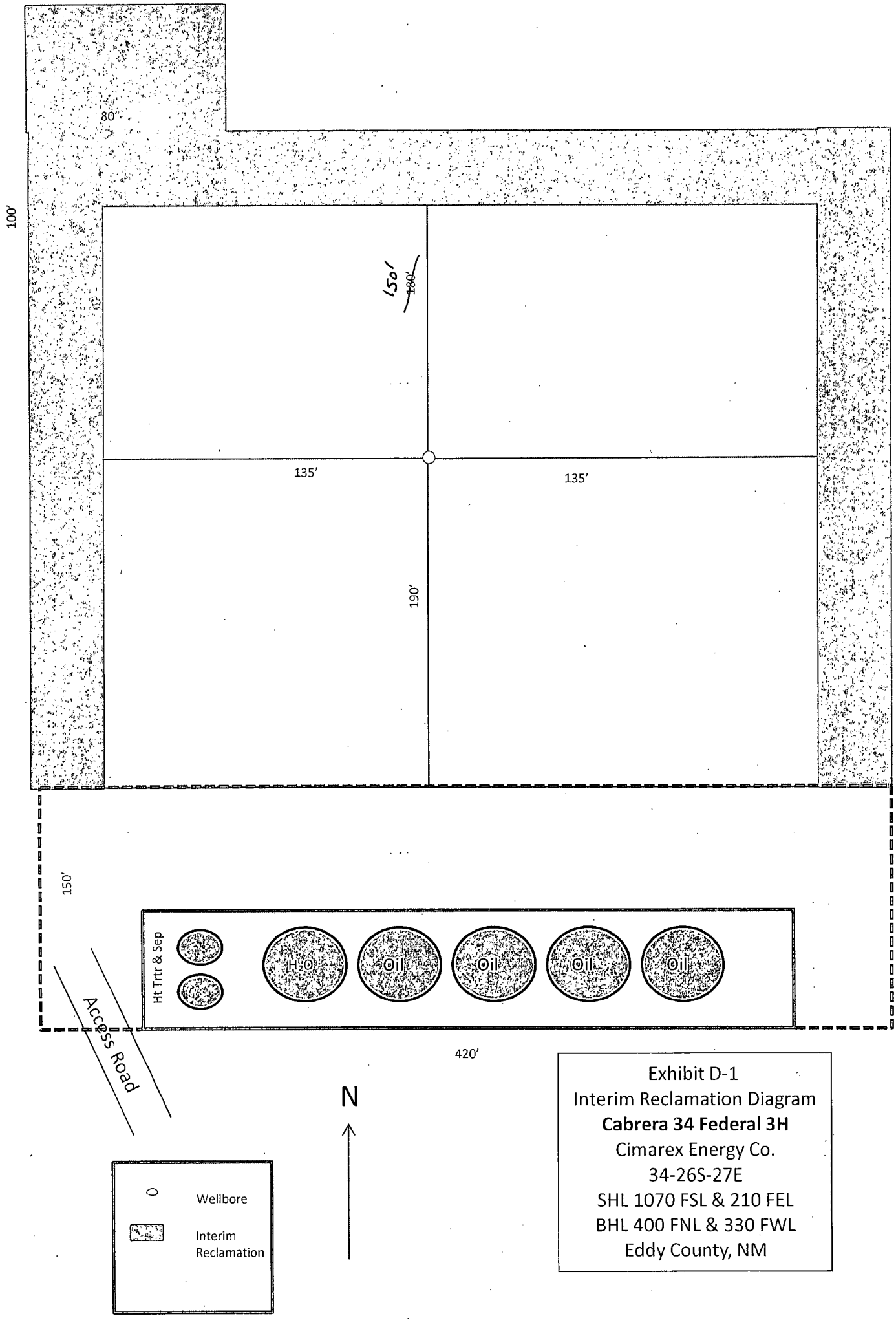


Exhibit D-1
Interim Reclamation Diagram
Cabrera 34 Federal 3H
Cimarex Energy Co.
34-26S-27E
SHL 1070 FSL & 210 FEL
BHL 400 FNL & 330 FWL
Eddy County, NM

Surface Use Plan
Cabrera 34 Federal #3H
Cimarex Energy Co.
UL: A, Sec. 34, 26S, 27E
Eddy Co., NM

The following surface use plan of operations will be followed and carried out once the APD is approved. No other disturbance will be created other than what is submitted in this surface use plan without approval. If any other disturbance is needed after the APD is approved, a BLM approved sundry notice or right of way application will be submitted for approval prior to any new surface disturbance.

