UNORTHODOX LOCATION

RECEIVED
JAN 24 2014
OCD Artesia
NMOCD ARTESIA

ATS-13-552

TCS 1-27-2014

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.: NM016014

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.: Riverbend 13 Federal 2H <40352>

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

9. API Well No.: 30-015- 41995

3a. Address: 600 N. Marienfeld St. Ste. 600 Midland Tx 79701

3b. Phone No. *(include area code)*: 432-571-7800

10. Field and Pool, or Exploratory: ~~SAN LORENZO~~; North Wildcat Bone Spring <53610>

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

At Surface: 75' FNL & 1650' FEL

At proposed prod. Zone: 330' FSL & 1700' FEL *Horizontal Bone Spring test*

11. Sec., T. R. M. or Blk. and Survey or Area: 13-25S-28E

14. Distance in miles and direction from nearest town or post office*: Approximately 6.5 miles south of Malaga, NM

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
75'	1520.06	160

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
1270'	9,900' Pilot Hole 13,010' MD 8,371' TVD	NM2575; NMB000835

21. Elevations (Show whether DF, KDB, RT, GL, etc.)	22. Approximate date work will start*	23. Estimated duration
2931' GR	06.15.13	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
Paula Brunson	Paula Brunson	03.11.13

Title: Regulatory Analyst

Approved By *(Signature)*	Name (Printed/Typed)	Date
/S/ STEPHEN J. CAFFEY	/S/ STEPHEN J. CAFFEY	JAN 21 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.

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)

Carlsbad Controlled Water Basin

(Instructions on page 2)

SEE ATTACHED FOR CONDITIONS OF APPROVAL

APPROVAL SUBJECT TO GENERAL REQUIREMENTS AND SPECIAL STIPULATIONS ATTACHED

Operator Certification Statement
Riverbend 13 Federal 2H
Cimarex Energy Co.
UL: B, Sec 13-25S-28E
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

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 11th day of March, 2013

NAME: Paula Brunson
Paula Brunson

TITLE: Regulatory Analyst

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

TELEPHONE: 432-571-7848

EMAIL: pbrunson@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
30-015- 41995	53610	San Lorenzo ~~Wildcat~~ Bone Spring, North

Property Code	Property Name	Well Number
40352	RIVERBEND 13 FEDERAL	2H

OGRID No.	Operator Name	Elevation
215099	CIMAREX ENERGY CO.	2931'

Surface Location

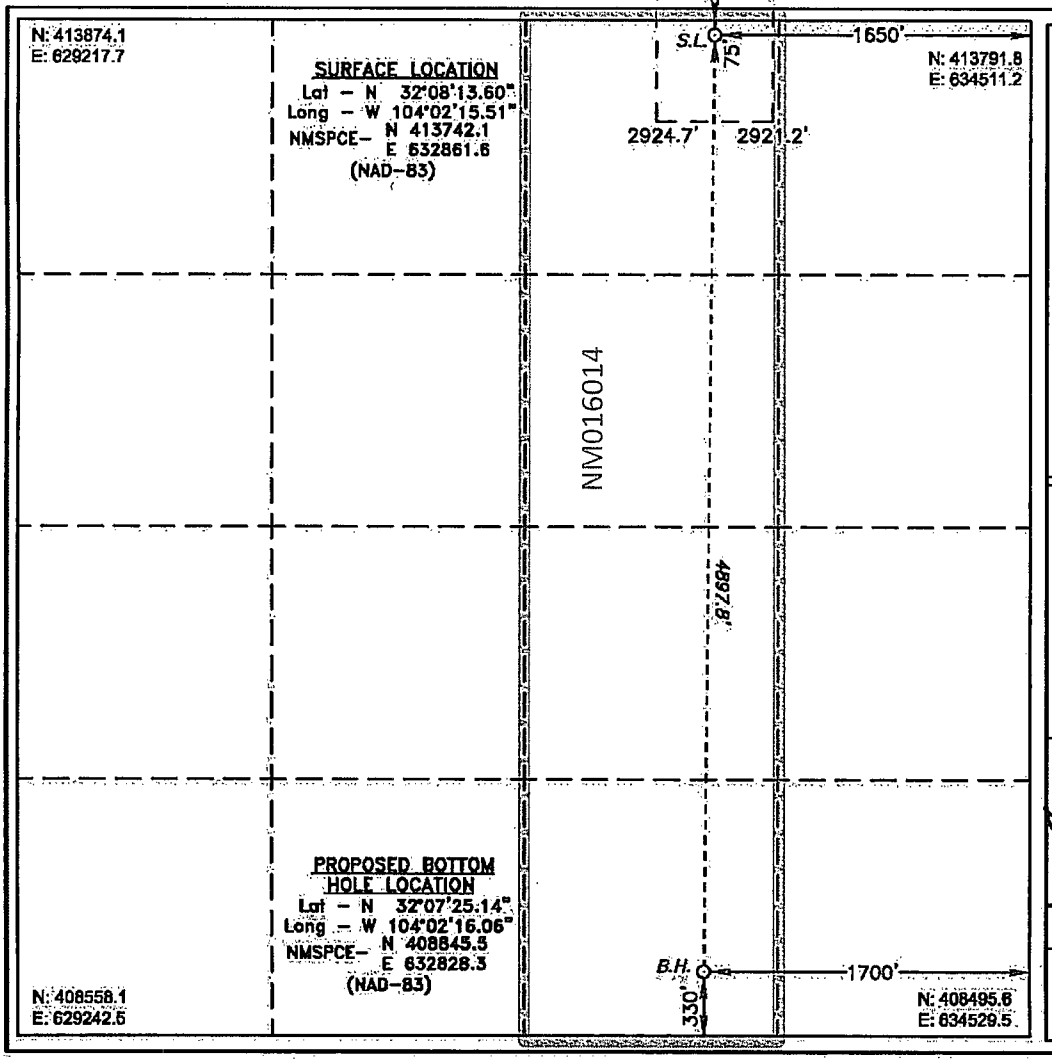
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
B	13	25 S	28 E		75	NORTH	1650	EAST	EDDY

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
O	13	25 S	28 E		330	SOUTH	1700	EAST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
160			1-21 13010

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



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.

Paula Brunson 3/11/2013
Signature Date

Paula Brunson
Printed Name

pbrunson@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.

SEPTEMBER 10, 2012
Date Surveyed

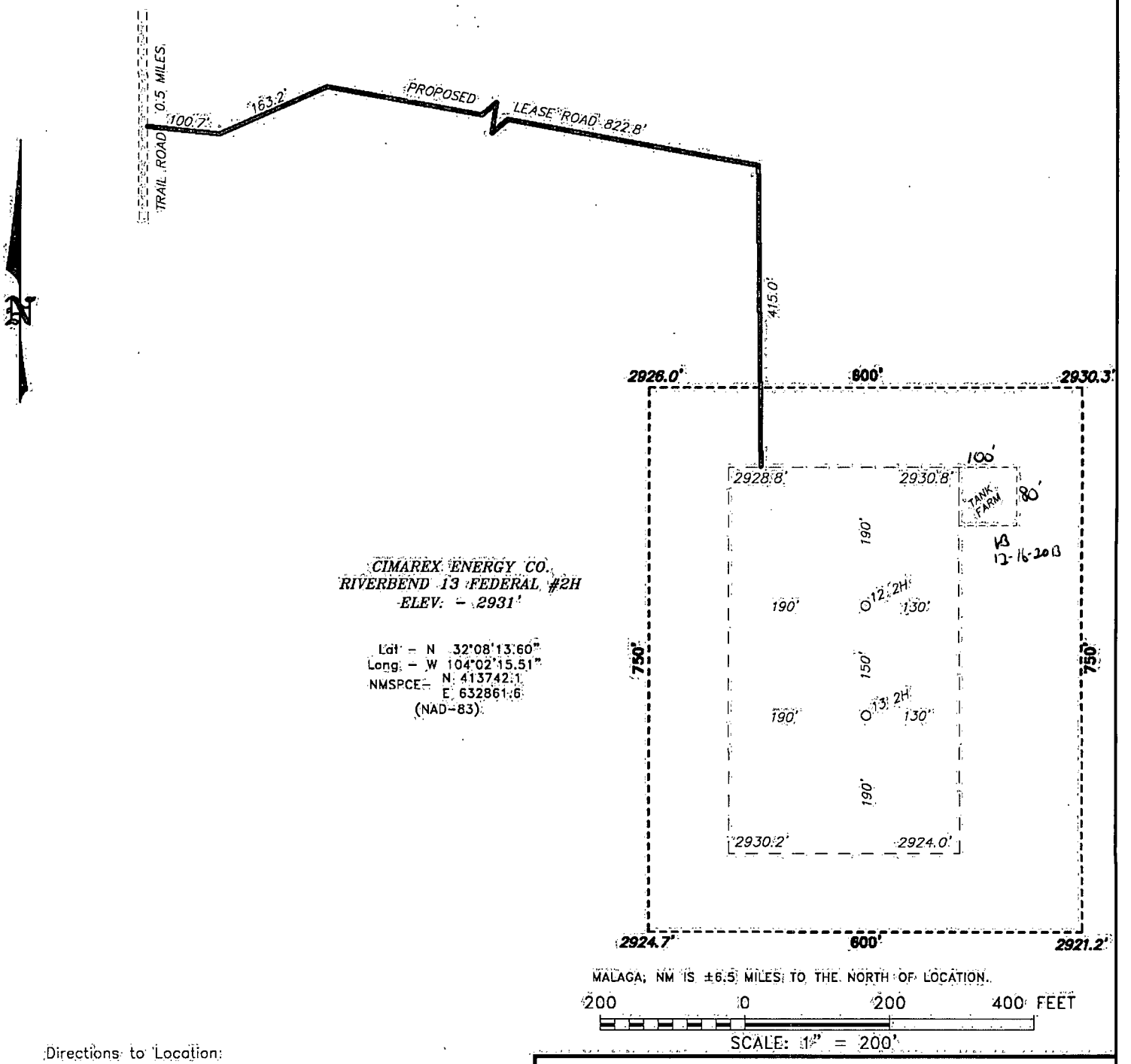
Signature & Seal of Professional Surveyor

NEW MEXICO 7977 REGISTERED PROFESSIONAL SURVEYOR

Certificate No. Gary L. Jones 7977

BASIN SURVEYS

SECTION 13, TOWNSHIP 25 SOUTH, RANGE 28 EAST, N.M.P.M.,
LEA COUNTY, NEW MEXICO.



Directions to Location:

AT MILE MARKER 12 OF HWY 285, GO NORTH 0.1 MILES TO LEASE ROAD, ON LEASE ROAD GO EAST 1.3 MILES, TURNING SOUTH 1.5 MILES TO TRAIL ROAD, GO SOUTH ON TRAIL ROAD FOR 0.5 MILES TO PROPOSED LEASE ROAD.

CIMAREX ENERGY CO.

