

OCD-ARTESIA

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SEP 07 2010
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Form 3160-3
(April 2004)

FORM APPROVED
OMB No 1004-0137
Expires March 31, 2007

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a Type of Work <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5 Lease Serial No NM-97874
1b Type of Well <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other <input checked="" type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		6 If Indian, Allottee or Tribe Name
2 Name of Operator Cimarex Energy Co. of Colorado (162683)		7 If Unit or CA Agreement, Name and No
3a Address 600 N Marienfeld St., Ste 600; Midland, TX 79701	3b Phone No (include area code) 432-571-7800	8 Lease Name and Well No Thorntail 31 Federal No. 1 (38307)
4 Location of Well (Report location clearly and in accordance with any State requirements *) At Surface 525 FSL & 330 FEL (P) At proposed prod Zone		9 API Well No 30-015-38140
14 Distance in miles and direction from nearest town or post office*		10 Field and Pool, or Exploratory Glorieta-Yeso Wildcat (66210) 9-3-10
15 Distance from proposed* location to nearest property or lease line, ft (Also to nearest drig unit line if any) 330		11 Sec, T R M or Blk and Survey of Area 31-16S-29E
16 No of acres in lease 1491 18		12 County or Parish Eddy
17 Spacing Unit dedicated to this well SESE 40		13 State NM
18 Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft NA	19 Proposed Depth 6000'	20 BLM/BIA Bond No on File NM-2575
21 Elevations (Show whether DF, KDB, RT, GL, etc) 3653' GR	22 Approximate date work will start* 10.15.10	23 Estimated duration 20-25 days

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

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

25 Signature Zeno Farris	Name (Printed/Typed) Zeno Farris	Date 08.06.10
Title Manager Operations Administration		
Approved By (Signature) /s/ Don Peterson	Name (Printed/Typed)	Date SEP 3 2010
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

*(Instructions on page 2)

Roswell Controlled Water Basin

KZ 09/07/10

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

Approval Subject to General Requirements
& Special Stipulations Attached

DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

Submit one copy to appropriate
District Office

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

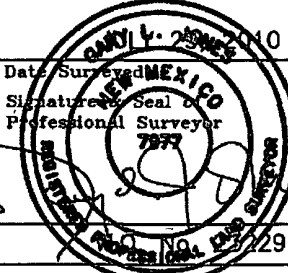
☐ AMENDED REPORT

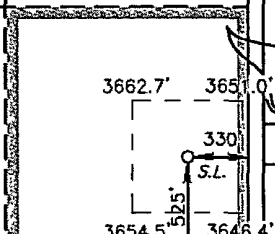
API Number 30-015-38140	Pool Code 96210	Pool Name EMPIRE; GLORIETA-YESO
Property Code 38307	Property Name THORNTAIL "31" FEDERAL	Well Number 1
OGRID No. 162683	Operator Name CIMAREX ENERGY CO. OF COLORADO	Elevation 3653'

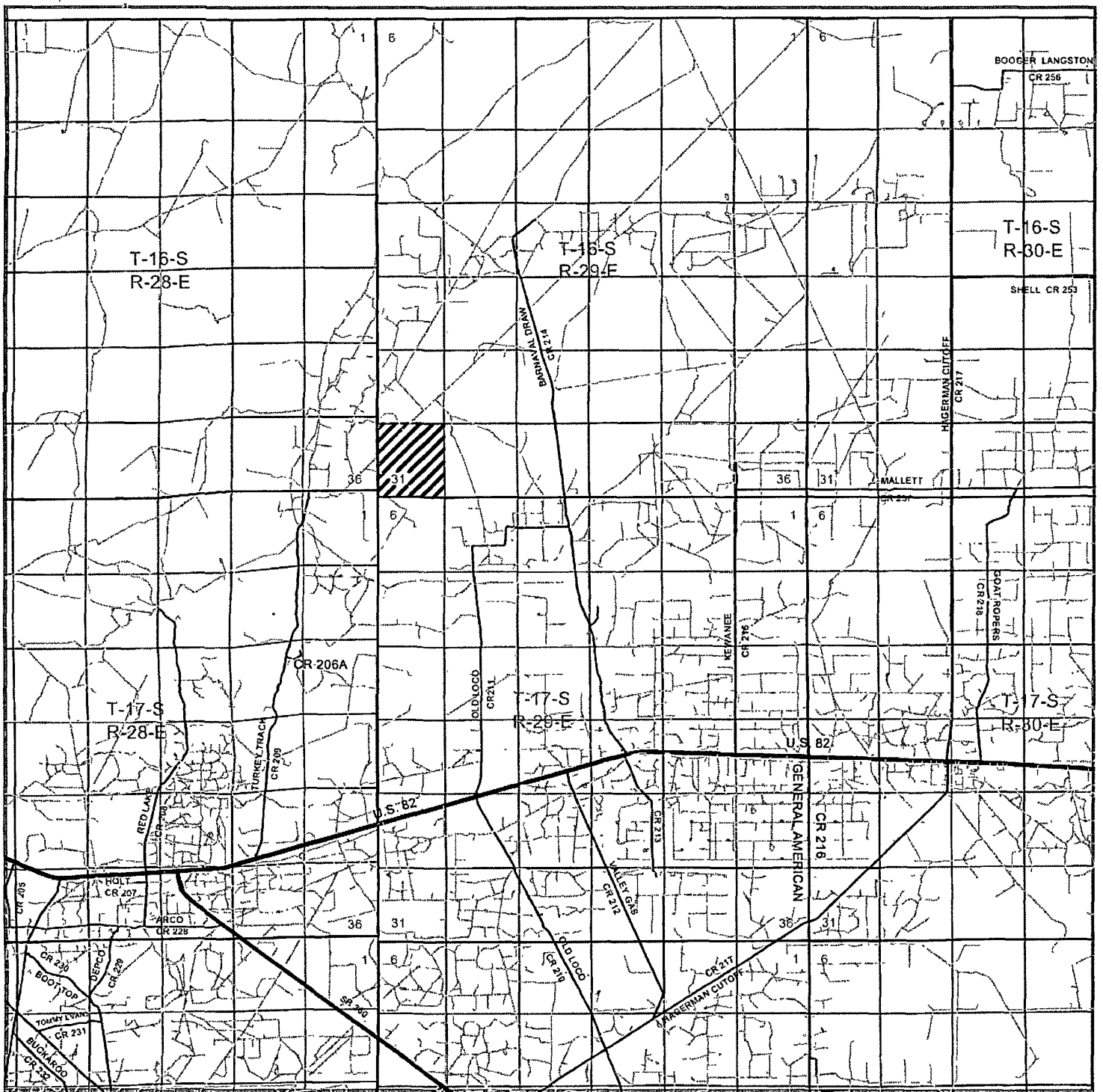
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	31	16 S	29 E		525	SOUTH	330	EAST	EDDY

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
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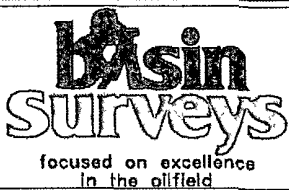
Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
40			

<div style="border: 1px dashed black; height: 400px; margin-bottom: 20px;"></div> <div style="border: 1px solid black; padding: 5px; display: inline-block;"> <p style="text-align: center; margin: 0;">SURFACE LOCATION</p> <p>Lat - N 32°52'20.43"</p> <p>Long - W 104°06'24.02"</p> <p>NMSPCE- N 681166.6</p> <p style="padding-left: 20px;">E 610926.6</p> <p style="text-align: center;">(NAD-83)</p> </div>	<div style="border: 1px solid black; padding: 10px; margin-bottom: 10px;"> <p style="text-align: center; margin: 0;">OPERATOR CERTIFICATION</p> <p style="font-size: small; margin: 5px 0;">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.</p> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> Zeno Farris 8/6/2010 </div> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> Signature Date </div> <div style="margin-top: 10px;"> <p style="text-align: center; font-size: large;">Zeno Farris</p> <hr/> <p>Printed Name</p> <hr/> <p>Email Address</p> </div> </div> <div style="border: 1px solid black; padding: 10px;"> <p style="text-align: center; margin: 0;">SURVEYOR CERTIFICATION</p> <p style="font-size: small; margin: 5px 0;">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.</p> <div style="text-align: center; margin-top: 10px;">  </div> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> Date Surveyed 8/6/2010 </div> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> Signature Seal of Professional Surveyor </div> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> Certificate No. Gary L. Jones 7977 </div> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> BASIN SURVEYS 23229 </div> </div>
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THORNTAIL "31" FEDERAL #1
 Located 525' FSL and 330' FEL
 Section 31, Township 16 South, Range 29 East,
 N.M.P.M., Eddy County, New Mexico.