1.Existing Roads:
Area access roads and general road maps:

- Exhibit B: General Highway Map
- Exhibit C: USGS Topographic Map
- Exhibit C-1: Public Access Road Map
- Exhibit C-2: Existing and proposed access roads plat

The maximum width of the driving surface will be 14.' The road will be crowned and ditched with a 2% slope from the tip of the crown to the edge of the driving surface. The ditches will be 1' deep with 3:1 slopes. The driving surface will be made of 6" rolled and compacted caliche.

Existing access road route to the proposed project is depicted on the public access point map if applicable. Improvements to the driving surface will be done where necessary. No new surface disturbance will be done, unless otherwiswe noted in the New or Reconstructed Access Roads section of the surface use plan.

From Hwy 285 and Whites City, go west 3.1 miles, turn South and go 4.5 miles, then go west 3.2 miles to proposed Road.

If existing roads are used, the operator will improve or maintain existing roads in a condition the same as or better than before the operations began. The operator will repair pot holes, etc. All existing structures on the entire access route such as cattleguards, other range improvement projects, culverts, etc. will be properly repaired or replaced if they are damaged or have deterioated beyond practical use.

The operator will prevent and abate fugitive dust as needed, whether created by vehicular traffic, equipment operations, or other events. The operator will obtain written BLM approval prior to the application of surfactants, binding agents, or other dust suppression chemicals on the roadways.

2. New or Reconstructed Access Roads:

A new road will be constructed for this project.
Cimarex Energy plans to construct ~~1012.9'~~ 978' of off-lease access road to service the well. 2/3/14 The proposed access road does cross lease boundaries, a right of way grant will be submitted to and obtained from the BLM.
The maximum width of the driving surface will be 14'. The road will be crowned and ditched with a 2% slope from the tip of the crown to the edge of the driving surface. The ditches will be 1' deep with 3:1 slopes. The driving surface will be made of 6" rolled and compacted caliche.
Proposed and existing access road route to the proposed wellsite is depicted on Exhibit C-2. Improvements to the driving surface will be done where necessary. No new surface disturbance will be done without prior approval from the BLM.
The operator will prevent and abate fugitive dust as needed, whether created by vehicular traffic, equipment operations, or other events.

3. Planned Electric Line:

No new electric lines are planned.

4. Location of Existing Well in a One-Mile Radius -Exhibit A:

- Water Wells - None known
- Disposal Wells - None known
- Drilling Wells - None known
- Producing Wells - As shown on Exhibit A
- Abandoned Wells - As shownd on Exhibit A

Surface Use Plan
Cabrera 34 Federal #3H
Cimarex Energy Co.
UL: A, Sec. 34, 26S, 27E
Eddy Co., NM

5. Location of Existing or Proposed Production Facilities:

If on completion this well is a producer, a tank battery will be used and the necessary production equipment will be installed at the wellsite. Exhibit D-1 illustrates the proposed facility/battery. Any changes to the facility will be submitted via sundry notice.

6. Location and Type of Water Supply:

Water will be purchased locally from a commercial source and trucked over the access roads.

7. Source of Construction Material:

If possible, native caliche will be obtained from the excavation of drill site. The primary way of obtaining caliche will be by "turning over" the location. This means caliche will be obtained from the actual well site. A caliche permit will be obtained from BLM prior to pushing up any caliche. 2400 cu yds is the max amount of caliche needed for pad and roads. Amount will vary for each pad. The procedure below has been approved by BLM personnel:

- The top 6 inches of topsoil is pushed off and stockpiled along the side of the location.
- An approximate 120' x 120' area is used within the proposed well site to remove caliche.
- Subsoil is removed and piled alongside the 120' by 120' area within the pad site.
- When caliche is found, material will be stockpiled within the pad site to build the location and road.
- Then subsoil is pushed back in the hole and caliche is spread accordingly across entire location and road.
- Once well is drilled, the stockpiled top soil will be used for interim reclamation and spread along areas where caliche is picked up and the location size is reduced. Neither caliche nor subsoil will be stockpiled outside of the well pad. Topsoil will be stockpiled along the edge of the pad as depicted in Exhibit D – Rig Layout Diagram.