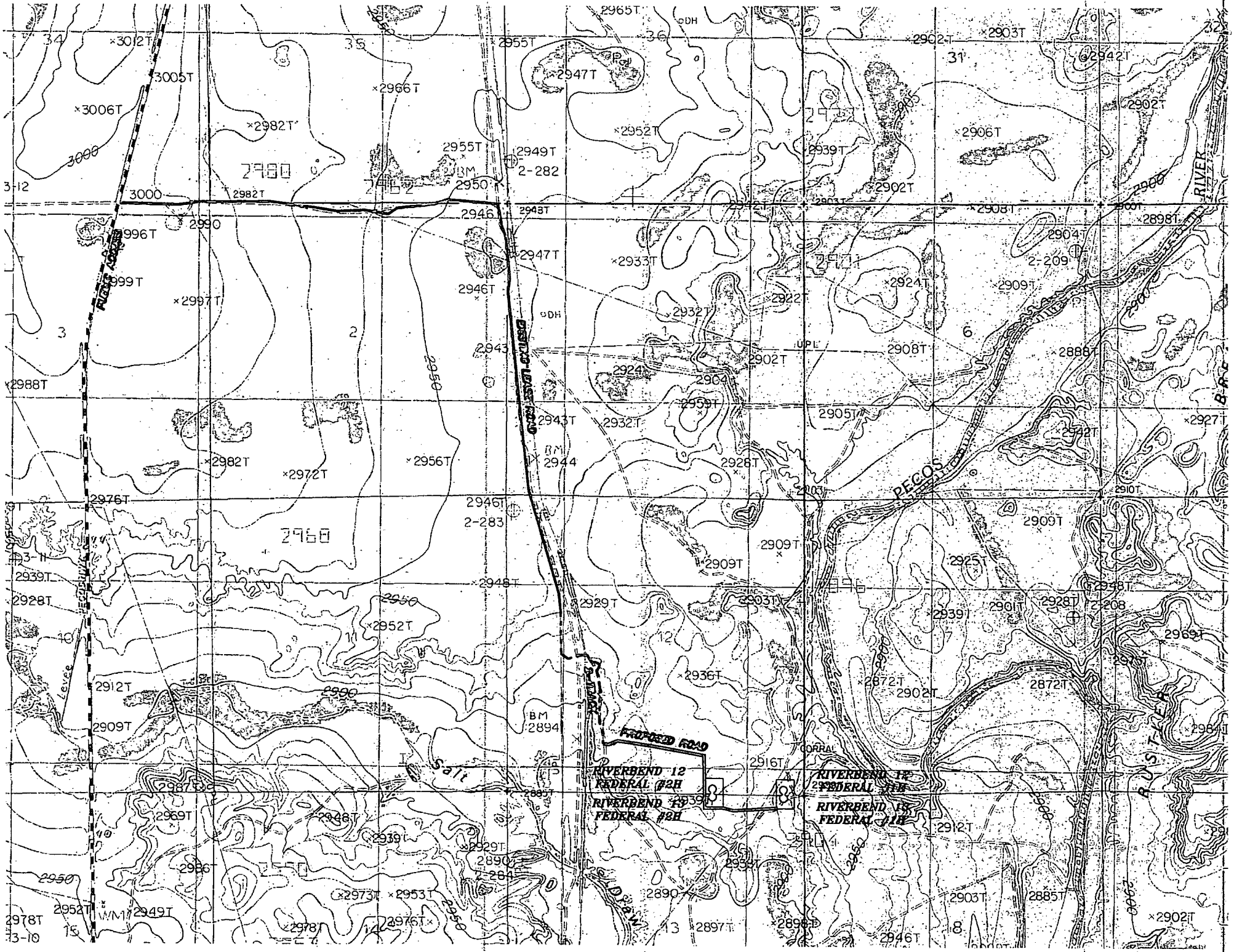
REF: RIVERBEND 13 FEDERAL #2H / WELL PAD TOPO

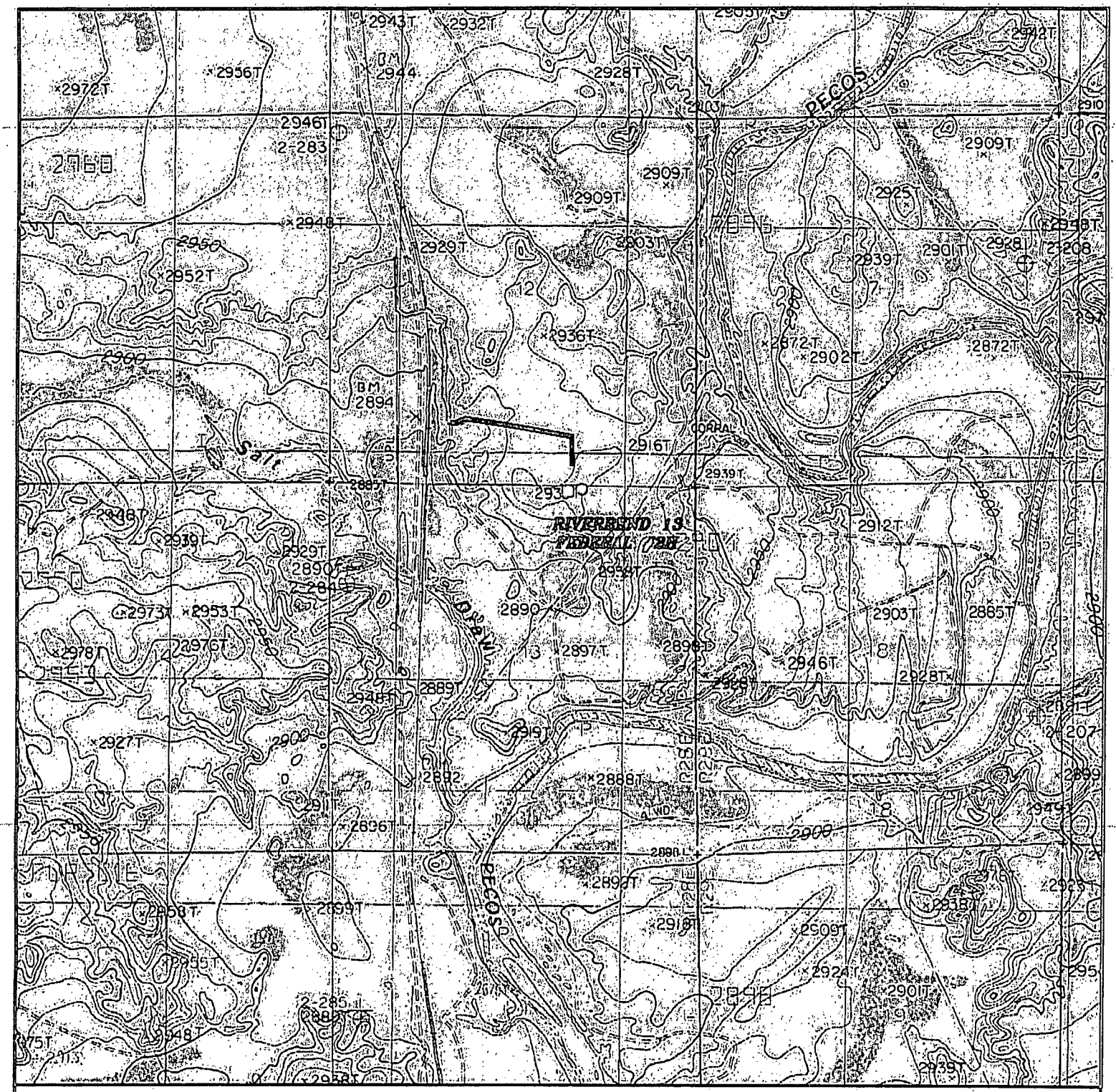
THE RIVERBEND 13 FEDERAL #2H LOCATED 75' FROM THE NORTH LINE AND 1,650' FROM THE EAST LINE OF SECTION 13, TOWNSHIP 25 SOUTH, RANGE 28 EAST, N.M.P.M., LEA COUNTY, NEW MEXICO.

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

W.O. Number: 27182	Drawn By: J. SMALL		
Date: 09-17-2012	Disk: JMS 27182	Survey Date: 09-12-212	Sheet 1 of 1 Sheets

Exhibit C-1


PROPOSED ROAD
RIVERBEND 12 FEDERAL #2H
RIVERBEND 12 FEDERAL #3H
RIVERBEND 13 FEDERAL #2H
RIVERBEND 13 FEDERAL #3H
PECOS LEASE ROAD
PECOS RIVER
Salt Cedar
Levee
CORRAL
BM 2950
BM 2944
BM 2894
2980
2960
2950
2940
2930
2920
2910
2900
2890



RIVERBEND 13 FEDERAL #2H
Located 75' FNL and 1650' FEL
Section 13, Township 25 South, Range 28 East, N.M.P.M., Eddy County, New Mexico.

□ Battery

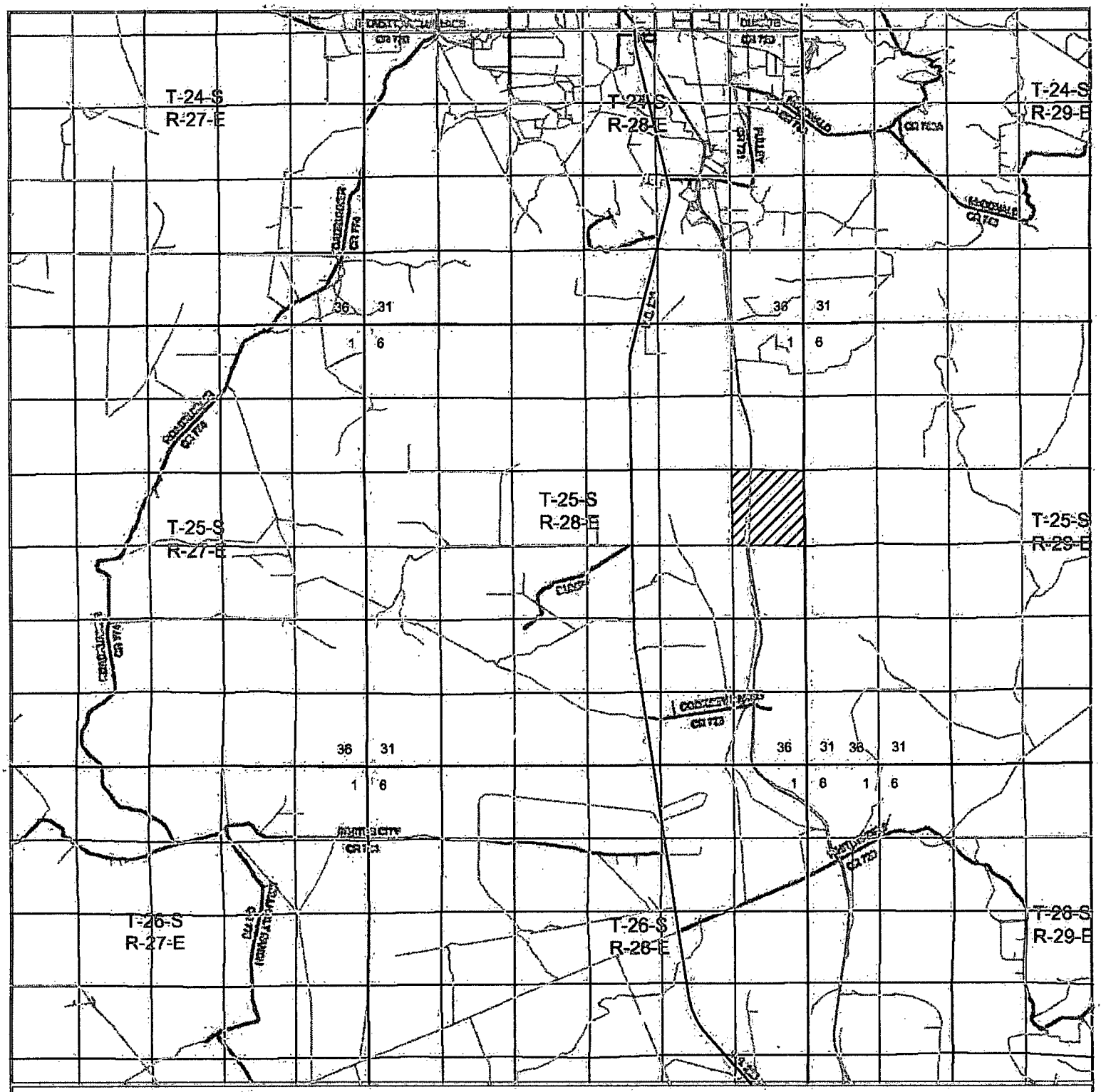
Basin Surveys
focused on excellence in the oilfield

P.O. Box 1786
1120 N. West County Rd.
Hobbs, New Mexico 88241
(575) 393-7316 – Office
(575) 392-2208 – Fax
basinsurveys.com

W.O. Number:	JMS 27182
Survey Date:	09-12-2012
Scale:	1" = 2000'
Date:	09-17-2012

CIMAREX ENERGY CO.

Exhibit C



RIVERBEND 13 FEDERAL #2H
Located 75' FNL and 1650' FEL
Section 13, Township 25 South, Range 28 East,
N.M.P.M., Eddy County, New Mexico.