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: JMS 23229

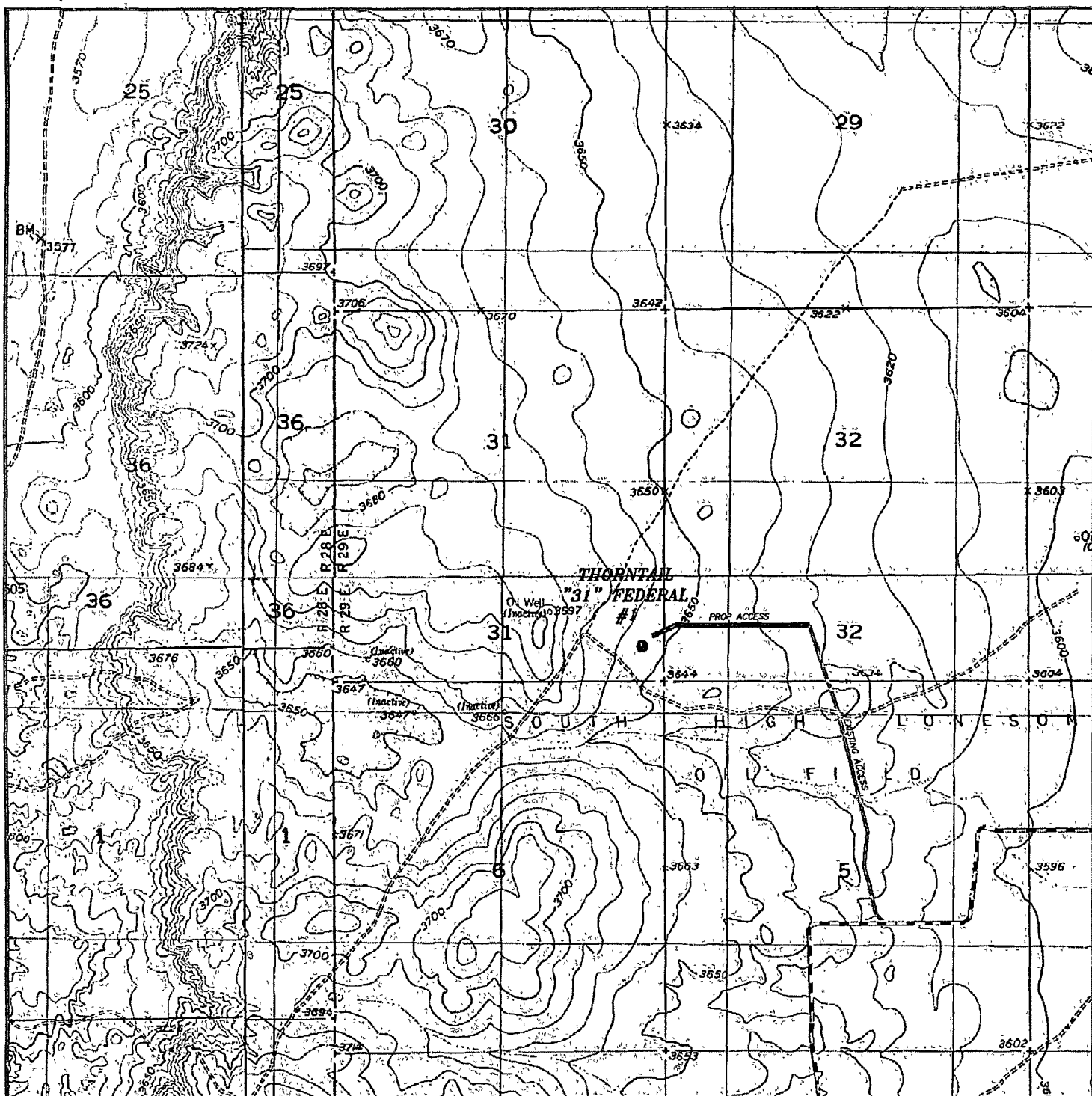
Survey Date: 07-29-2010

Scale: 1" = 2 Miles

Date: 08-04-2010

**CIMAREX
 ENERGY CO.
 OF COLORADO**

Exhibit B



THORNTAIL "31" FEDERAL #1
 Located 525' FSL and 330' FEL
 Section 31, Township 16 South, Range 29 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
 basin-surveys.com

W.O. Number: JMS 23229

Survey Date: 07-29-2010

Scale: 1" = 2000'