In the event that no caliche is found onsite, caliche will be hauled in from a BLM-approved caliche pit.

8. Methods of Handling Waste:

- Drilling fluids, produced oil, and water from the well during drilling and completion operations will be stored safely and disposed of properly in a NMOCD approved disposal facility.
- Garbage and trash produced during drilling and completion operations will be collected in a trash container and disposed of properly at a state approved disposal facility. All trash on and around well site will be collected for disposal.
- Human waste and grey water will be properly contained and disposed of properly at a state approved disposal site.
- After drilling and completion operations, trash, chemicals, salts, frac sand and other waste will be removed and disposed of properly at a state approved disposal site.
- The well will be drilled utilizing a closed loop system. Drill cuttings will be properly disposed of into steel tanks and taken to an NMOCD approved disposal facility.

9. Ancillary Facilities:

No camps or airstrips to be constructed.

10. Well Site Layout:

- Exhibit D: Rig Layout
- Exhibit D-2: Well Site layout plat
- Mud pits in the closed circulation system will be steel pits and the cuttings will be stored in steel containment pits.
- Cuttings will be stored in steel pits until they are hauled to a state-approved disposal facility.
- If the well is a producer, those areas of the location not essential to production facilities will be reclaimed and seeded per BLM requirements. Exhibit D-1: Interim Reclamation Diagram.

Surface Use Plan
Cabrera 34 Federal #3H
Cimarex Energy Co.
UL: A, Sec. 34, 26S, 27E
Eddy Co., NM

11. Plans for Restoration of Surface:

Rehabilitation of the location will start in a timely manner after all drilling operations cease. The type of reclamation will depend on whether the well is a producer or a dry hole.

In areas planned for interim and final reclamation, surfacing materials will be removed and returned to a mineral pit or recycled to repair or build roads and well pads.

Drainage systems, if any, will be reshaped to the original configuration with provisions made to alleviate erosion. These may need to be modified in certain circumstances to prevent inundation of the location's pad and surface facilities. After the area has been shaped and contoured, topsoil from the spoil pile will be placed over the disturbed area to the extent possible. Revegetation procedures will comply with BLM standards.

If the well is a dry hole, the pad and road area will be recountoured to match the existing terrain. Topsoil will be spread to the extent possible. Revegetation will comply with BLM standards.

Should the well be a producer, those areas of the location not essential to porduction facilities and operations will be reclaimed and seeded per BLM requirements. Exhibit D-1 illustrates the proposed Interim Reclamation.

12. Other Information:

- Topography consists of a sloping plane with loose tan sands. Vegetation is mainly yucca, mesquite and shin oak.
- The wellsite is on surface owned by Bureau of Land Management. The land is used mainly for farming, cattle ranching, recreational use, and oil and gas production.
- An archaeological survey will be conducted on the location and proposed roads and this report will be filed with the Bureau of Land Management.
- There are no known dwellings within 1½ miles of this location.

13. On Site Notes and Information:

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	**Cimarex Energy Co. of Colorado**
LEASE NO.:	**NMNM-117116**
WELL NAME & NO.:	**Cabrera 34 Federal 3H**
SURFACE HOLE FOOTAGE:	**1070' FSL & 0210' FEL**
BOTTOM HOLE FOOTAGE	**0400' FNL & 0330' FWL**
LOCATION:	**Section 34, T. 26 S., R 27 E., NMPM**
COUNTY:	**Eddy County, New Mexico**

TABLE OF CONTENTS

Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

I. GENERAL PROVISIONS

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

II. PERMIT EXPIRATION

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD. (Filing of a Sundry Notice is required for this 60 day extension.)

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

Any cultural and/or paleontological resource discovered by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery shall be made by the Authorized Officer to determine the appropriate actions that shall be required to prevent the loss of significant cultural or scientific values of the discovery. The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery. Any unauthorized collection or disturbance of cultural or paleontological resources may result in a shutdown order by the Authorized Officer.