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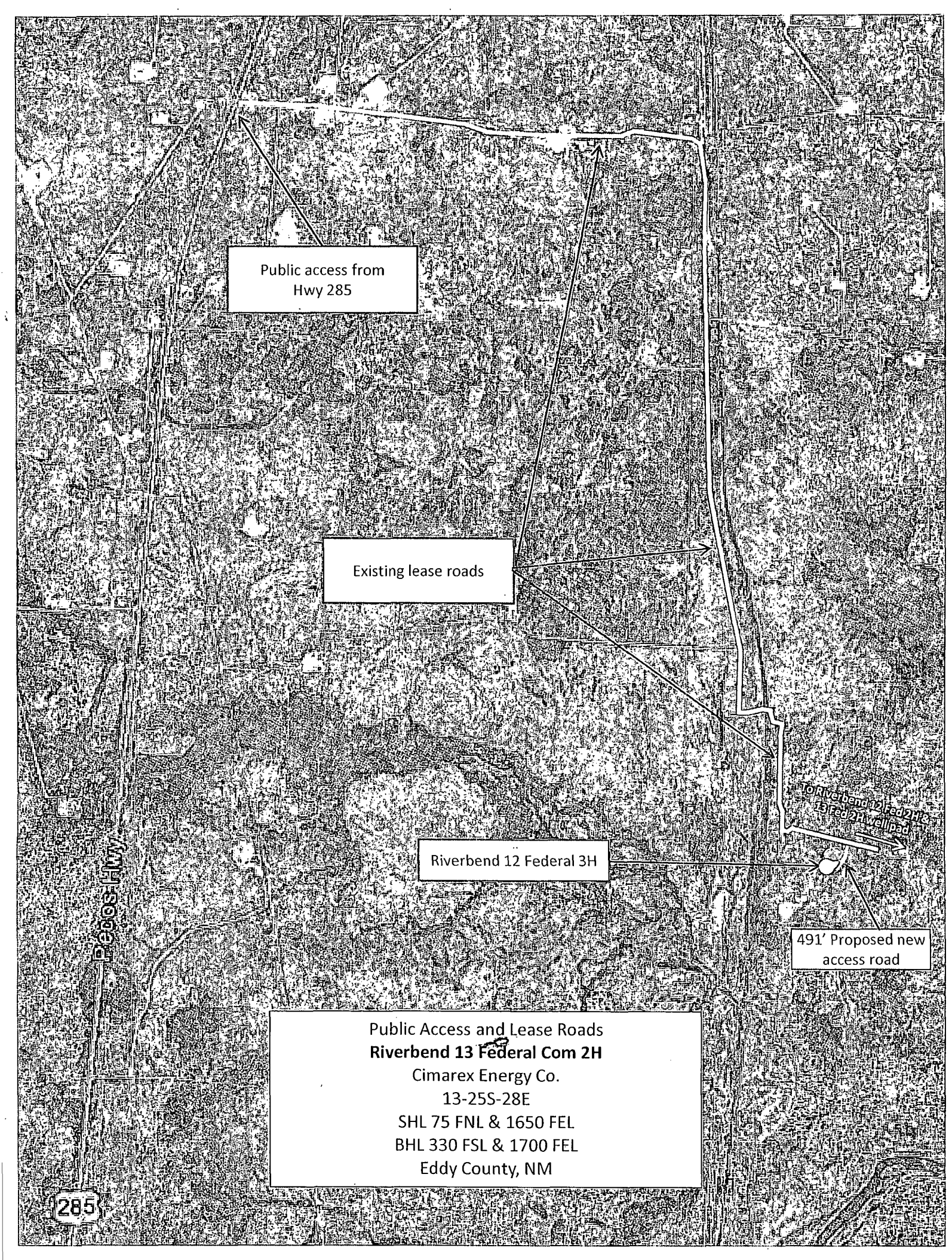
1120 N. West County Rd.
Hobbs, New Mexico 88241
(575) 393-7316 - Office
(575) 392-2206 - Fax
basinsurveys.com

W.O. Number:	JMS 27182
Survey Date:	09-12-2012
Scale:	1" = 2 Miles
Date:	09-17-2012

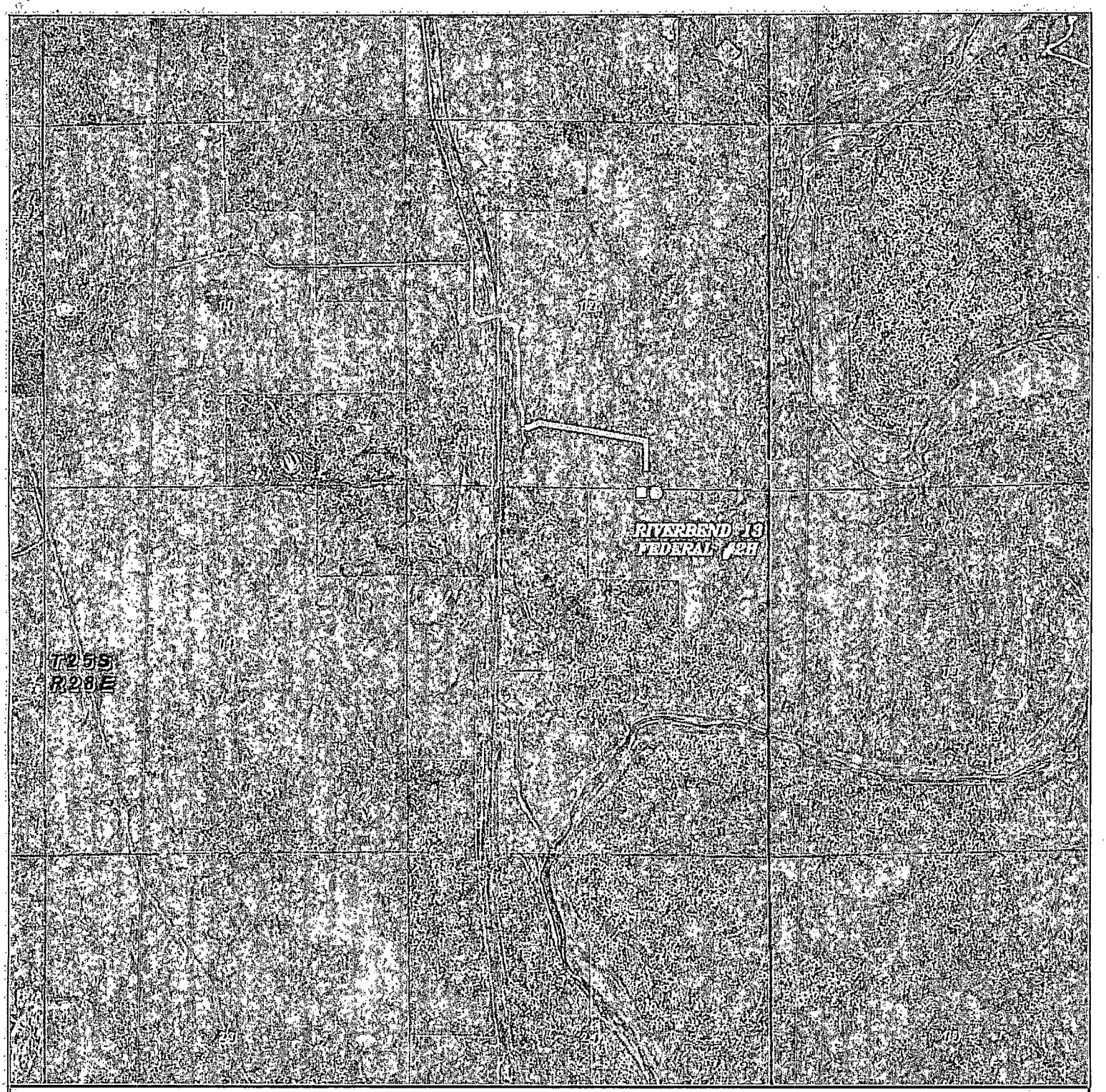
N

CIMAREX ENERGY CO.

Exhibit B



Public Access and Lease Roads
Riverbend 13 Federal Com 2H
Cimarex Energy Co.
13-25S-28E
SHL 75 FNL & 1650 FEL
BHL 330 FSL & 1700 FEL
Eddy County, NM



RIVERBEND 13 FEDERAL #2H
Located 75' FNL and 1650' FEL
Section 13, Township 25 South, Range 28 East,
N.M.P.M., Eddy County, New Mexico.

☐ Battery

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Hobbs, New Mexico 88241
(575) 393-7316 - Office
(575) 392-2206 - Fax
basinsurveys.com

W.O. Number: JMS 27182

Scale: 1" = 2000'

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

CIMAREX ENERGY CO.

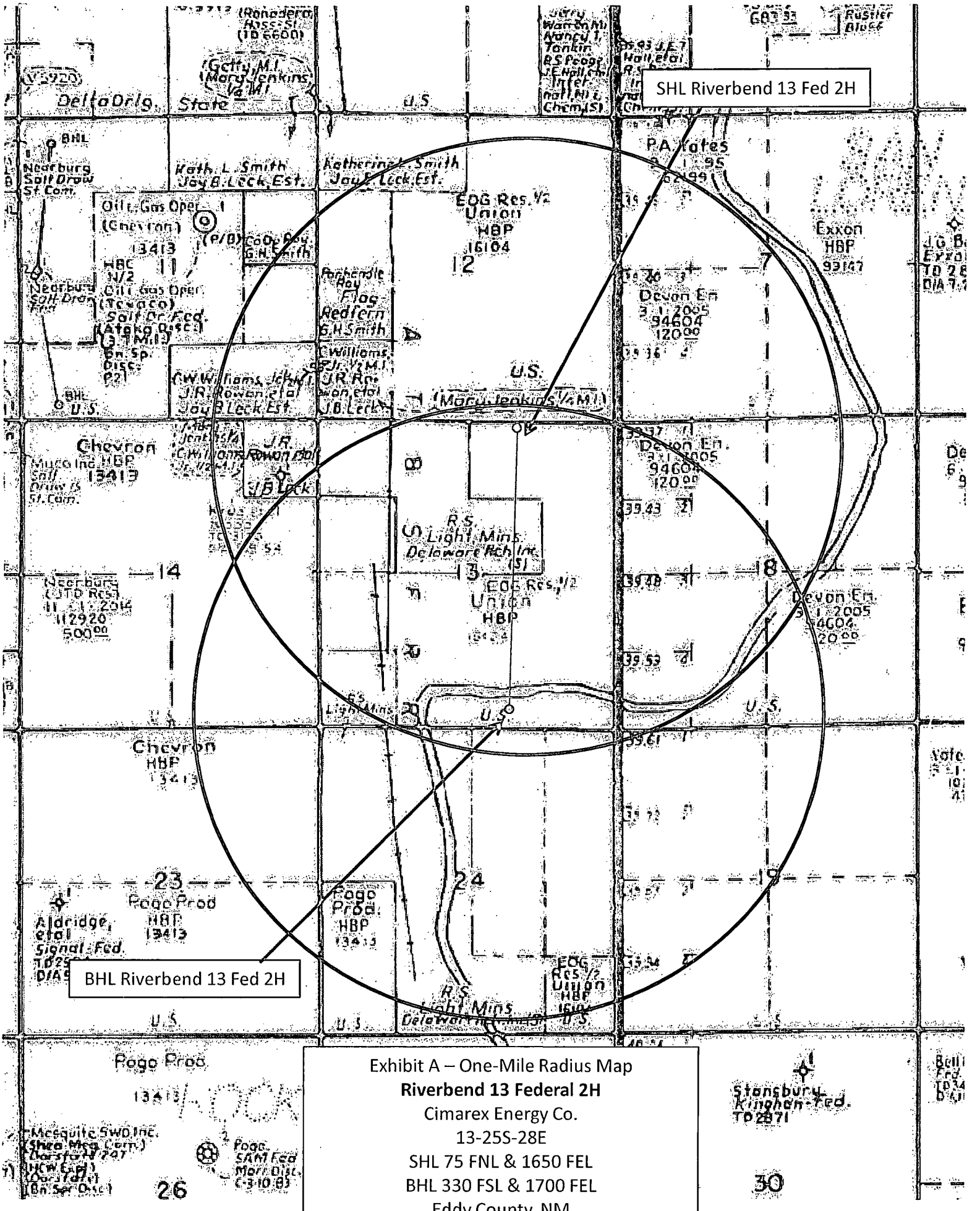


Exhibit A – One-Mile Radius Map
Riverbend 13 Federal 2H
Cimarex Energy Co.
13-25S-28E
SHL 75 FNL & 1650 FEL
BHL 330 FSL & 1700 FEL
Eddy County, NM

Application to Drill
Riverbend 13 Federal Com 2H
Cimarex Energy Co.
UL: B, Sec 13-25S-28E
Eddy County, NM

n response to questions asked under Section II B of Bulletin NTL-6, the following information is provided for your consideration:

1 Location: SHL 75' FNL & 1650' FEL
BHL 330' FSL & 1700' FEL

2 Elevation above sea level: 2931' 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: 13,010' MD 8,371' TVD 9,900' Pilot Hole

6 Estimated tops of geological markers:

Formation	Est. Top	Bearing
Rustler	749	NA
Top of Salt	1069	NA
Base of Salt	2523	NA
Delaware	2714	Hydrocarbons
Cherry Canyon	3682	NA
Brushy Canyon	5247	NA
Brushy Canyon Lower	6207	NA
Bone Spring	6420	NA
Bone Spring A Shale	6573	Hydrocarbons
Bone Spring C Shale	7069	NA
1st Bone Spring Ss	7385	NA
2nd Bone Spring Ss	8176	Hydrocarbons
2nd Bone Spring Lower	8784	NA
3rd Bone Spring Ss	9256	NA
Wolfcamp	9631	NA
TD (Pilot Hole)	9900	NA

7 Possible mineral bearing formation:
Shown above

7A OSE Ground Water estimated depth: 45'

8 Casing Program: See COA

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	SI Surface Pressure & BHP (psig)	Mud Weight (ppg)	Collapse SF (1.125)	Burst SF (1.125)	Cumulative Air Weight (lbs)	Tension SF (1.6)
Surface														
0'	~~775'~~ 450'	~~775'~~	17 1/2	13 3/8	48	H-40	ST&C	New	349	8.4	2.19	5.0	37200	8.7
Intermediate														
0'	~~2694'~~ 2700'	~~2694'~~	12 1/4	9 5/8	36	J-55	LT&C	New	1212	9	1.60	2.9	96984	5.8
Production														
0'	7840'	7840'	8 3/4	5 1/2	17	P-110	LT&C	New	2613.38	8.4	2.18	4.1	142307	3.1
7840'	13010'	8371'	8 3/4	5 1/2	17	P-110	BT&C	New	4455	8.4	2.05	2.4	9027	60.5

Casing Design Criteria and Casing Loading Assumptions:

Surface, Intermediate and Production Casing:

Tension: A 1.6 design factor without effects of buoyancy.
Collapse: A 1.125 design factor with full internal evacuation.
Burst: A 1.125 design with a surface pressure equal to the fracture gradient at setting depth less gas gradient to surface.

Drilling Plan
Riverbend 13 Federal Com 2H
Cimarex Energy Co.
UL: B, Sec 13-25S-28E
Eddy County, NM

9 Cementing Program:

Surface	Sacks	Yield (cuft/sx)	Weight (ppg)	Cubic Feet	Cement Blend
Lead	380	1.75	13.5	660	Class C + Bentonite + Calcium Chloride + LCM
Tail	200	1.34	14.8	261	Class C + LCM

TOC: 0' 71% Excess Centralizers per Onshore Order 2.III.B.1f

Intermediate	Sacks	Yield (cuft/sx)	Weight (ppg)	Cubic Feet	Cement Blend
Lead	580	1.88	12.9	1073	35:65 (poz/C) + Salt + Bentonite + LCM + retarder
Tail	180	1.34	14.8	233	Class C + retarder + LCM

TOC: 0' 77% Excess

Production	Sacks	Yield (cuft/sx)	Weight (ppg)	Cubic Feet	Cement Blend
Lead	659	2.4	11.9	1581	35:65 (poz/H) + salt + Sodium Metasilcate + Bentonite + Fluid Loss + Dispersant + LCM + Retarder
Tail	1454	1.24	14.5	1803	50:50 (poz/H) + Bentonite + Salt + Fluid Loss + Dispersant + LCM + Retarder

Cement volumes will be adjusted depending on hole size.

TOC: ~~2194'~~ 25% Excess Centralizers every 3rd joint through the curve or legal location hardline to provide adequate cement coverage every 100' unless hole conditions require greater spacing between centralizers.

See COA

See COA

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

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.

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

Application to Drill
Riverbend 13 Federal Com 2H
Cimarex Energy Co.
UL: B, Sec 13-25S-28E
Eddy County, NM

SKI COA

11 Proposed Mud Circulating System:

Depth	Mud Wt	Visc	Fluid Loss	Type Mud
0' 450' to 775' 2700'	8.4	28	NC	FW Spud Mud
775' 2700' to 2694'	9	30-32	NC	Brine water
2694' to 13010'	8.4	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 Proposed Drilling Plan
Pilot Hole TD: 9,900' KOP: 7,840' EOC: 8589'
Set OH mechanical whipstock w/ 2010 ft of 2.875 tubing and pump 30 bbls of Mudpush @ 12 ppg, followed by 920 sks Type H cement, dispersant 0.080 gals/sk, retarder 0.045 gals/sk @ 17.5 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 & cement.

13 Testing, Logging and Coring Program:
A. Mud logging program: 2 man unit from 2694' 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

14 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.

4455 As per operator

Estimated BHP 3767 psi Estimated BHT 150°

15 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.

16 Other Facets of Operations:
After running casing, cased hole gamma ray neutron collar logs will be run from TD over possible pay intervals.
Bone Spring pay will be perforated and stimulated.
The proposed well will be tested and potentialed as **Oil**

RECEIVED

Cimarex Riverbend 13 Federal #2H ST01 Rev0 RJS 11-Feb-13 Proposal Report

(Non-Def Plan)

Report Date:	February 11, 2013 - 04:25 PM	**Survey / DLS Computation:**	Minimum Curvature / Lubinski
Client:	Cimarex	**Vertical Section Azimuth:**	180.390 ° (Grid North)
Field:	NM Eddy County (NAD 83)	**Vertical Section Origin:**	0.000 ft, 0.000 ft
Structure / Slot:	TBD / Cimarex Riverbend 13 Federal #2H	**TVD Reference Datum:**	Ground Level
Well:	Cimarex Riverbend 13 Federal #2H	**TVD Reference Elevation:**	2931.000 ft above
Borehole:	ST01	**Seabed / Ground Elevation:**	2931.000 ft above
UWI / API#:	Unknown / Unknown	**Magnetic Declination:**	7.694 °
Survey Name:	Cimarex Riverbend 13 Federal #2H ST01 Rev0 RJS 11-Feb-13	**Total Gravity Field Strength:**	998.5254mgn (9.80665 Based)
Survey Date:	February 11, 2013	**Total Magnetic Field Strength:**	48324.734 nT
Tort / AHD / DDI / ERD Ratio:	91.400 ° / 4897.121 ft / 5.842 / 0.585	**Magnetic Dip Angle:**	59.938 °
Coordinate Reference System:	NAD83 New Mexico State Plane, Eastern Zone, US Feet	**Declination Date:**	February 11, 2013
Location Lat / Long:	N 32° 8' 13.59758", W 104° 2' 15.51350"	**Magnetic Declination Model:**	BGGM 2012
Location Grid N/E Y/X:	N 413742.100 ftUS, E 632861.600 ftUS	**North Reference:**	Grid North
CRS Grid Convergence Angle:	0.1573 °	**Grid Convergence Used:**	0.1573 °
Grid Scale Factor:	0.99991868	**Total Corr Mag North->Grid North:**	7.5365 °
		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 Riverbend 13 Fed #2H	0.00	0.00	0.00	0.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	N/A
	100.00	0.00	180.39	100.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	200.00	0.00	180.39	200.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	300.00	0.00	180.39	300.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	400.00	0.00	180.39	400.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	500.00	0.00	180.39	500.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	600.00	0.00	180.39	600.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	700.00	0.00	180.39	700.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	800.00	0.00	180.39	800.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	900.00	0.00	180.39	900.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	1000.00	0.00	180.39	1000.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	1100.00	0.00	180.39	1100.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	1200.00	0.00	180.39	1200.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	1300.00	0.00	180.39	1300.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	1400.00	0.00	180.39	1400.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	1500.00	0.00	180.39	1500.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	1600.00	0.00	180.39	1600.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	1700.00	0.00	180.39	1700.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	1800.00	0.00	180.39	1800.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	1900.00	0.00	180.39	1900.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	2000.00	0.00	180.39	2000.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	2100.00	0.00	180.39	2100.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	2200.00	0.00	180.39	2200.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	2300.00	0.00	180.39	2300.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	2400.00	0.00	180.39	2400.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	2500.00	0.00	180.39	2500.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	2600.00	0.00	180.39	2600.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	2700.00	0.00	180.39	2700.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	2800.00	0.00	180.39	2800.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	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	180.39	2900.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	3000.00	0.00	180.39	3000.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	3100.00	0.00	180.39	3100.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	3200.00	0.00	180.39	3200.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	3300.00	0.00	180.39	3300.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	3400.00	0.00	180.39	3400.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	3500.00	0.00	180.39	3500.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	3600.00	0.00	180.39	3600.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	3700.00	0.00	180.39	3700.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	3800.00	0.00	180.39	3800.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	3900.00	0.00	180.39	3900.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	4000.00	0.00	180.39	4000.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	4100.00	0.00	180.39	4100.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	4200.00	0.00	180.39	4200.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	4300.00	0.00	180.39	4300.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	4400.00	0.00	180.39	4400.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	4500.00	0.00	180.39	4500.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	4600.00	0.00	180.39	4600.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	4700.00	0.00	180.39	4700.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	4800.00	0.00	180.39	4800.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	4900.00	0.00	180.39	4900.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	5000.00	0.00	180.39	5000.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	5100.00	0.00	180.39	5100.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	5200.00	0.00	180.39	5200.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	5300.00	0.00	180.39	5300.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	5400.00	0.00	180.39	5400.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	5500.00	0.00	180.39	5500.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	5600.00	0.00	180.39	5600.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	5700.00	0.00	180.39	5700.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	5800.00	0.00	180.39	5800.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	5900.00	0.00	180.39	5900.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	6000.00	0.00	180.39	6000.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	6100.00	0.00	180.39	6100.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	6200.00	0.00	180.39	6200.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	6300.00	0.00	180.39	6300.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	6400.00	0.00	180.39	6400.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	6500.00	0.00	180.39	6500.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	6600.00	0.00	180.39	6600.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	6700.00	0.00	180.39	6700.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	6800.00	0.00	180.39	6800.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	6900.00	0.00	180.39	6900.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	7000.00	0.00	180.39	7000.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	7100.00	0.00	180.39	7100.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	7200.00	0.00	180.39	7200.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	7300.00	0.00	180.39	7300.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	7400.00	0.00	180.39	7400.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	7500.00	0.00	180.39	7500.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	7600.00	0.00	180.39	7600.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	7700.00	0.00	180.39	7700.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
Tie-In ST01	7800.00	0.00	180.39	7800.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
KOP - Build @ 12°/100' DLS	7840.00	0.00	180.39	7840.00	0.00	0.00	0.00	413742.10	632861.60	N 32 8 13.60	W 104 2 15.51	0.00	0.00	0.00
	7900.00	7.21	180.39	7899.84	3.77	-3.77	-0.03	413738.33	632861.57	N 32 8 13.56	W 104 2 15.51	3.77	180.39	12.01
	8000.00	19.22	180.39	7997.02	26.58	-26.58	-0.18	413715.52	632861.42	N 32 8 13.33	W 104 2 15.52	26.58	180.39	12.01
	8100.00	31.23	180.39	8087.32	69.12	-69.12	-0.47	413672.98	632861.13	N 32 8 12.91	W 104 2 15.52	69.12	180.39	12.01