Date: 08-04-2010

CIMAREX
ENERGY CO.
OF COLORADO

Exhibit C

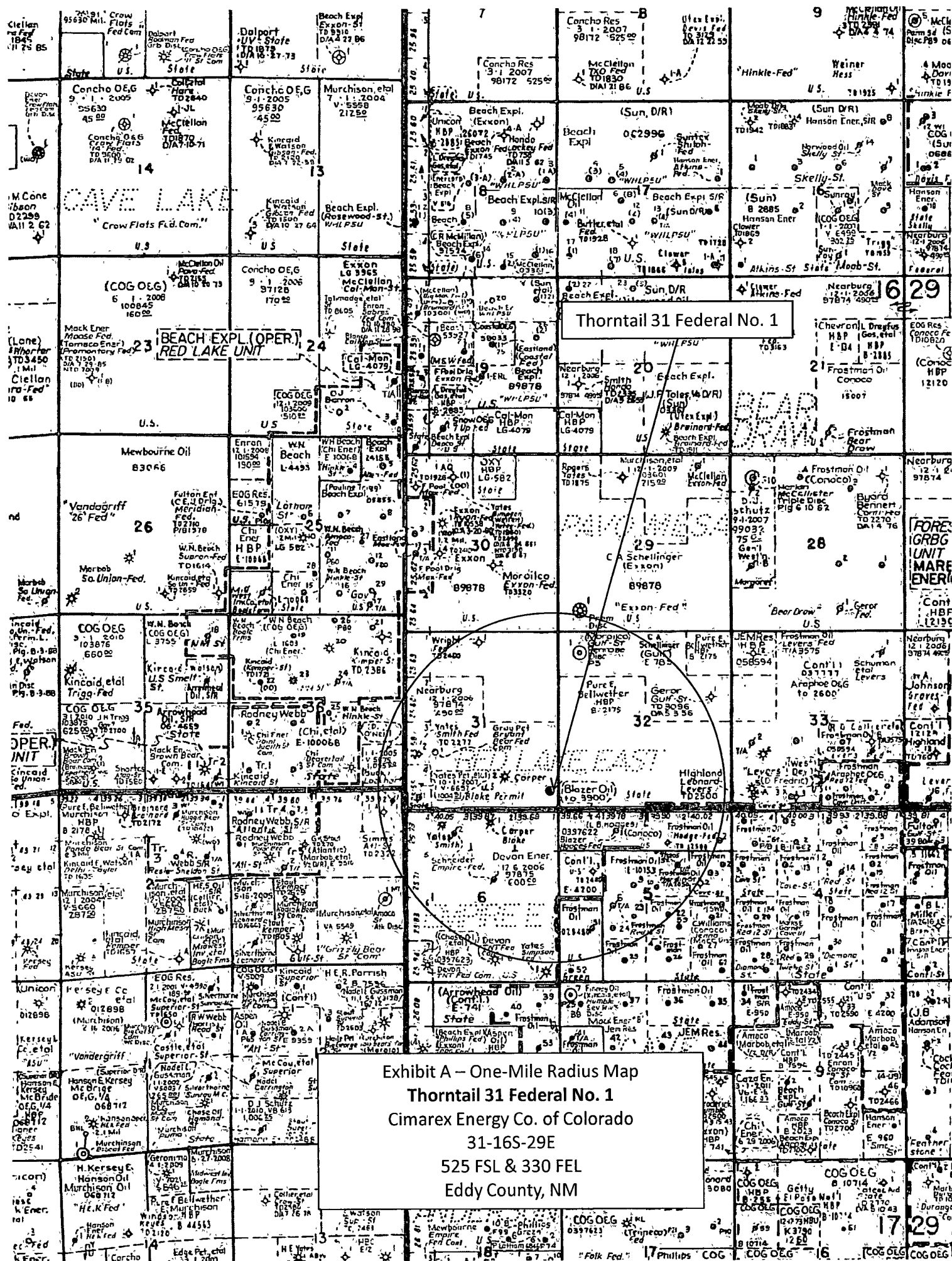


Exhibit A-1 - Wells in 1-Mile Radius

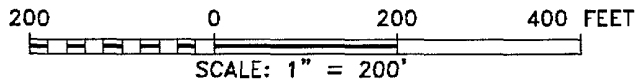
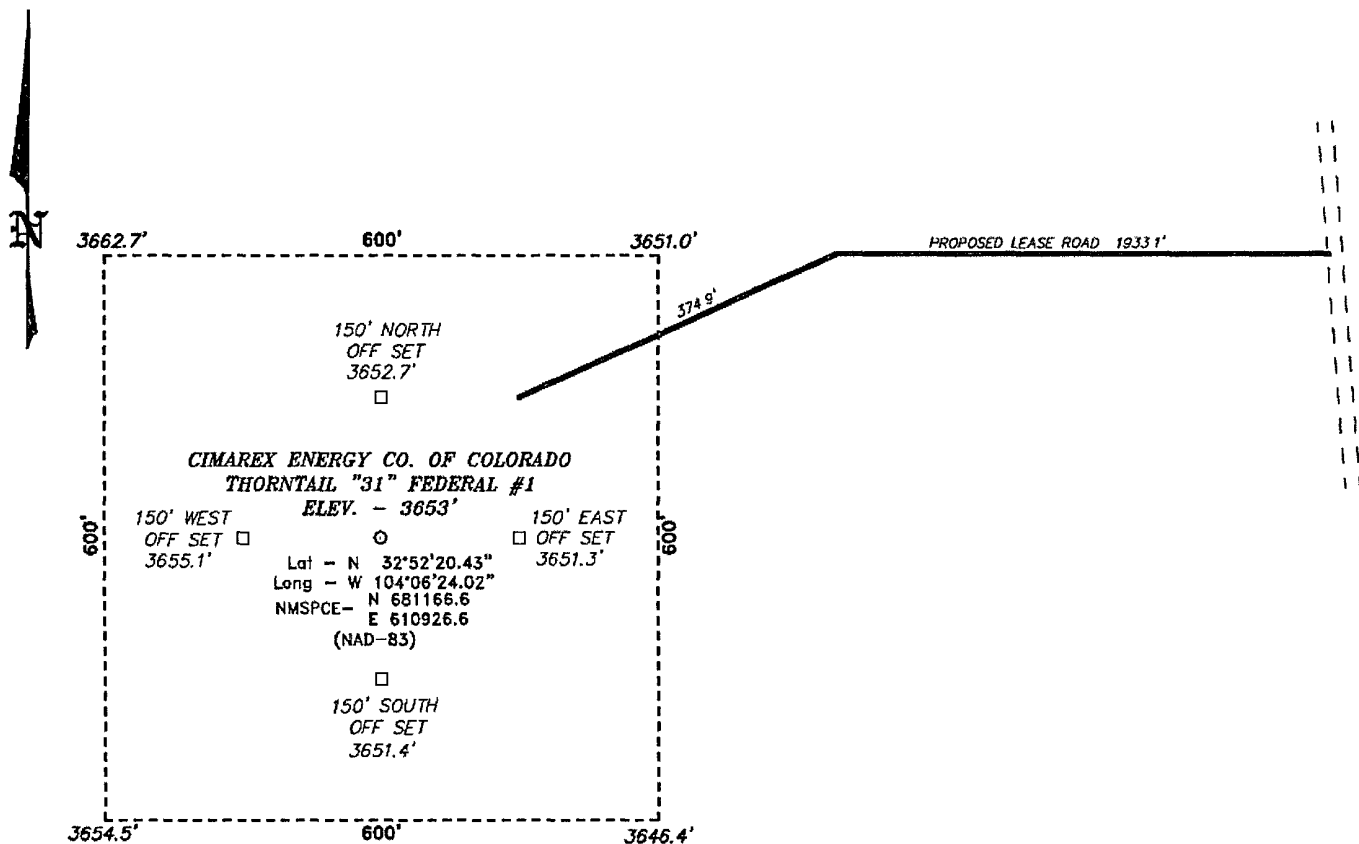
Thorntail 31 Federal No. 1

31-16S-29E

Eddy County, NM

api	well_name	compl_status	ocd_ul	township	range	section	sdiv_ul	ftg_ns	ns_cd	ftg_ew	ew_cd	operator	well_type	one_producing_pool_name
3001522407	EXXON FEDERAL 001	Active	M	16 0S	29E	29	M	660 S		660 W		CARL SCHELLINGER	G	
3001502778	SMITH 002	Plugged	L	16 0S	29E	31	L	1650 S		330 W		YATES PETROLEUM CORPORATION	O	
3001502779	BLAKE 002	Plugged	O	16 0S	29E	31	O	990 S		1650 E		CARPER DRILLING CO	O	
3001502834	FEDERAL 001	Plugged	C	16 0S	29E	31	C	330 S		2310 E		J GRADY WRIGHT	O	
3001502777	STATE 001	Plugged	M	16 0S	29E	31	M	330 S		4290 E		BUCK C B	O	
3001534906	BEAR BRYANT 31 FEDERAL 001	Active	K	16 0S	29E	31	K	1850 S		990 W		CIMAREX ENERGY CO OF COLORADO	G	EMPIRE, MORROW, SOUTH (GAS)
3001536715	TOAD 31 FEDERAL COM 001	New (Not drilled or compl)	H	16 0S	29E	31	H	1650 N		330 E		CIMAREX ENERGY CO OF COLORADO	O	
3001537262	BEAR BRYANT 31 FEDERAL 002	Unknown		16 0S	29E	31		460 N		180 W		CIMAREX ENERGY CO OF COLORADO	O	
3001536604	ROST 32 STATE COM 002	New (Not drilled or compl)	H	16 0S	29E	32	H	1980 N		330 E		CIMAREX ENERGY CO OF COLORADO	O	
3001536312	ROST 32 STATE COM 001	Unknown	D	16 0S	29E	32	D	660 N		330 W		CIMAREX ENERGY CO OF COLORADO	O	
3001536727	GRUY LEONARD 36 STATE COM 001	New (Not drilled or compl)	H	16 0S	29E	32	H	1800 N		660 E		GRUY PETROLEUM MANAGEMENT CO , LLC	G	
3001536687	BOWSER 32 STATE 003	New (Not drilled or compl)	I	16 0S	29E	32	I	1680 S		330 E		CIMAREX ENERGY CO OF COLORADO	O	
3001523319	GULF STATE 001	Active	D	16 0S	29E	32	D	660 N		660 W		CARL SCHELLINGER	O	
3001502780	GULF ST 001	Plugged	H	16 0S	29E	32	H	1980 N		660 E		GEROR OIL CORPORATION	O	
3001536689	GRUY HENSHAW 32 STATE COM 003	New (Not drilled or compl)	M	16 0S	29E	32	M	660 S		330 W		GRUY PETROLEUM MANAGEMENT CO , LLC	O	
3001536726	GRUY HENSHAW 32 STATE COM 001	New (Not drilled or compl)	L	16 0S	29E	32	L	1980 S		330 W		GRUY PETROLEUM MANAGEMENT CO , LLC	O	
3001536691	BOWSER 32 STATE 001	New (Not drilled or compl)	P	16 0S	29E	32	P	360 S		330 E		CIMAREX ENERGY CO OF COLORADO	O	
3001536628	KOOPA 32 STATE COM 003	New (Not drilled or compl)	H	16 0S	29E	32	H	1680 N		330 E		CIMAREX ENERGY CO OF COLORADO	O	
3001535924	HAYSTACK 32 STATE COM 001	New (Not drilled or compl)	N	16 0S	29E	32	N	990 S		1650 W		CIMAREX ENERGY CO OF COLORADO	G	
3001501293	ATLANTIC ST 001	Plugged	A	17 0S	28E	1	A	660 N		660 E		SIMMS & REESE OIL CO	O	
3001524329	COMET STATE 001	Plugged	I	17 0S	28E	1	I	1980 S		660 E		MORESCO INC	O	
3001501292	LOCKHART ST 001	Plugged	A	17 0S	28E	1	A	330 N		330 E		SUPPES AND SUPPES	O	
3001536852	YOSHI 5 FEDERAL COM 001	New (Not drilled or compl)		17 0S	29E	5	L	1650 S		330 W		CIMAREX ENERGY CO OF COLORADO	O	
3001524714	CAVE STATE 002	Active	H	17 0S	29E	5	H	1650 N		330 E		MARKS AND GARNER PRODUCTION LTD CC O		GRAYBURG JACKSON,SR-Q-G-SA
3001502908	CAVE POOL UNIT 099	Plugged	L	17 0S	29E	5	L	1980 N		660 W		MARKS AND GARNER PRODUCTION LTD CC I		
3001535959	PICKETWIRE 5 FEDERAL COM 001	Active	C	17 0S	29E	5		660 N		1650 W		CIMAREX ENERGY CO. OF COLORADO	G	WC,PAVO MESA,ABO (G)
3001502902	CAVE POOL UNIT 023	Active	K	17 0S	29E	5	K	1980 S		2310 W		MARKS AND GARNER PRODUCTION LTD CC O		GRAYBURG JACKSON,SR-Q-G-SA
3001524732	THEOS STATE 001	Plugged	G	17 0S	29E	5	G	1650 N		1650 E		MARKS AND GARNER PRODUCTION LTD CC O		
3001502903	CAVE POOL UNIT 051	TA	L	17 0S	29E	5	L	1650 S		990 W		MARKS AND GARNER PRODUCTION LTD CC I		GRAYBURG JACKSON,SR-Q-G-SA
3001502906	CAVE POOL UNIT 022	Plugged	J	17 0S	29E	5	J	1980 S		1980 E		MARKS AND GARNER PRODUCTION LTD CC O		
3001500993	CAVE POOL UNIT 010	Active	G	17 0S	29E	5	G	2310 N		2310 E		MARKS AND GARNER PRODUCTION LTD CC O		GRAYBURG JACKSON,SR-Q-G-SA
3001502899	CAVE POOL UNIT 008	Plugged	B	17 0S	29E	5		990 N		1980 E		ARAPAHO OIL , GAS INC	I	
3001525225	HODGES FEDERAL 001	Plugged	C	17 0S	29E	5		630 N		1760 W		BLAZER OIL , GAS	O	
3001502909	CAVE POOL UNIT 052	Active	M	17 0S	29E	5	M	330 S		330 W		MARKS AND GARNER PRODUCTION LTD CC O		GRAYBURG JACKSON,SR-Q-G-SA
3001537803	SPIKETAIL 5 STATE 004	Unknown	F	17 0S	29E	5	F	1980 N		1650 W		CIMAREX ENERGY CO OF COLORADO	O	
3001502896	CAVE POOL UT 025	Plugged	N	17 0S	29E	5	N	660 S		1980 W		JEM RESOURCES	O	
3001525195	HARDIN ST 002	Plugged	H	17 0S	29E	5	H	2190 N		990 E		DIAMONDBACK PET INC	O	
3001524723	CAVE POOL UNIT 059	Active	J	17 0S	29E	5	J	1650 S		1650 E		MARKS AND GARNER PRODUCTION LTD CC O		GRAYBURG JACKSON,SR-Q-G-SA
3001502901	CAVE POOL UT 024	Plugged	K	17 0S	29E	5	K	1650 S		1650 W		BIRDWELL ROBERT	O	
3001525055	RED TWELVE STATE 006	TA	K	17 0S	29E	5	K	2310 S		1650 E		MARKS AND GARNER PRODUCTION LTD CC O		
3001502907	CAVE POOL UNIT 011	Plugged	H	17 0S	29E	5	H	1980 N		660 E		JEM RESOURCES	O	
3001502898	HODGES FEDERAL 002	Active	A	17 0S	29E	5		990 N		330 E		MARKS AND GARNER PRODUCTION LTD CC O		GRAYBURG JACKSON,SR-Q-G-SA
3001502900	CAVE POOL UT 009	Plugged	F	17 0S	29E	5	F	2310 N		2310 W		JEM RESOURCES	O	
3001506105	SMITH 001	Plugged	C	17 0S	29E	6	C	405 N		1650 W		YATES PETROLEUM CORPORATION	O	
3001525725	EMPIRE FEDERAL 002	Plugged	C	17 0S	29E	6		710 N		1503 W		TOM SCHNEIDER	O	
3001525642	EMPIRE FEDERAL 001	Plugged	G	17 0S	29E	6	G	2100 N		1980 E		TOM SCHNEIDER	O	
3001506175	CAVE FED 001	Plugged	P	17 0S	29E	6	P	330 S		330 E		ERNEST A HANSON	O	
3001502910	SMITH 001	Plugged	B	17 0S	29E	6	B	330 N		2310 E		CARPER DRILLING CO	O	
3001531712	TNT 6 FEDEAL COM 001	Active	O	17 0S	29E	6	O	660 S		1980 E		DEVON ENERGY PRODUCTION COMPANY, I G		
3001533591	TNT 6 FEDERAL COM 002	Active		7 17 0S	29E	6		510 S		660 W		DEVON ENERGY PRODUCTION COMPANY, I G		EMPIRE; MORROW, SOUTH (GAS)