IV. NOXIOUS WEEDS

The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

V. SPECIAL REQUIREMENT(S)

Cattleguards

An appropriately sized cattleguard **and gate** sufficient to carry out the project shall be installed and maintained at fence crossing. Any existing cattleguard on the access road shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattleguard that is in place and is utilized during lease operations. A gate shall be constructed on one side of the cattleguard and fastened securely to H-braces.

Fence Requirement

Where entry granted across a fence line, the fence must be braced and tied off on both sides of the passageway prior to cutting. **Cattle will be kept from crossing the fence while work is completed.** Once the work is completed, the fence will be restored to its prior condition, or better. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fence.

VI. CONSTRUCTION

A. NOTIFICATION

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-5909 at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved APD and Conditions of Approval (COA) on the well site and they shall be made available upon request by the Authorized Officer.

B. TOPSOIL

The operator shall strip the top portion of the soil (root zone) from the entire well pad area and stockpile the topsoil along the edge of the well pad as depicted in the APD. The root zone is typically six (6) inches in depth. All the stockpiled topsoil will be redistributed over the interim reclamation areas. Topsoil shall not be used for berming the pad or facilities. For final reclamation, the topsoil shall be spread over the entire pad area for seeding preparation.

Other subsoil (below six inches) stockpiles must be completely segregated from the topsoil stockpile. Large rocks or subsoil clods (not evident in the surrounding terrain) must be buried within the approved area for interim and final reclamation.

C. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

The operator shall properly dispose of drilling contents at an authorized disposal site.

D. FEDERAL MINERAL MATERIALS PIT

Payment shall be made to the BLM prior to removal of any federal mineral materials. Call the Carlsbad Field Office at (575) 234-5972.

E. WELL PAD SURFACING

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation.The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

F. EXCLOSURE FENCING (CELLARS & PITS)

Exclosure Fencing
The operator will install and maintain exclosure fencing for all open well cellars to prevent access to public, livestock, and large forms of wildlife before and after drilling operations until the pit is free of fluids and the operator initiates backfilling. (For examples of exclosure fencing design, refer to BLM's Oil and Gas Gold Book, Exclosure Fence Illustrations, Figure 1, Page 18.)

G. ON LEASE ACCESS ROADS

Road Width
The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed twenty-five (25) feet.

Surfacing
Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

Crowning
Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

Ditching
Ditching shall be required on both sides of the road.

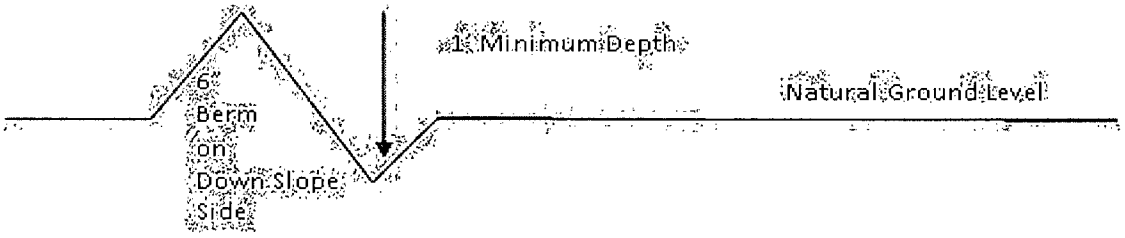
Turnouts
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

Drainage

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outsloping and insloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.

Cross Section of a Typical Lead-off Ditch



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

Formula for Spacing Interval of Lead-off Ditches

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

400 foot road with 4% road slope: $\frac{400'}{4\%} + 100' = 200'$ lead-off ditch interval

Cattleguards

An appropriately sized cattleguard sufficient to carry out the project shall be installed and maintained at fence/road crossings. Any existing cattleguards on the access road route shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattleguards that are in place and are utilized during lease operations.

Fence Requirement

Where entry is granted across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fences.

Public Access

Public access on this road shall not be restricted by the operator without specific written approval granted by the Authorized Officer.