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)
	8200.00	43.24	180.39	8166.78	129.52	-129.52	-0.88	413612.59	632860.72	N 32 8 12.32	W 104 2 15.53	129.52	180.39	12.01
	8300.00	55.25	180.39	8231.94	205.14	-205.13	-1.40	413536.98	632860.20	N 32 8 11.57	W 104 2 15.54	205.14	180.39	12.01
	8400.00	67.27	180.39	8279.94	292.66	-292.65	-1.99	413449.47	632859.61	N 32 8 10.70	W 104 2 15.55	292.66	180.39	12.01
	8500.00	79.28	180.39	8308.67	388.25	-388.24	-2.64	413353.89	632858.96	N 32 8 9.76	W 104 2 15.56	388.25	180.39	12.01
Landing Point	8589.27	90.00	180.39	8317.00	477.00	-476.99	-3.25	413265.15	632858.35	N 32 8 8.88	W 104 2 15.57	477.00	180.39	12.01
	8600.00	90.00	180.39	8317.00	487.73	-487.72	-3.32	413254.42	632858.28	N 32 8 8.77	W 104 2 15.57	487.73	180.39	0.03
	8700.00	89.96	180.39	8317.03	587.73	-587.72	-4.00	413154.43	632857.60	N 32 8 7.78	W 104 2 15.58	587.73	180.39	0.03
	8800.00	89.93	180.39	8317.12	687.73	-687.71	-4.68	413054.44	632856.92	N 32 8 6.79	W 104 2 15.59	687.73	180.39	0.03
	8900.00	89.90	180.39	8317.27	787.73	-787.71	-5.36	412954.45	632856.24	N 32 8 5.80	W 104 2 15.60	787.73	180.39	0.03
	9000.00	89.87	180.39	8317.47	887.73	-887.71	-6.04	412854.46	632855.56	N 32 8 4.81	W 104 2 15.61	887.73	180.39	0.03
	9100.00	89.84	180.39	8317.72	987.73	-987.71	-6.72	412754.48	632854.88	N 32 8 3.82	W 104 2 15.62	987.73	180.39	0.03
	9200.00	89.81	180.39	8318.03	1087.73	-1087.70	-7.40	412654.49	632854.20	N 32 8 2.83	W 104 2 15.63	1087.73	180.39	0.03
	9300.00	89.77	180.39	8318.40	1187.73	-1187.70	-8.08	412554.50	632853.52	N 32 8 1.85	W 104 2 15.65	1187.73	180.39	0.03
	9400.00	89.74	180.39	8318.82	1287.73	-1287.70	-8.76	412454.51	632852.84	N 32 8 0.86	W 104 2 15.66	1287.73	180.39	0.03
	9500.00	89.71	180.39	8319.29	1387.73	-1387.69	-9.44	412354.52	632852.16	N 32 7 59.87	W 104 2 15.67	1387.73	180.39	0.03
	9600.00	89.68	180.39	8319.82	1487.72	-1487.69	-10.12	412254.53	632851.48	N 32 7 58.88	W 104 2 15.68	1487.72	180.39	0.03
	9700.00	89.65	180.39	8320.41	1587.72	-1587.69	-10.81	412154.55	632850.80	N 32 7 57.89	W 104 2 15.69	1587.72	180.39	0.03
	9800.00	89.62	180.39	8321.05	1687.72	-1687.68	-11.49	412054.56	632850.12	N 32 7 56.90	W 104 2 15.70	1687.72	180.39	0.03
	9900.00	89.58	180.39	8321.75	1787.72	-1787.68	-12.17	411954.57	632849.44	N 32 7 55.91	W 104 2 15.71	1787.72	180.39	0.03
	10000.00	89.55	180.39	8322.50	1887.72	-1887.67	-12.85	411854.59	632848.76	N 32 7 54.92	W 104 2 15.72	1887.72	180.39	0.03
	10100.00	89.52	180.39	8323.31	1987.71	-1987.67	-13.53	411754.60	632848.07	N 32 7 53.93	W 104 2 15.73	1987.71	180.39	0.03
	10200.00	89.49	180.39	8324.17	2087.71	-2087.66	-14.21	411654.61	632847.39	N 32 7 52.94	W 104 2 15.75	2087.71	180.39	0.03
	10300.00	89.46	180.39	8325.09	2187.70	-2187.65	-14.89	411554.63	632846.71	N 32 7 51.95	W 104 2 15.76	2187.70	180.39	0.03
	10400.00	89.43	180.39	8326.06	2287.70	-2287.65	-15.57	411454.64	632846.03	N 32 7 50.96	W 104 2 15.77	2287.70	180.39	0.03
	10500.00	89.39	180.39	8327.09	2387.69	-2387.64	-16.25	411354.66	632845.35	N 32 7 49.97	W 104 2 15.78	2387.69	180.39	0.03
	10600.00	89.36	180.39	8328.17	2487.69	-2487.63	-16.93	411254.68	632844.67	N 32 7 48.98	W 104 2 15.79	2487.69	180.39	0.03
	10700.00	89.33	180.39	8329.31	2587.68	-2587.62	-17.61	411154.69	632843.99	N 32 7 47.99	W 104 2 15.80	2587.68	180.39	0.03
	10800.00	89.30	180.39	8330.51	2687.68	-2687.61	-18.29	411054.71	632843.31	N 32 7 47.00	W 104 2 15.81	2687.68	180.39	0.03
	10900.00	89.27	180.39	8331.76	2787.67	-2787.60	-18.97	410954.73	632842.64	N 32 7 46.01	W 104 2 15.82	2787.67	180.39	0.03
	11000.00	89.24	180.39	8333.06	2887.66	-2887.59	-19.65	410854.75	632841.96	N 32 7 45.02	W 104 2 15.83	2887.66	180.39	0.03
	11100.00	89.20	180.39	8334.42	2987.65	-2987.58	-20.33	410754.77	632841.28	N 32 7 44.04	W 104 2 15.85	2987.65	180.39	0.03
	11200.00	89.17	180.39	8335.84	3087.64	-3087.57	-21.01	410654.79	632840.60	N 32 7 43.05	W 104 2 15.86	3087.64	180.39	0.03
	11300.00	89.14	180.39	8337.31	3187.63	-3187.55	-21.69	410554.81	632839.92	N 32 7 42.06	W 104 2 15.87	3187.63	180.39	0.03
	11400.00	89.11	180.39	8338.83	3287.62	-3287.54	-22.37	410454.83	632839.24	N 32 7 41.07	W 104 2 15.88	3287.62	180.39	0.03
	11500.00	89.08	180.39	8340.41	3387.60	-3387.53	-23.05	410354.86	632838.56	N 32 7 40.08	W 104 2 15.89	3387.60	180.39	0.03
	11600.00	89.05	180.39	8342.05	3487.59	-3487.51	-23.72	410254.88	632837.88	N 32 7 39.09	W 104 2 15.90	3487.59	180.39	0.03
	11700.00	89.01	180.39	8343.74	3587.58	-3587.49	-24.40	410154.91	632837.20	N 32 7 38.10	W 104 2 15.91	3587.58	180.39	0.03
	11800.00	88.98	180.39	8345.49	3687.56	-3687.48	-25.08	410054.93	632836.52	N 32 7 37.11	W 104 2 15.92	3687.56	180.39	0.03
	11900.00	88.95	180.39	8347.29	3787.55	-3787.46	-25.76	409954.96	632835.84	N 32 7 36.12	W 104 2 15.93	3787.55	180.39	0.03
	12000.00	88.92	180.39	8349.15	3887.53	-3887.44	-26.44	409854.99	632835.16	N 32 7 35.13	W 104 2 15.95	3887.53	180.39	0.03
	12100.00	88.89	180.39	8351.06	3987.51	-3987.42	-27.12	409755.01	632834.48	N 32 7 34.14	W 104 2 15.96	3987.51	180.39	0.03
	12200.00	88.86	180.39	8353.03	4087.49	-4087.40	-27.80	409655.04	632833.80	N 32 7 33.15	W 104 2 15.97	4087.49	180.39	0.03
	12300.00	88.82	180.39	8355.05	4187.47	-4187.37	-28.48	409555.08	632833.12	N 32 7 32.16	W 104 2 15.98	4187.47	180.39	0.03
	12400.00	88.79	180.39	8357.13	4287.45	-4287.35	-29.16	409455.11	632832.44	N 32 7 31.17	W 104 2 15.99	4287.45	180.39	0.03
	12500.00	88.76	180.39	8359.26	4387.43	-4387.32	-29.84	409355.14	632831.76	N 32 7 30.18	W 104 2 16.00	4387.43	180.39	0.03
	12600.00	88.73	180.39	8361.45	4487.40	-4487.30	-30.52	409255.18	632831.08	N 32 7 29.20	W 104 2 16.01	4487.40	180.39	0.03
	12700.00	88.70	180.39	8363.70	4587.38	-4587.27	-31.20	409155.21	632830.40	N 32 7 28.21	W 104 2 16.02	4587.38	180.39	0.03
	12800.00	88.67	180.39	8366.00	4687.35	-4687.24	-31.88	409055.25	632829.72	N 32 7 27.22	W 104 2 16.03	4687.35	180.39	0.03
	12900.00	88.63	180.39	8368.35	4787.32	-4787.21	-32.56	408955.29	632829.05	N 32 7 26.23	W 104 2 16.04	4787.32	180.39	0.03
	13000.00	88.60	180.39	8370.76	4887.29	-4887.18	-33.24	408855.33	632828.37	N 32 7 25.24	W 104 2 16.06	4887.29	180.39	0.03
Cimarex Riverbend 13 Federal #2H PBHL	13009.83	88.60	180.39	8371.00	4897.12	-4897.01	-33.30	408845.50	632828.30	N 32 7 25.14	W 104 2 16.06	4897.12	180.39	0.03

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)
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
	0.000	7800.000		1/100.000	30.000	30.000	SLB_MWD-STD	Pilot Borehole / Cimarex Riverbend 13 Federal #2H Pilot
	7800.000	13009.831		1/100.000	30.000	30.000	SLB_MWD-STD	ST01 / Cimarex Riverbend 13 Federal #2H ST01 Rev0 RJS 11-