SECTION 31, TOWNSHIP 16 SOUTH, RANGE 29 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO.



Directions to Location:

FROM THE JUNCTION OF BARNIVAL AND OLD LOCO,
GO WEST ON OLD LOCO FOR 1.3 MILES TO LEASE
ROAD, ON LEASE ROAD GO NORTH 0.8 MILES TO
PROPOSED LEASE ROAD.

CIMAREX ENERGY CO. OF COLORADO

REF: THORNTAIL "31" FEDERAL #1 / WELL PAD TOPO

THE THORNTAIL "31" FEDERAL #1 LOCATED 525'

FROM THE SOUTH LINE AND 330' FROM THE EAST LINE OF

SECTION 31, TOWNSHIP 16 SOUTH, RANGE 29 EAST,

N.M.P.M., EDDY COUNTY, NEW MEXICO.

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

W.O. Number: 23229 Drawn By: J. SMALL

Date: 08-04-2010 Disk: JMS 23229

Survey Date: 07-29-2010 Sheet 1 of 1 Sheets

Exhibit C-1

**Application to Drill
Thorntail 31 Federal No. 1
Cimarex Energy Co. of Colorado
Unit P, Section 31
T16S R29E, Eddy County, 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 525 FSL & 330 FEL
- 2 Elevation above sea level: 3653' 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: 6,000'
- 6 Estimated tops of geological markers:

Yates	850'
San Andres	2400'
Glorieta	3800'
Paddock	3865'
Blaine	4350'
Tubb	5150'
- 7 Possible mineral bearing formation:

Paddock	Oil
Blaine	Oil
- 8 Proposed Mud Circulating System:

Depth		Mud Wt	Visc	Fluid Loss	Type Mud
0'	to 450' 225'	8.4 - 8.8	40-45	NC	FW
450'	to 1100'	9.9 - 10.1	28-32	NC	Brine
1100'	to 6000'	9.1	28-32	NC	Cut Brine

See
COM

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.

Application to Drill
Thorntail 31 Federal No. 1
Cimarex Energy Co. of Colorado
Unit P, Section 31
T16S R29E, Eddy County, NM

9 Casing Plan:

String	Hole Size	Depth			Casing OD		Weight	Thread	Collar	Grade
<i>See COA</i> Surface	16"	0'	to	450' 200'	New	11 3/4"	42#	8-R	STC	H-40
Intermediate	11"	0'	to	1100'	New	8 5/8"	24#	8-R	STC	J-55
Production	7 7/8"	0'	to	6000'	New	5 1/2"	17#	8-R	LTC	J-55

10 Cementing.

Surface Lead: 200 sx Class C + 4% D-20 + 1% S + 0.125 ppg D-130 + 4.0 pps D-42 (wt 12.9 ppg, yield 1.99)

Tail: 200 sx Class C + 1% S-1 + D42 + 0.125 pps D130 (wt 14.80, yield 1.34)

TOC Surface

Intermediate Lead: 200 sx 50.50 Poz' Class "C" + 0.2% Defoamer (D046) + 5% D044 (Salt) +10% D020 (Extender Gel) + 1/8 pps Polyflake (D130) + 2 pps Gilsonite (D042) Mixed at 11.8 ppg, Yeild 2.57 cuft/sx, 15.061 gal/sx fresh water

Tail: 400 sx Class "C" + 1% S001 (CaCl2), Mixed at 14.8 ppg, 1.33 cuft/sx, 6.365 gal/sx fresh water

TOC Surface

Production Lead: 500 sacks LiteCrete + 0.2% Defoamer (D046) + 0.6% Fluid Loss (D167) + 1 lb/sx Extender (D042) + 0.02% Retarder (D013) + 23 lbs/sx Silica (D178) + 40 lbs/sx Extender (D124) Mixed at 9.9 ppg. Yeild 2.35 cuft/sx, 8.6 gal/sx Fresh Water

Tail: 500 sacks PVL + 1.3% NaCl (D044) + 0.2% Fluid Loss (D167) + 0.2% Cement Retarder (D013) + 0.2% Dispersant (D065). Mixed at 13.0 ppg, Yeild 1.40 cuft/sx, 7.277 gal/sx Fresh Water

TOC ~~1100'~~ 900' - *See COA*

Fresh water zones will be protected by setting 11 3/4" casing at 450' and cementing to surface. Hydrocarbon zones will be protected by setting 8 5/8" casing at 1100' and cementing to surface and by setting 5 1/2" casing at 6000' and cementing to 900.'

<u>Collapse Factor</u>	<u>Burst Factor</u>	<u>Tension Factor</u>
1.125	1.125	1.6

**Application to Drill
Thorntail 31 Federal No. 1
Cimarex Energy Co. of Colorado
Unit P, Section 31
T16S R29E, Eddy County, NM**

11 Pressure control Equipment:

Exhibit "E-1" - An 11¾" 3000 PSI working pressure B.O.P. consisting of a one set of blind rams and one set of pipe rams and a 3000 psi annular-type preventor. A choke manifold and 120 gallon accumulator with floor and remote operating stations and auxiliary power system. 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. Test BOP equipment and choke manifold to 250 psi low and 3000 psi high and annular BOP to 250 psi low and 1500 psi high by an independent service company.

BOP unit will be hydraulically operated. Below intermediate casing shoe, BOP will be operated at least once a day while drilling and the blind rams will be operated when out of hole during trips. No abnormal pressure or temperature is expected while drilling. From the base of the surface pipe through the running of production casing, the well will be equipped with a 3000 psi BOP system.

BOPS will be tested by an independent service company to 250 psi low and 3000 psi high.

12 Testing, Logging and Coring Program:

See
con

- A. Mud logging No mud logging program.
- B. Electric logging program: CNL / LDT / CAL / GR, DLL / CAL / GR
- C. No DSTs or cores are planned at this time.

13 Potential Hazards:

No abnormal pressures or temperatures are expected. The area has a potential H2S hazard. An H2S drilling plan is attached. 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 **2300 psi** Estimated BHT **110°**

14 Road and location construction will begin after BLM approval of APD. Anticipated spud date as soon as approved.

Drilling expected to take 10-15 days

If production casing is run an additional 30 days will be required to complete and construct surface facilities.

15 Other Facets of Operations:

After running casing, cased hole gamma ray neutron collar logs will be run from total depth over possible pay intervals.