Construction Steps

1. Salvage topsoil
2. Construct road
3. Redistribute topsoil
4. Revegetate slopes

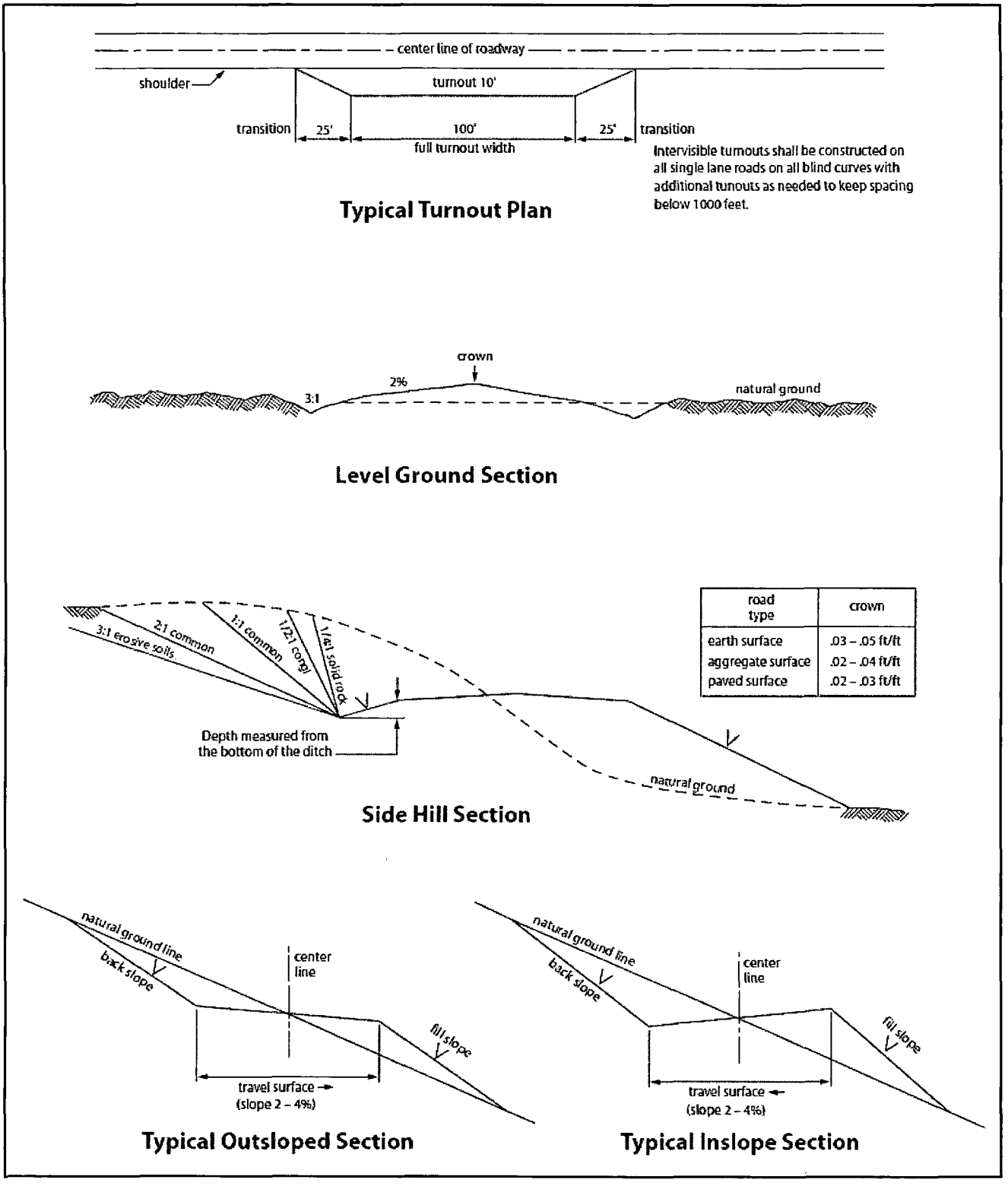


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

VII. 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.

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 20% - 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 **2100** 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.

The pilot hole plugging procedure is approved as written. Note plug top on Subsequent Report sundry of drilling activities.

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.

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.

   a. **For surface casing only:** If the BOP/BOPE is to be tested against casing, the wait on cement (WOC) time for that casing is to be met (see WOC statement at start of casing section). Independent service company required.

4. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **9-5/8** intermediate casing shoe shall be **3000 (3M)** psi.

5. 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.

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VIII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

Placement of Production Facilities
Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

Exclosure Netting (Open-top Tanks)
Immediately following active drilling or completion operations, the operator will take actions necessary to prevent wildlife and livestock access, including avian wildlife, to all open-topped tanks that contain or have the potential to contain salinity sufficient to cause harm to wildlife or livestock, hydrocarbons, or Resource Conservation and Recovery Act of 1976-exempt hazardous substances. At a minimum, the operator will net, screen, or cover open-topped tanks to exclude wildlife and livestock and prevent mortality. If the operator uses netting, the operator will cover and secure the open portion of the tank to prevent wildlife entry. The operator will net, screen, or cover the tanks until the operator removes the tanks from the location or the tanks no longer contain substances that could be harmful to wildlife or livestock. Use a maximum netting mesh size of 1 ½ inches. The netting must not be in contact with fluids and must not have holes or gaps.

Chemical and Fuel Secondary Containment and Exclosure Screening
The operator will prevent all hazardous, poisonous, flammable, and toxic substances from coming into contact with soil and water. At a minimum, the operator will install and maintain an impervious secondary containment system for any tank or barrel containing hazardous, poisonous, flammable, or toxic substances sufficient to contain the contents of the tank or barrel and any drips, leaks, and anticipated precipitation. The operator will dispose of fluids within the containment system that do not meet applicable state or U. S. Environmental Protection Agency livestock water standards in accordance with state law; the operator must not drain the fluids to the soil or ground. The operator will design, construct, and maintain all secondary containment systems to prevent wildlife and livestock exposure to harmful substances. At a minimum, the operator will install effective wildlife and livestock exclosure systems such as fencing, netting, expanded metal mesh, lids, and grate covers. Use a maximum netting mesh size of 1 ½ inches.

Open-Vent Exhaust Stack Exclosures
The operator will construct, modify, equip, and maintain all open-vent exhaust stacks on production equipment to prevent birds and bats from entering, and to discourage perching, roosting, and nesting. (*Recommended exclosure structures on open-vent exhaust stacks are in the shape of a cone.*) Production equipment includes, but may not be limited to, tanks, heater-treaters, separators, dehydrators, flare stacks, in-line units, and compressor mufflers.

Containment Structures
Proposed production facilities such as storage tanks and other vessels will have a secondary containment structure that is constructed to hold the capacity of 1.5 times the

largest tank, plus freeboard to account for precipitation, unless more stringent protective requirements are deemed necessary.

Painting Requirement
All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color, **Shale Green** from the BLM Standard Environmental Color Chart (CC-001: June 2008).

B. PIPELINES (Not Applied for in APD)

C. ELECTRIC LINES (Not Applied for in APD)

IX. INTERIM RECLAMATION

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce the size of the location. Interim reclamation should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche that is free of contaminants may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

All disturbed areas after they have been satisfactorily prepared need to be reseeded with the seed mixture provided below.

Upon completion of interim reclamation, the operator shall submit a Sundry Notices and Reports on Wells, Subsequent Report of Reclamation (Form 3160-5).

X. FINAL ABANDONMENT & RECLAMATION

At final abandonment, well locations, production facilities, and access roads must undergo "final" reclamation so that the character and productivity of the land are restored.

Earthwork for final reclamation must be completed within six (6) months of well plugging. All pads, pits, facility locations and roads must be reclaimed to a satisfactory

revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

After all disturbed areas have been satisfactorily prepared, these areas need to be revegetated with the seed mixture provided below. Seeding should be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (Jim Amos: 575-234-5909).

Seed Mixture 1, for Loamy Sites

The holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (small/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

Species	lb/acre
Plains lovegrass (Eragrostis intermedia)	0.5
Sand dropseed (Sporobolus cryptandrus)	1.0
Sideoats grama (Bouteloua curtipendula)	5.0
Plains bristlegrass (Setaria macrostachya)	2.0

*Pounds of pure live seed:

Pounds of seed **x** percent purity **x** percent germination = pounds pure live seed