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

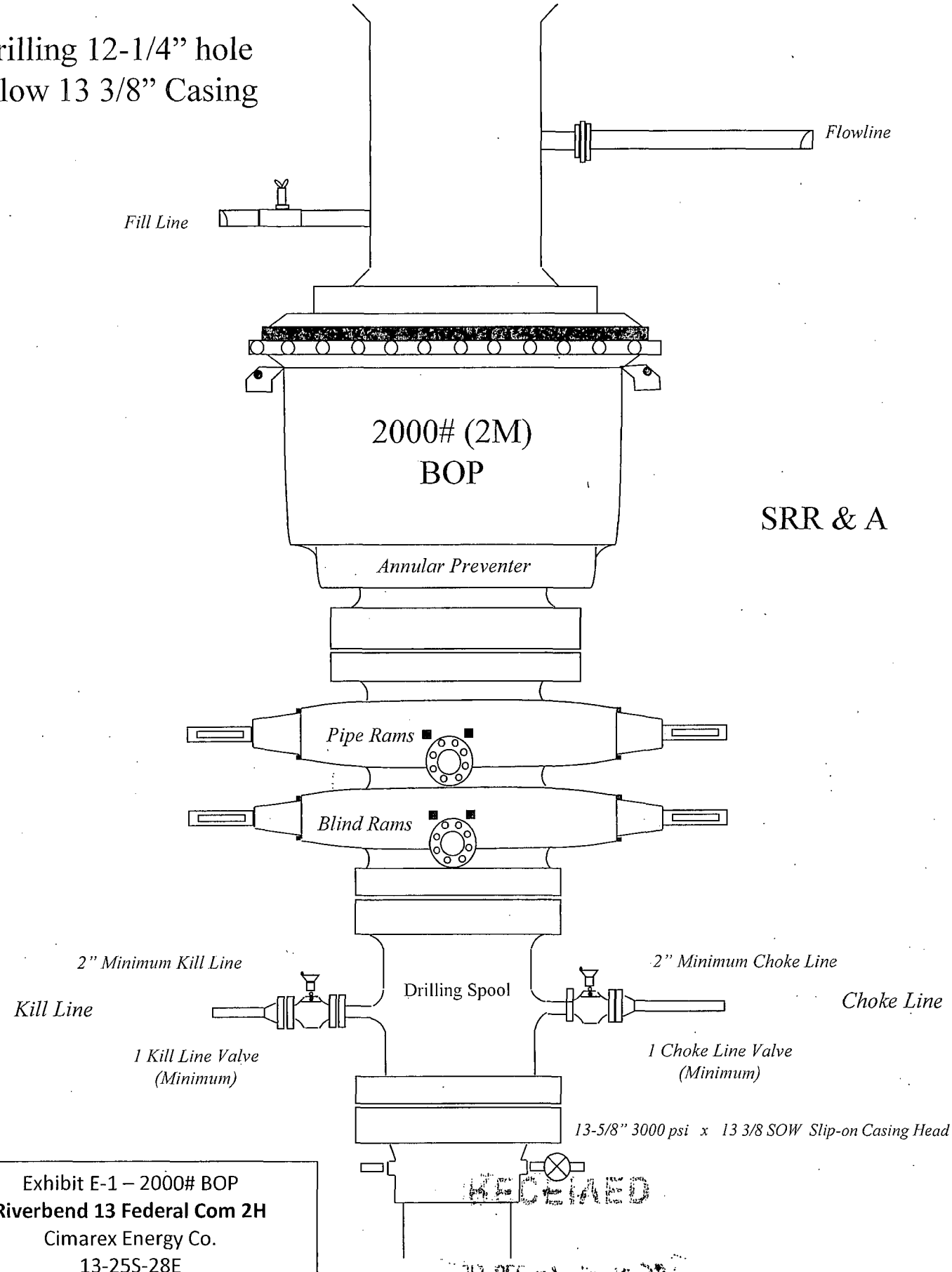
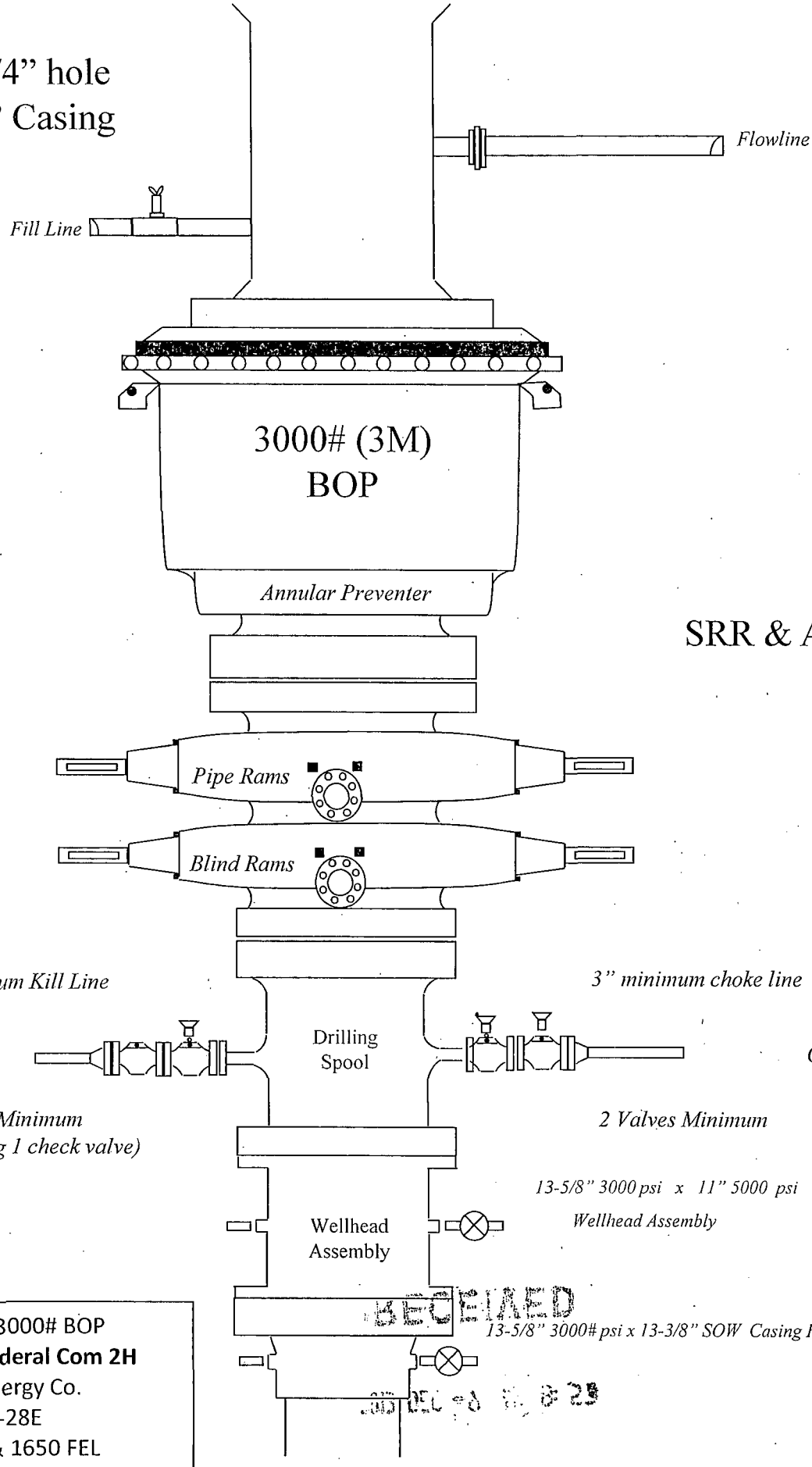


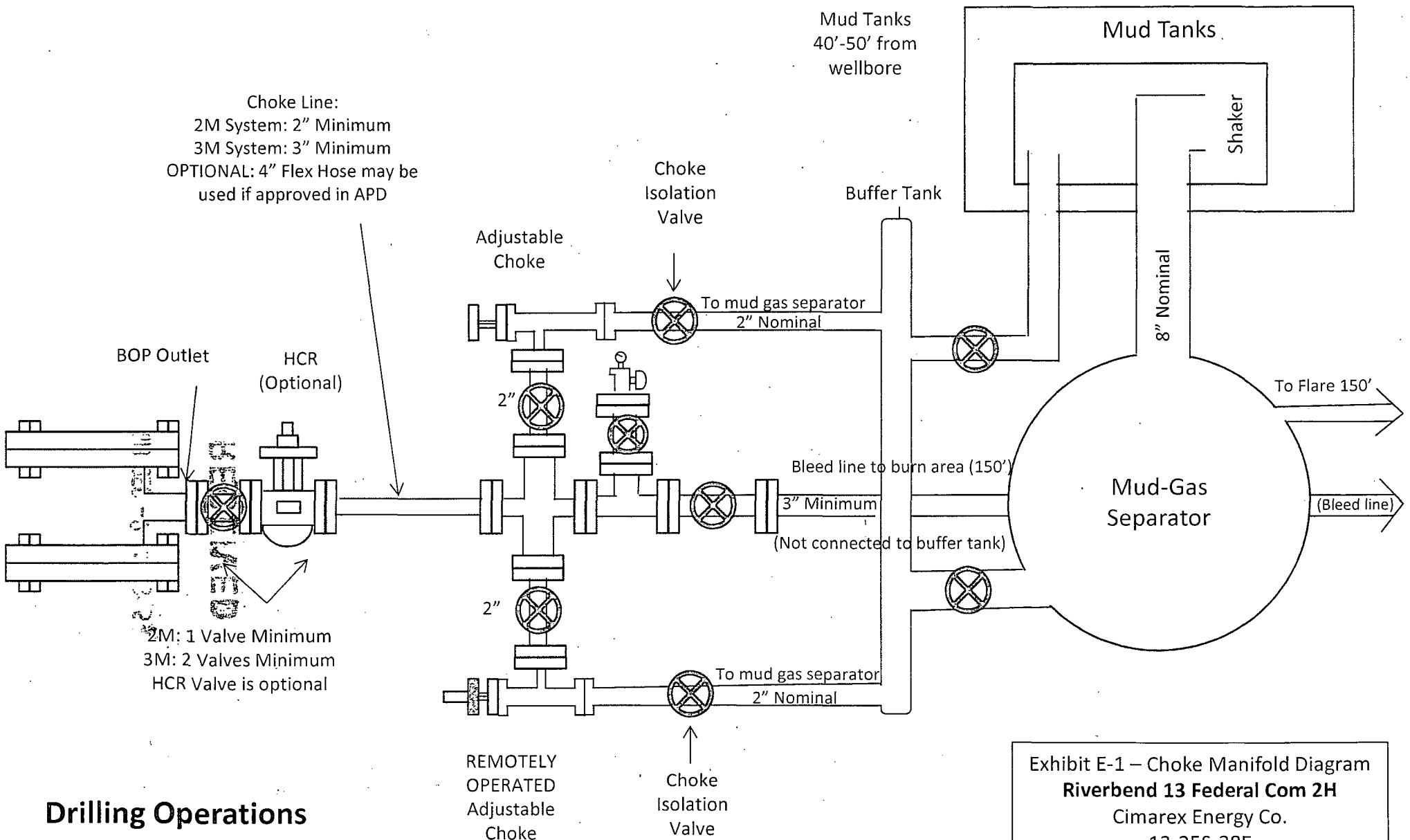
Exhibit E-1 – 2000# BOP
Riverbend 13 Federal Com 2H
Cimarex Energy Co.
13-25S-28E
SHL 75 FNL & 1650 FEL
BHL 330 FSL & 1700 FEL
Eddy County, NM

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



SRR & A

Exhibit E-1 – 3000# BOP
Riverbend 13 Federal Com 2H
Cimarex Energy Co.
13-25S-28E
SHL 75 FNL & 1650 FEL
BHL 330 FSL & 1700 FEL
Eddy County, NM



Drilling Operations
Choke Manifold
2M/3M Service

Exhibit E-1 – Choke Manifold Diagram
Riverbend 13 Federal Com 2H
Cimarex Energy Co.
13-25S-28E
SHL 75 FNL & 1650 FEL
BHL 330 FSL & 1700 FEL
Eddy County, NM

Exhibit F – Co-Flex Hose

Riverbend 13 Federal 2H

Cimarex Energy Co.

13-25S-28E

SHL 75 FNL & 1650 FEL

BHL 330 FSL & 1700 FEL

Eddy County, NM

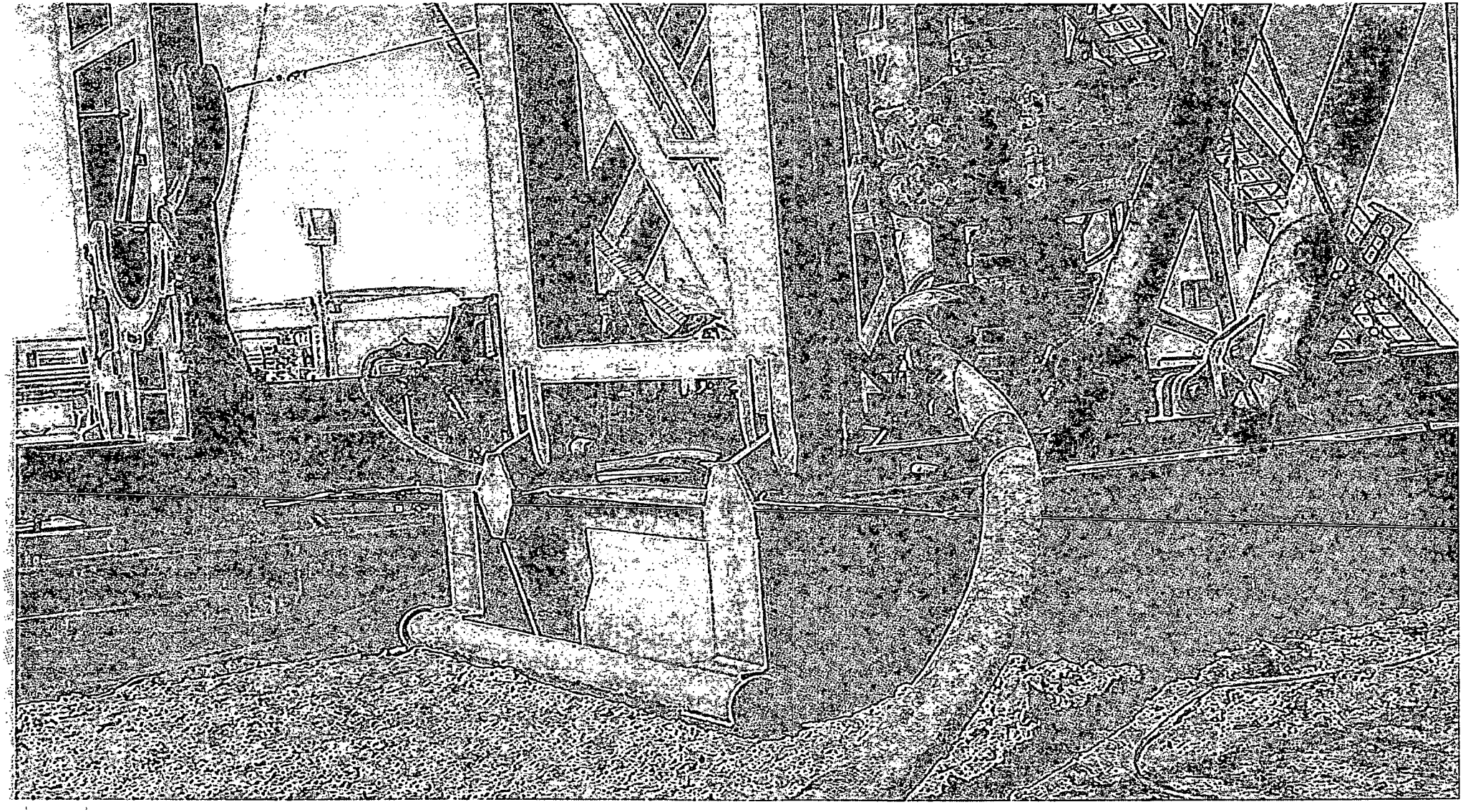


Exhibit F-1 – Co-Flex Hose Hydrostatic Test
Riverbend 13 Federal 2H
Cimarex Energy Co.
13-25S-28E
SHL 75 FNL & 1650 FEL
BHL 330 FSL & 1700 FEL
Eddy County, NM

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	A. Jaime Jaime	

Midwest Hose & Specialty, Inc.