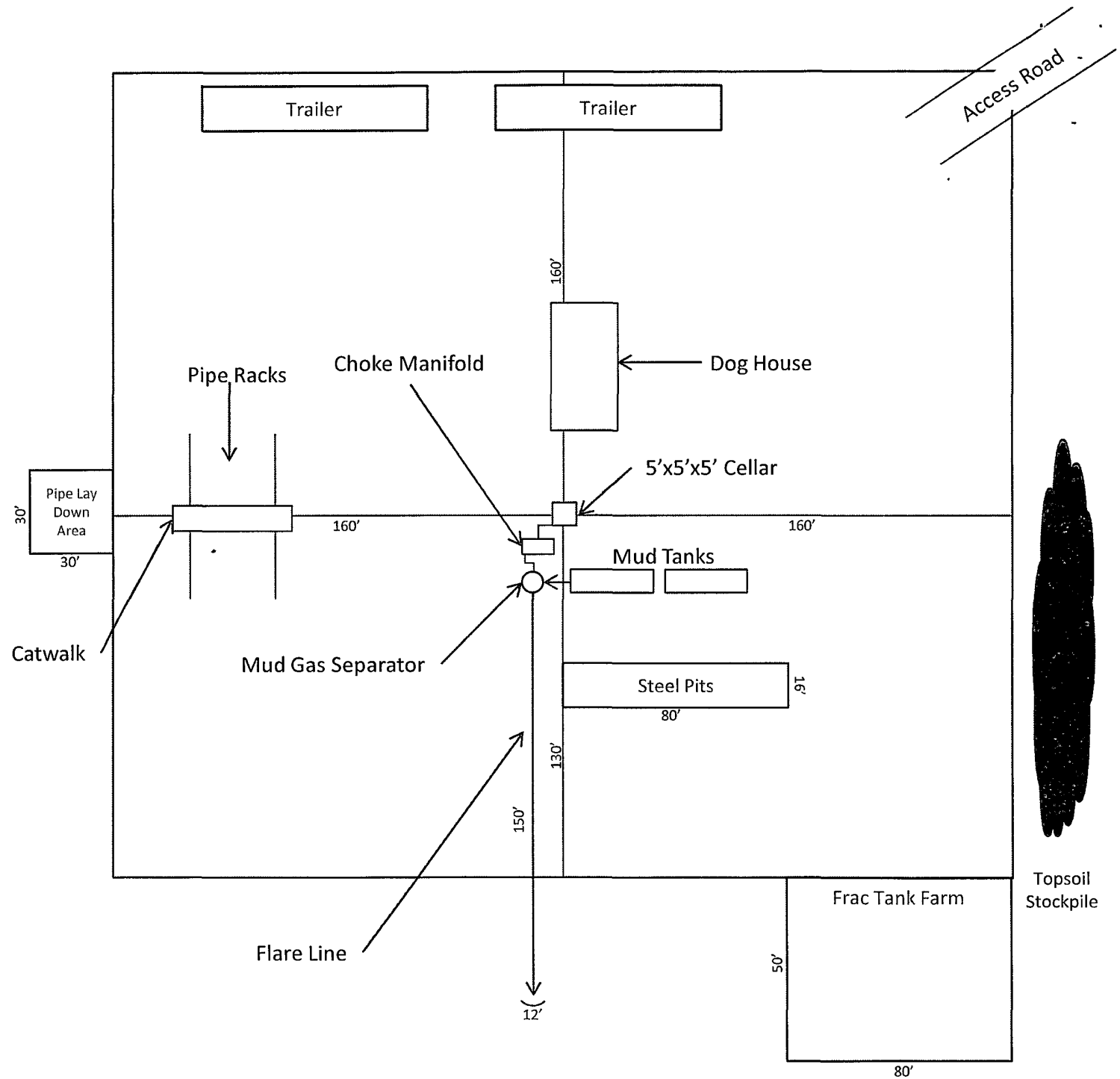
Blinebry pay will be perforated and stimulated.

The proposed well will be tested and potentialized as **an oil well.**

KEY 884

Exhibit D – Rig Diagram
Thorntail 31 Federal No. 1
Cimarex Energy Co. of Colorado
31-16S-29E
525 FSL & 330 FEL
Eddy County, NM

1"=50'



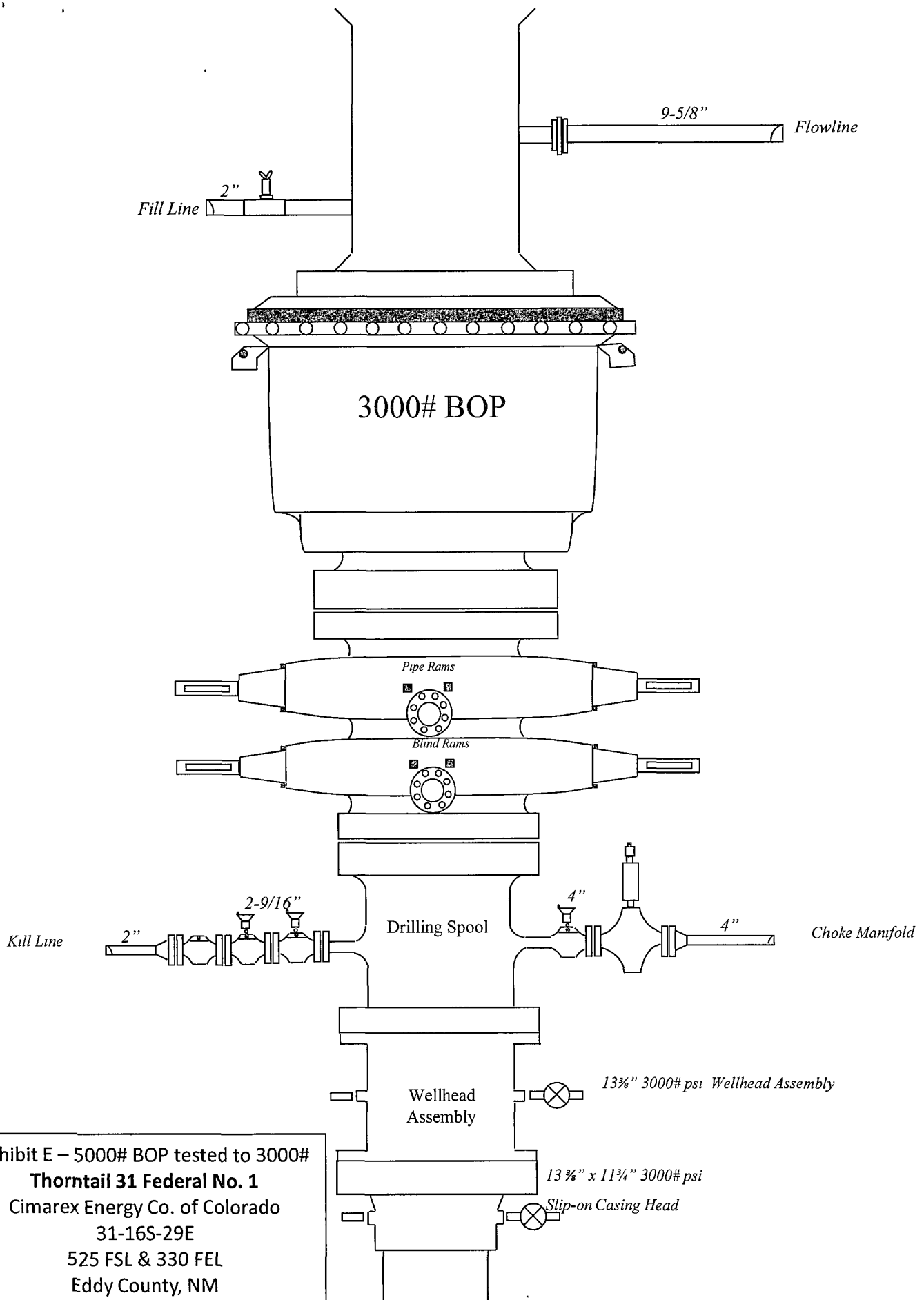


Exhibit E – 5000# BOP tested to 3000#
Thorntail 31 Federal No. 1
 Cimarex Energy Co. of Colorado
 31-16S-29E
 525 FSL & 330 FEL
 Eddy County, NM

Drilling Operations Choke Manifold 5M Service (tested to 3M)