Exhibit F -3– Co-Flex Hose
Riverbend 13 Federal 2H
Cimarex Energy Co.
13-25S-28E
SHL 75 FNL & 1650 FEL
BHL 330 FSL & 1700 FEL
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
Riverbend 13 Federal 2H
Cimarex Energy Co.
13-25S-28E
SHL 75 FNL & 1650 FEL
BHL 330 FSL & 1700 FEL
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-1 – Co-Flex Hose Hydrostatic Test
Riverbend 13 Federal 2H
Cimarex Energy Co.
13-25S-28E
SHL 75 FML & 1650 FEL
BHL 330 FSL & 1700 FEL
Eddy County, NM

Midwest Hose & Specialty, Inc.

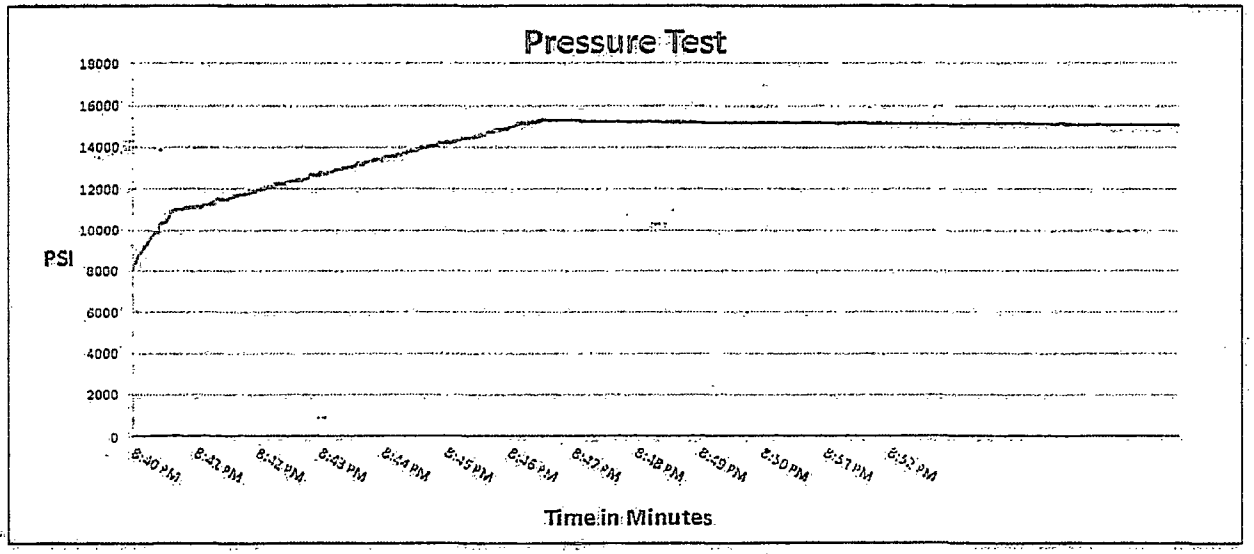
Internal Hydrostatic Test Graph

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: 6.30"	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

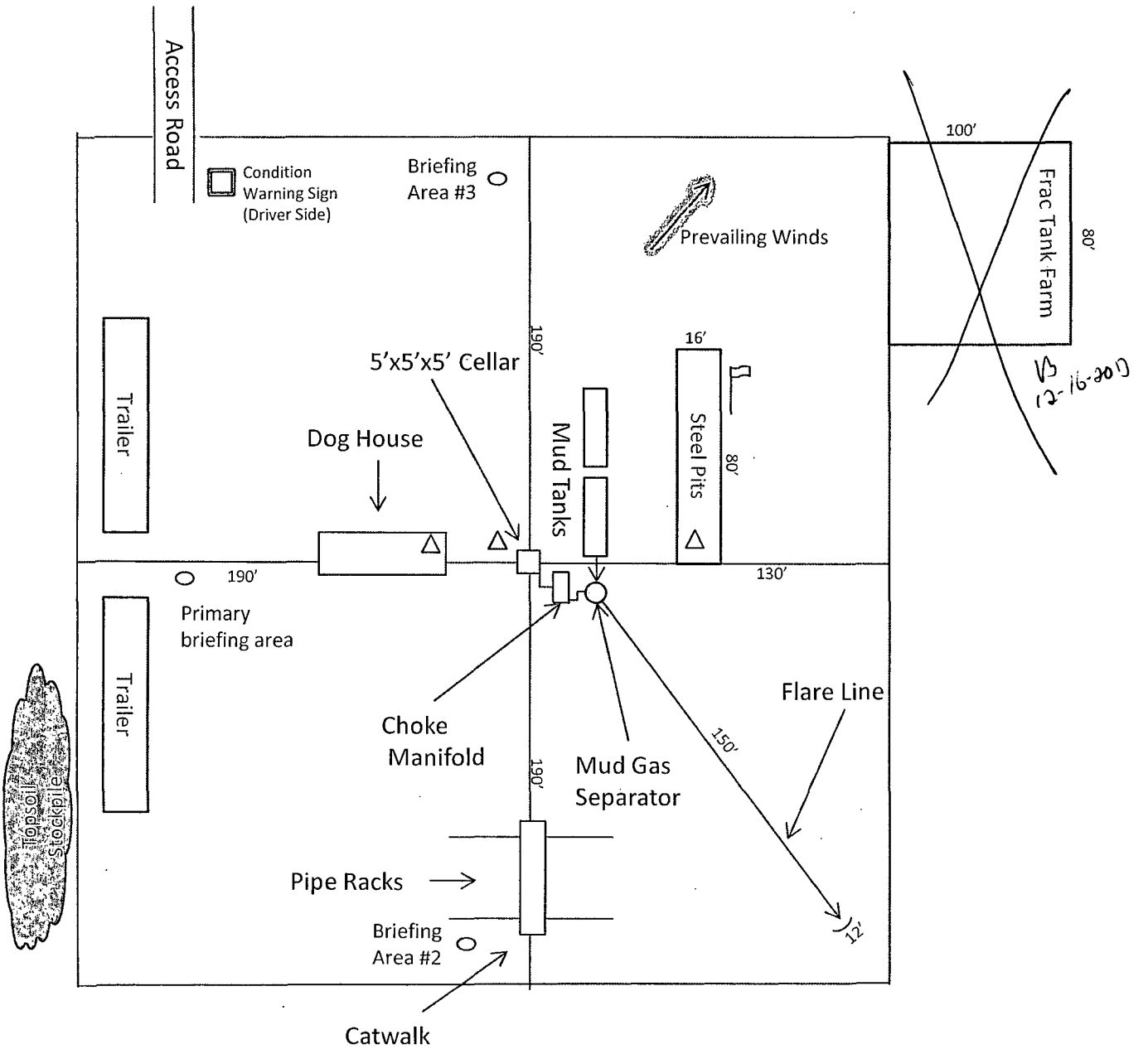
Comments: Hose assembly pressure tested with water at ambient temperature.

Tested By: Zac Mcconnell

x

Approved By: Kim Thomas

x



Wind Direction Indicators (wind sock or streamers)

• H2S Monitors (alarms at bell nipple and shale shaker)

Briefing Areas

Exhibit D – Rig Diagram
Riverbend 13 Federal 2H
Cimarex Energy Co.
13-25S-28E
SHL 75 FNL & 1650 FEL
BHL 330 FSL & 1700 FEL
Eddy County, NM

Hydrogen Sulfide Drilling Operations Plan
Riverbend 13 Federal 2H
Cimarex Energy Co.
UL: B, Sec 13-25S-28E
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 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 or 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.

H_2S Contingency Plan
Riverbend 13 Federal 2H
Cimarex Energy Co.
UL: B, Sec 13-25S-28E
Eddy County, NM

Emergency Procedures

In the event of a release of gas containing H_2S, 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 H_2S 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 H_2S, 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 (SO_2). 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 H_2S and SO_2

Common Name	Chemical Formula	Specific Gravity	Threshold Limit	Hazardous Limit	Lethal Concentration
Hydrogen Sulfide	H_2S	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).

H_2S Contingency Plan Emergency Contacts

Riverbend 13 Federal 2H

Cimarex Energy Co.

UL: B, Sec 13-25S-28E

Eddy County, NM

Company Office			
Cimarex Energy Co. of Colorado		800-969-4789	
Co. Office and After-Hours Menu			

Key Personnel			
Name	**Title**	**Office**	**Mobile**
Larry Seigrist	Drilling Manager	432-620-1934	580-243-8485
Doug McQuitty	Drilling Superintendent	432-620-1933	806-640-2605
Scott Lucas	Drilling Superintendent	432-620-1989	432-894-5572
Conner Cromeens	Construction Foreman		432-270-0313
Roy Shirley	Construction Superintendent		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	

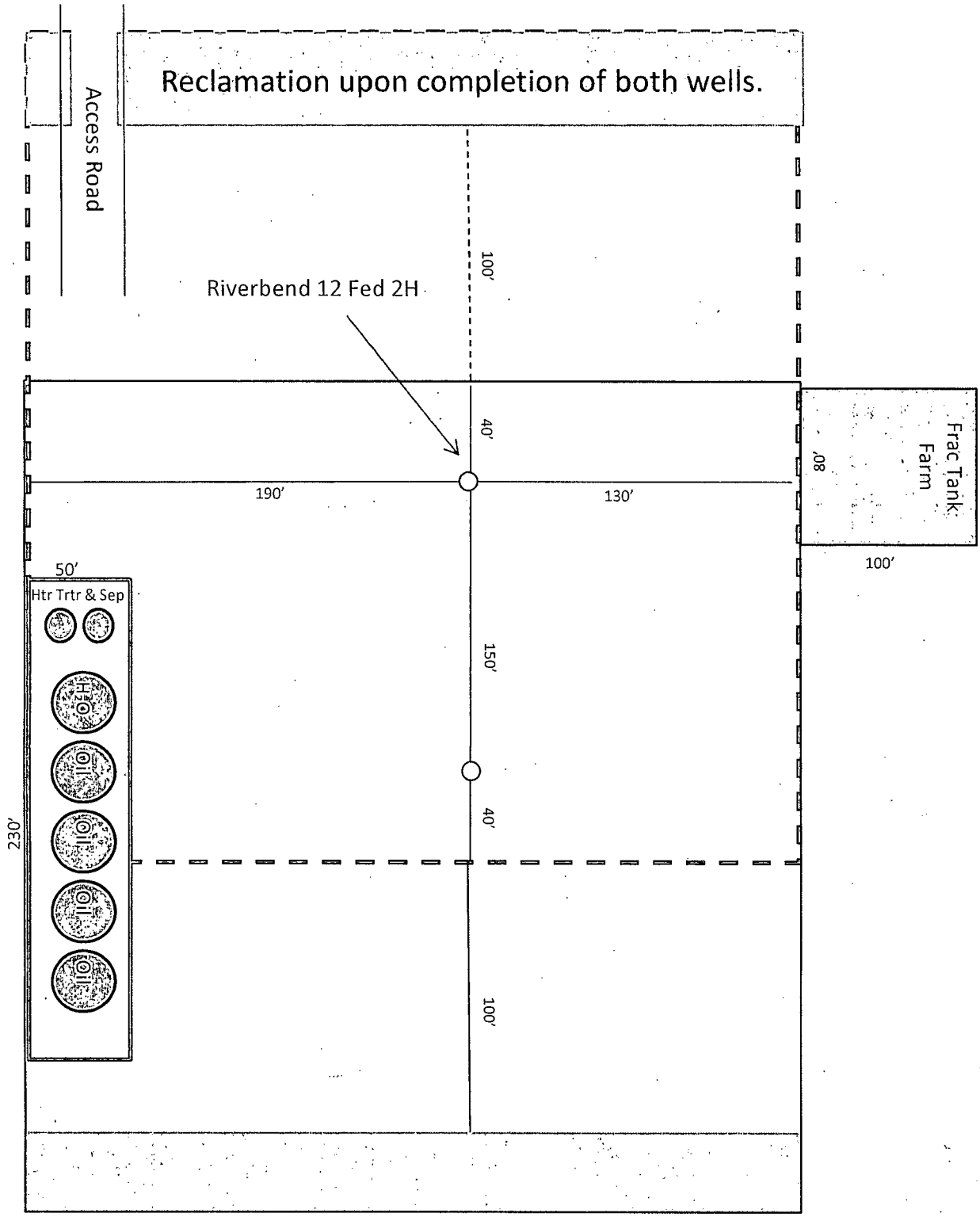
Carlsbad		
Ambulance	911	
State Police	575-885-3137	
City Police	575-885-2111	
Sheriff's Office	575-887-7551	
Fire Department	**575-887-3798**	
Local Emergency Planning Committee	575-887-6544	
US Bureau of Land Management	575-887-6544	

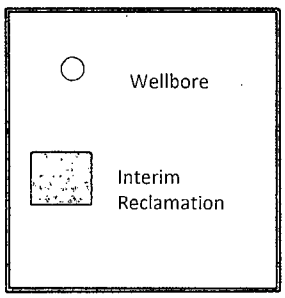
Santa Fe		
New Mexico Emergency Response Commission (Santa Fe)	505-476-9600	
New Mexico Emergency Response Commission (Santa Fe) 24 Hrs	505-827-9126	
New Mexico State Emergency Operations Center	505-476-9635	

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

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		





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RECEIVED

Exhibit D-1
Production Facilities and
Interim Reclamation Diagram
Riverbend 13 Federal Com 2H
Cimarex Energy Co.
13-25S-28E
SHL 75 FNL & 1650 FEL
BHL 330 FSL & 1700 FEL
Eddy County, NM

Surface Use Plan
Riverbend 13 Federal 2H
Cimarex Energy Co.
UL: B, Sec 13-25S-28E
Eddy County, NM

1. **Existing Roads:** Area maps, Exhibit "A" shows the proposed well site as staked. 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 and existing road. Existing road shown on Exhibits "C," C"-1," will be maintained in a condition equal to or better than current conditions.
   A. The maximum width of the driving surface will be 15'. 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.
   B. At mile marker 12 of Hwy 285, go north 0.1 miles to lease road. On lease road go east 1.3 miles turning south 1.5 miles to trail road, go south on trail road for 0.5 miles to proposed location.

2. **Planned Access Roads:** Approximately 1501.7' of new on-lease road will be constructed from the northwest corner of the pad site to the north, then west, following present staked route.

3. **Planned Electric Line:** No E-lines planned. Sundry notice will be submitted once route is determined.

4. 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 Exhibits "A"
   E. Abandoned wells - As shown on Exhibits "A"

5. Location of 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. Any changes to the facility or off site 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 from a BLM-approved pit as near as possible to the well location.

7. **Ancillary Facilities:**
   A. No camps or airstrips to be constructed.

8. **Well Site Layout:**
   A. Exhibit "D" shows location and rig layout.
   B. Mud pits in the closed circulation 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.

9. **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 producer, those areas of the location not essential to porduction facilities and operations will be reclaimed and seeded per BLM requirements. Please see Production Facilities Layout Diagram, exhibit D-1

10 **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. An archaeological survey will be conducted on the location and proposed roads and this report will be filed with the Bureau of Land Management in the Carsbad BLM office.
   D. There are no known dwellings within 1½ miles of this location.

11. **On Site Notes and Information:**
   On August 21, 2012, A BLM onsite meeting was held with Barry Hunt, Cimarex representative, John Fast with the BLM, and Basin Suveys. The permitted location was approved. This well will share a pad with the Riverbend 12 Federal 2H, 150 apart. V-door south. Frac pad on northeast. Top soil west. Interim reclamation: North & south. Battery on the west side. Access road from the northwest corner, north, then west.

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	**Cimarex Energy Co. of Colorado**
LEASE NO.:	**NMNM-16104**
WELL NAME & NO.:	**Riverbend 13 Federal Com 2H**
SURFACE HOLE FOOTAGE:	**0075' FNL & 1650' FEL**
BOTTOM HOLE FOOTAGE	**0330' FSL & 1700' FEL**
LOCATION:	**Section 13, T. 25 S., R 28 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)

Berming requirements

- **The entire well pad will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad. Topsoil shall not be used to construct the berm. No water flow from the uphill side(s) of the pad shall be allowed to enter the well pad. The berm shall be maintained through the life of the well and after interim reclamation has been completed.**
- **Any water erosion that may occur due to the construction of the well pad during the life of the well will be quickly corrected and proper measures will be taken to prevent future erosion.**
- **Stockpiling of topsoil is required. The top soil shall be stockpiled in an appropriate location to prevent loss of soil due to water or wind erosion and not used for berming or erosion control**

Drilling:

Communitization Agreement

A Communitization Agreement covering the acreage dedicated to this well must be filed for approval with the BLM. The effective date of the agreement shall be prior to any sales. In addition, the well sign shall include the surface and bottom hole lease numbers. If the Communitization Agreement number is known, it shall also be on the sign. If not, it shall be placed on the sign when the sign is replaced.

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 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.

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. 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.

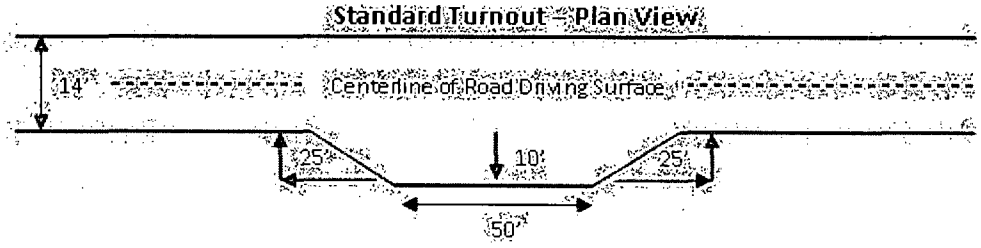
The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing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

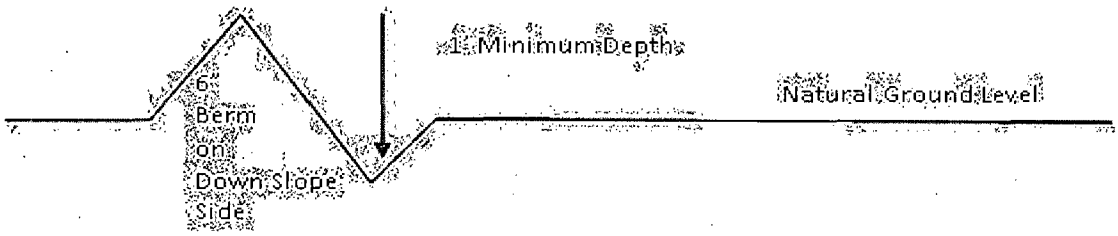
Turnouts
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall be constructed on all blind curves. Turnouts shall conform to the following diagram:



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:

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

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

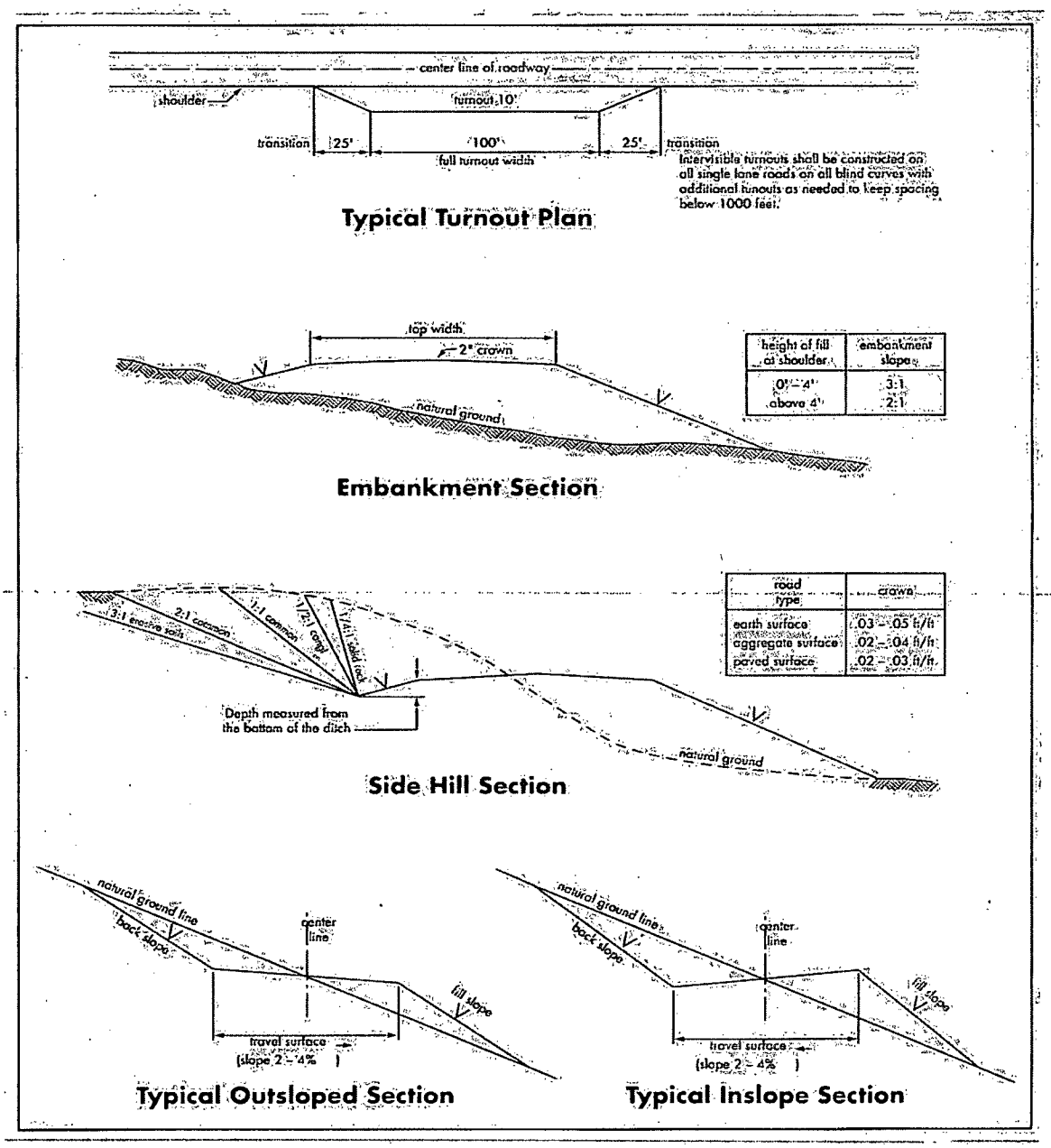
Where entry is required across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting.

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 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 Rustler top and 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 Salado, Castile, Delaware, and Bone Spring.
Possibility of lost circulation in the Rustler, Delaware, and Bone Spring.
Abnormal pressures may be encountered in the 3rd Bone Spring Sandstone and Wolfcamp formation.

1. The **13-3/8** inch surface casing shall be set at approximately **450** feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface. **If salt is encountered, set casing at least 25 feet above 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 **9-5/8** inch intermediate casing, which shall be set at approximately **2700** 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 500 feet into previous casing string. Operator shall provide method of verification. **Excess calculates to 23% - Additional cement may be required.**

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

C. PRESSURE CONTROL

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

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

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

    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 with a corresponding chart (i.e. two hour clock-two hour chart, one hour clock-one hour chart).

    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.

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 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 2, for Sandy 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 of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/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
Sand dropseed (Sporobolus cryptandrus)	1.0
Sand love grass (Eragrostis trichodes)	1.0
Plains bristlegrass (Setaria macrostachya)	2.0

*Pounds of pure live seed:

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