Exhibit E-1 – Choke Manifold Diagram

Thorntail 31 Federal No. 1

Cimarex Energy Co. of Colorado

31-16S-29E

525 FSL & 330 FEL

Eddy County, NM

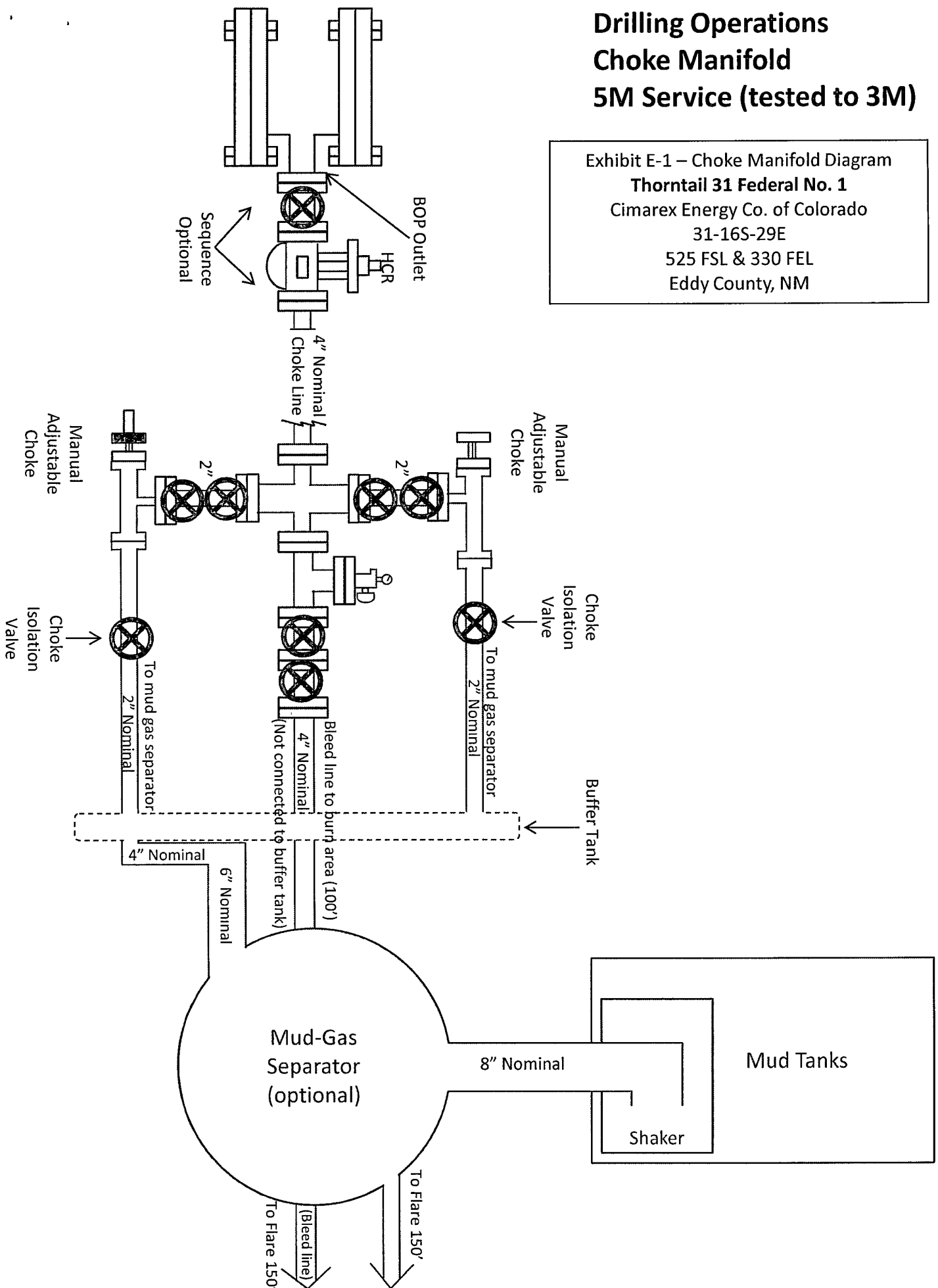
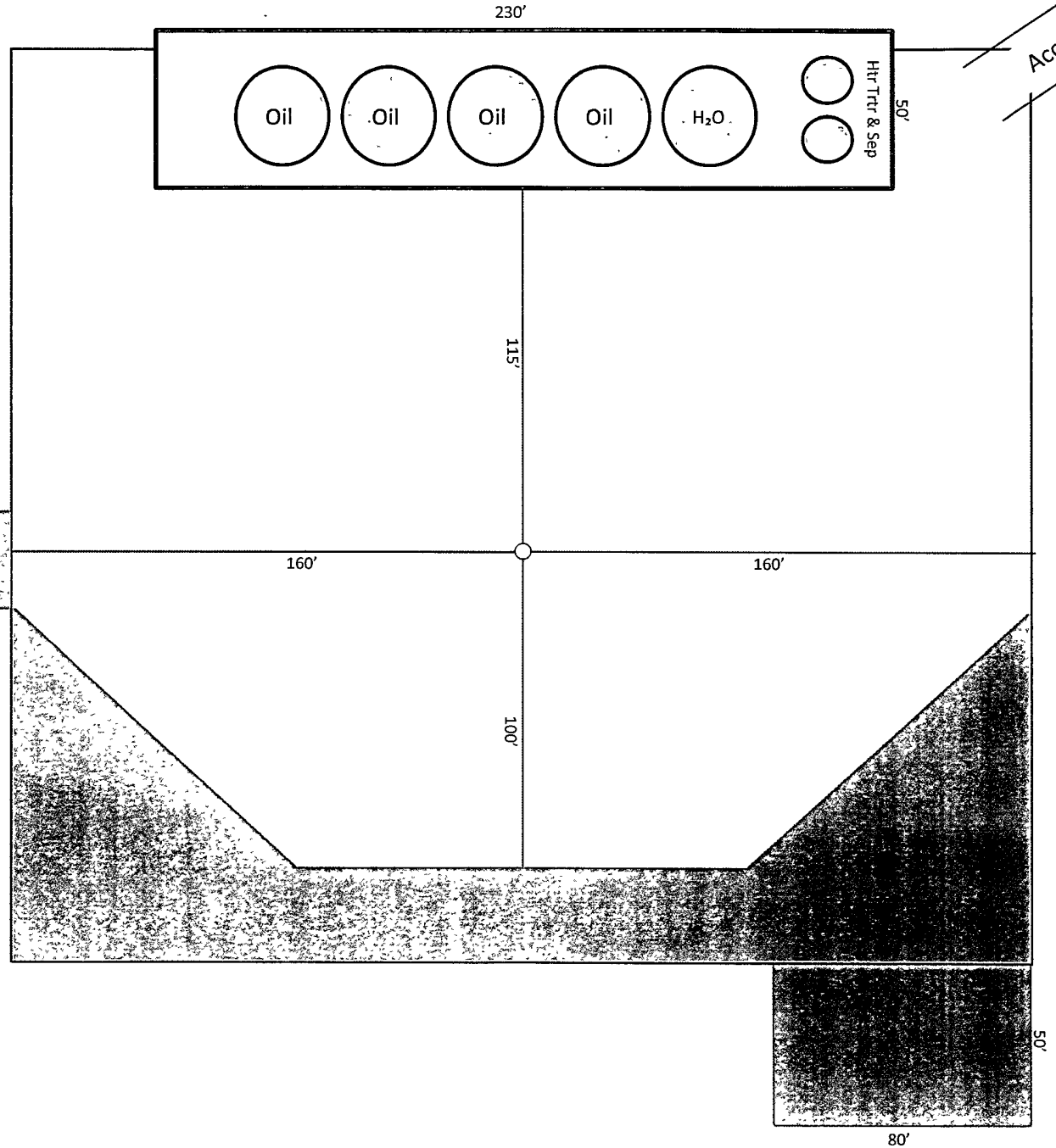
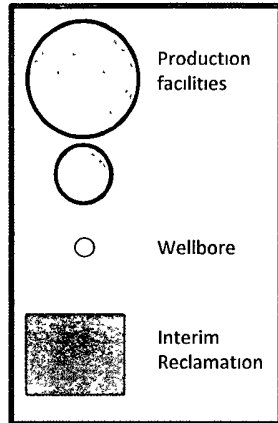


Exhibit D-1
Production Facilities Layout Diagram
Thorntail 31 Federal No. 1
Cimarex Energy Co. of Colorado
31-16S-29E
525 FSL & 330 FEL
Eddy County, NM

1"=50'



Hydrogen Sulfide Drilling Operations Plan

Thorntail 31 Federal No. 1

Cimarex Energy Co. of Colorado

Unit P, Section 31

T16S R29E, Eddy County, 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 H₂S
 - B. Physical effects and hazards
 - C. Proper use of safety equipment and life support systems.
 - D. Principle and operation of H₂S detectors, warning system and briefing areas.
 - E. Evacuation procedure, routes and first aid.
 - F. Proper use of 30 minute pressure demand air pack.
- 2 H₂S Detection and Alarm Systems:
 - A. H₂S detectors and audio alarm system to be located at bell nipple, end of flow line (mud pit) and on derrick floor or doghouse.
- 3 Windsock and/or wind streamers:
 - A. Windsock at mudpit area should be high enough to be visible.
 - B. Windsock at briefing area 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 (H₂S present in dangerous concentration). Only emergency personnel admitted to location.
- 5 Well control equipment:
 - A. See exhibit "E"
- 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 or cores are planned at this time.
- 8 Drilling contractor supervisor will be required to be familiar with the effects H₂S has on tubular goods and other mechanical equipment.
- 9 If H₂S is encountered, mud system will be altered if necessary to maintain control of formation. A mud gas separator will be brought into service along with H₂S scavengers if necessary.

H₂S Contingency Plan
Thorntail 31 Federal No. 1
Cimarex Energy Co. of Colorado
Unit P, Section 31
T16S R29E, Eddy County, NM

Emergency Procedures

In the event of a release of gas containing H₂S, the first responder(s) must:

- ★ Isolate the area and prevent entry by other persons into the 100 ppm ROE.
- ★ Evacuate any public places encompassed by the 100 ppm ROE.
- ★ Be equipped with H₂S monitors and air packs in order to control the release.
- ★ Use the "buddy system" to ensure no injuries occur during the response.
- ★ Take precautions to avoid personal injury during this operation.
- ★ Contact operator and/or local officials to aid in operation. See list of phone numbers attached.
- ★ Have received training in the:
 - ◆ Detection of H₂S, and
 - ◆ Measures for protection against the gas,
 - ◆ Equipment used for protection and emergency response.

Ignition of Gas Source

Should control of the well be considered lost and ignition considered, take care to protect against exposure to Sulfur Dioxide (SO₂). Intentional ignition must be coordinated with the NMOCD and local officials. Additionally, the NM State Police may become involved. NM State Police shall be the Incident Command on scene of any major release. Take care to protect downwind whenever there is an ignition of the gas.

Characteristics of H₂S and SO₂

Common Name	Chemical Formula	Specific Gravity	Threshold Limit	Hazardous Limit	Lethal Concentration
Hydrogen Sulfide	H ₂ S	1.189 Air=1	10 ppm	100 ppm/hr	600 ppm
Sulfur Dioxide	SO ₂	2.21 Air=1	2 ppm	N/A	1000 ppm

Contacting Authorities

Cimarex Energy Co. of Colorado's personnel must liaise with local and state agencies to ensure a proper response to a major release. Additionally, the OCD must be notified of the release as soon as possible but no later than 4 hours. Agencies will ask for information such as type and volume of release, wind direction, location of release, etc. Be prepared with all information available including directions to site. The following call list of essential and potential responders has been prepared for use during a release. Cimarex Energy Co. of Colorado's response must be in coordination with the State of New Mexico's "Hazardous Materials Emergency Response Plan" (HMER).

H₂S Contingency Plan Emergency Contacts

Thorntail 31 Federal No. 1

Cimarex Energy Co. of Colorado

Unit P, Section 31

T16S R29E, Eddy County, NM

Company Office

Cimarex Energy Co. of Colorado
Co. Office and After-Hours Menu

800-969-4789

Key Personnel

Name	Title	Office	Mobile
Doug Park	Drilling Manager	432-620-1934	972-333-1407
Dee Smith	Drilling Super	432-620-1933	972-882-1010
Jim Evans	Drilling Super	432-620-1929	972-465-0564
Roy Shirley	Field Super		432-634-2136

Artesia

Ambulance	911
State Police	575-746-2703
City Police	575-746-2703
Sheriff's Office	575-746-9888
Fire Department	575-746-2701
Local Emergency Planning Committee	575-746-2122
New Mexico Oil Conservation Division	575-748-1283

Carlsbad

Ambulance	911
State Police	575-885-3137
City Police	575-885-2111
Sherriff's Office	575-887-7551
Fire Department	575-887-3798
Local Emergency Planning Committee	575-887-6544
US Bureau of Land Management	575-887-6544

Santa Fe

New Mexico Emergency Response Commission (Santa Fe)	505-476-9600
New Mexico Emergency Response Commission (Santa Fe) 24 Hrs	505-827-9126
New Mexico State Emergency Operations Center	505-476-9635

National

National Emergency Response Center (Washington, D.C.)	800-424-8802
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Medical

Flight for Life - 4000 24th St ; Lubbock, TX	806-743-9911
Aerocare - R3, Box 49F; Lubbock, TX	806-747-8923
Med Flight Air Amb - 2301 Yale Blvd S.E., #D3; Albuquerque, NM	505-842-4433
SB Air Med Service - 2505 Clark Carr Loop S.E , Albuquerque, NM	505-842-4949

Other

Boots & Coots IWC	800-256-9688	or	281-931-8884
Cudd Pressure Control	432-699-0139	or	432-563-3356
Halliburton	575-746-2757		
B.J. Services	575-746-3569		

Surface Use Plan
Thorntail 31 Federal No. 1
Cimarex Energy Co. of Colorado
Unit P, Section 31
T16S R29E, Eddy County, NM

- 1 Existing Roads: Area maps, Exhibit "A" shows the proposed well site as staked. Exhibit A-1 is a list of all wells within a 1-mile radius. Exhibit "B" is a reproduction of Eddy Co. General Highway Map. Exhibit "C" is a reproduction of a USGS Topographic Map, and Exhibit "C-1" is a well site layout map, showing proposed road to location. Existing road shown on Exhibit "C" will be maintained in a condition equal to or better than current conditions.

A. Directions to Location:

From the junction of Barnival and Old Loco, go West on Old Loco for 1.3 miles to lease road. On lease road, go North 0.8 miles to proposed lease road.

- 2 Planned Access Roads: 2308' of new access road will be built. A State ROW will be obtained for the portion of the road that is off-lease/state surface.

3 Location of Existing Wells in a One-Mile Radius - Exhibit A

- A. Water wells - None known
- B. Disposal wells - None known
- C. Drilling wells - None known
- D. Producing wells - As shown on Exhibit "A"
- E. Abandoned wells - As shown on Exhibit "A"

4 Location of Proposed Production Facilities:

If, upon completion, this well is a producer, a tank battery will be used and the necessary production equipment will be installed at the wellsite. See production facilities layout diagram, Exhibit D-1. Any changes to the facilities will be accompanied by a Sundry Notice.

5 Location and Type of Water Supply:

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

6 Source of Construction Material:

If possible, native caliche will be obtained from the excavation of drill site. Topsoil will be pushed back from the drill site and existing caliche will be ripped and compacted. Then topsoil will be stockpiled on location as depicted on Exhibit "D" (rig layout). If additional material is needed, it will be purchased by our dirt contractor from a BLM-approved pit as near as possible to the well location.

Surface Use Plan
Thorntail 31 Federal No. 1
Cimarex Energy Co. of Colorado
Unit P, Section 31
T16S R29E, Eddy County, NM

7 Methods of Handling Waste Material:

- A. Drill cuttings will be separated by a series of solids removal equipment and stored in steel containment pits and then hauled to a state-approved disposal facility.
- B. All trash, junk and other waste material will be contained in trash cages or bins to prevent scattering. When the job is completed all contents will be removed and disposed of in an approved sanitary land fill.
- C. Salts remaining after completion of well will be picked up by supplier including broken sacks.
- D. Sewage from living quarters will drain into holding tanks and be cleaned out periodically. A Porta-John will be provided for the rig crews. This equipment will be properly maintained during the drilling operations and removed upon completion of the well.
- E. Drilling fluids will be contained in steel pits in a closed circulating system. Fluids will be cleaned and reused. Water produced during testing will be contained in the steel pits and disposed of at a state approved disposal facility. Any oil or condensate produced will be stored in test tanks until sold and hauled from the site.

8 Ancillary Facilities:

- A. No camps or airstrips to be constructed.

9 Well Site Layout:

- A. Exhibit "D" shows location and rig layout.
- B. Mud pits in the closed circulating system will be steel pits and the cuttings will be stored in steel containment pits.
- C. Cuttings will be stored in steel pits until they are hauled to a state-approved disposal facility.
- D. If the well is a producer, those areas of the location not essential to production facilities will be reclaimed and seeded per BLM requirements.

Surface Use Plan
Thorntail 31 Federal No. 1
Cimarex Energy Co. of Colorado
Unit P, Section 31
T16S R29E, Eddy County, NM

10 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.

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 production facilities and operations will be reclaimed and seeded per BLM requirements. Please see Production Facilities Layout Diagram, exhibit D-1.

11 Other Information:

- A. Topography consists of a sloping plane with loose tan sands. Vegetation is mainly yucca, mesquite and shin oak.
- B. The wellsite is on surface owned by Department of the Interior, Bureau of Land Management. The land is used mainly for farming, cattle ranching, recreational use, and oil and gas production.
- C. In lieu of an archaeological survey report, Cimarex will be submitting an MOA application for this well pad and access road since they are within the MOA boundary.
- D. There are no known dwellings within 1½ miles of this location.

Operator Certification Statement
Thorntail 31 Federal No. 1
Cimarex Energy Co. of Colorado
Unit P, Section 31
T16S R29E, Eddy County, NM

Operator's Representative

Cimarex Energy Co. of Colorado
600 N. Marienfeld St., Ste. 600
Midland, TX 79701
Office Phone: (432) 571-7800
Zeno Farris

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 6th day of August, 2010

NAME: Zeno Farris
Zeno Farris

TITLE: Manager Operations Administration

ADDRESS: 600 N. Marienfeld St., Ste. 600
Midland, TX 79701

TELEPHONE: (432) 620-1938

EMAIL: zfarris@cimarex.com

Field Representative: Same as above

PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME:	CIMAREX ENERGY
LEASE NO.:	NM-98874
WELL NAME & NO.:	1-THORNTAIL 31 FEDERAL
SURFACE HOLE FOOTAGE:	0525' FSL & 0330' FEL
BOTTOM HOLE FOOTAGE:	Same
LOCATION:	Section 31, T. 16 S., R. 29 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.

- ☐ **General Provisions**
- ☐ **Permit Expiration**
- ☐ **Archaeology, Paleontology, and Historical Sites**
- ☐ **Noxious Weeds**
- ☐ **Special Requirements**

- ☐ **Construction**
 - Notification
 - V-Door Direction
 - Topsoil
 - Closed Loop System
 - Federal Mineral Material Pits
 - Well Pads
 - Roads

- ☐ **Road Section Diagram**

- ☒ **Drilling**
 - Logging requirements
 - Waste Material and Fluids

- ☐ **Production (Post Drilling)**
 - Well Structures & Facilities
 - Pipelines
 - Electric Lines

- ☒ **Interim Reclamation**

- ☒ **Final Abandonment & Reclamation**

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)

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) 234-5972 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. V-DOOR DIRECTION: west

C. TOPSOIL

The operator shall stockpile the topsoil in a low profile manner in order to prevent wind/water erosion of the topsoil. The topsoil to be stripped is approximately 6 inches in depth. The topsoil will be used for interim and final reclamation.

D. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

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

E. 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.

F. 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.

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 thirty (30) 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

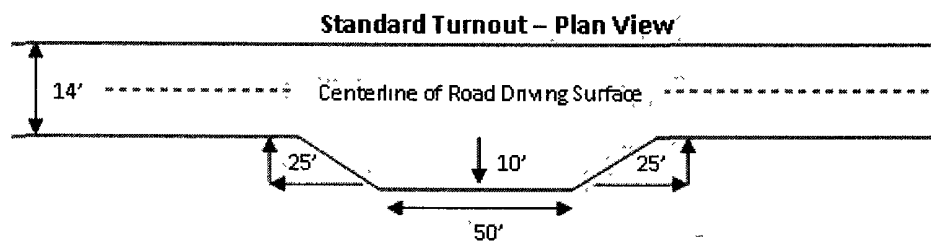
Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

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 be constructed on all blind curves. Turnouts shall conform to the following diagram:

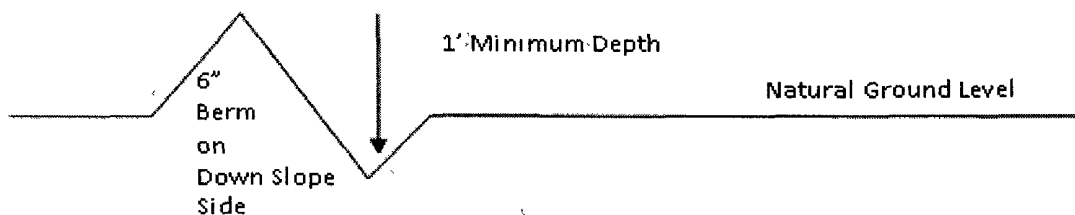


Drainage

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:

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

Culvert Installations

Appropriately sized culvert(s) shall be installed at the deep waterway channel flow crossing.

Cattleguards

An appropriately sized cattleguard(s) sufficient to carry out the project shall be installed and maintained at fence crossing(s).

Any existing cattleguard(s) 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(s) that are in place and are utilized during lease operations.

A gate shall be constructed and fastened securely to H-braces.

Fence Requirement

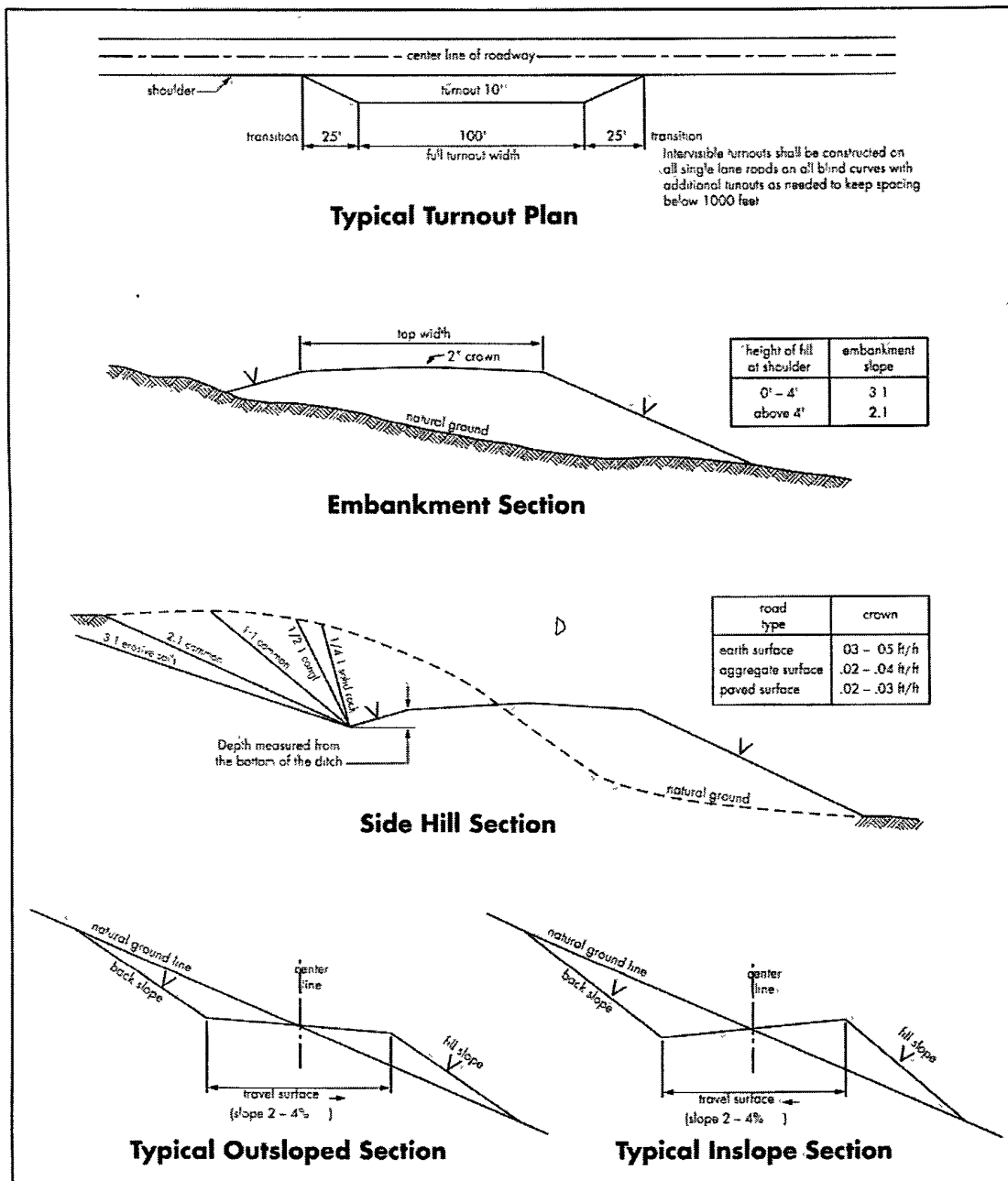
Where entry is required across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting.

The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fence(s).

Public Access

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

Figure 1 – Cross Sections and Plans For Typical Road Sections



VII. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

The BLM is to be notified a minimum of 4 hours in advance for a representative to witness:

- a. Spudding well
- b. Setting and/or Cementing of all casing strings
- c. BOPE tests

☒ **Eddy County**

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

1. **Due to potential H₂S in this area, it is recommended that monitoring equipment be onsite for potential Hydrogen Sulfide prior to drilling out the surface shoe. If Hydrogen Sulfide is encountered, please report measurements 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 will 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 Rustler top and top and bottom of Salt are to be recorded on the Completion Report.**

B. CASING

Changes to the approved APD casing and cement program require submitting a sundry and receiving approval prior to work. Failure to obtain approval prior to work will result in an Incident of Non-Compliance being issued.

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. 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.

Possible lost circulation in the Grayburg and San Andres formations.

1. The **11-3/4 inch** surface casing shall be set at approximately **225 feet** and cemented to the surface. **If salt is encountered at a shallower depth set surface casing 25 feet above the top of the salt.**
 - 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 **8-5/8 inch** intermediate casing is:
☒ Cement to surface. If cement does not circulate see B.1.a, c-d above.
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. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **3000 (3M) 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.
3. 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 or where the float does not hold, the minimum wait time before cut-off is eight hours after bumping the plug or when the cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. BOP/BOPE testing can begin after the above conditions are satisfied.
 - 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) prior to initiating the test.
 - c. The results of the test shall be reported to the appropriate BLM office.
 - d. 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.**

- e. 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.

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.

RGH 090210

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.

Containment Structures

The containment structure shall be constructed to hold the capacity of the entire contents of the largest tank, plus 24 hour production, unless more stringent protective requirements are deemed necessary by the Authorized Officer.

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, Munsell Soil Color Chart # 5Y 4/2

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:

<u>Species</u>	<u>lb/acre</u>
Plains lovegrass (<i>Eragrostis intermedia</i>)	0.5
Sand dropseed (<i>Sporobolus cryptandrus</i>)	1.0
Sideoats grama (<i>Bouteloua curtipendula</i>)	5.0

*Pounds of pure live seed:

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