13-714

OCD Artesia

RECEIVED
AUG 05 2013
NMOCD ARTESIA

Form 3160-3
(March 2012)

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of Work: ☒ DRILL ☐ REENTER	5. Lease Serial No. SHL NM013413; BHL NM112920
	6. If Indian, Allotee or Tribe Name
	7. If Unit or CA Agreement, Name and No.
1b. Type of Well: ☐ Oil Well ☒ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone	8. Lease Name and Well No. Riverbend 14 Federal Com 1H 40059
2. Name of Operator Cimarex Energy Co.	9. API Well No. 30-015- 41588
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 WC015 S252835D; ~~Wildcat~~ Wolfcamp(G) 97949
4. Location of Well *(Report location clearly and in accordance with any State requirements.*)* At Surface 700' FNL & 1160' FWL At proposed prod. Zone 660' FSL & 710' FWL *Horizontal Wolfcamp test*	11. Sec., T. R. M. or Blk. and Survey or Area 14-25S-28E
14. Distance in miles and direction from nearest town or post office* Approximately 6.2 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) 660'	16. No of acres in lease SHL NM013413 -1000 acres BHL NM112920 - 160 acres	17. Spacing Unit dedicated to this well 160 acres
18 Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 150' from Riverbend 11 Fed 1H	19. Proposed Depth 11,200' Pilot Hole 14,313' MD 10,532' TVD	20. BLM/BIA Bond No. on File NM2575; NMB000835
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 2960' GR	22. Approximate date work will start* 08.15.13	23. Estimated duration 35 days

24. Attachments

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

1. Well plat certified by a registered surveyor
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)* Terri Stathem	Date 4.19.13
Title Regulatory Analyst		
Approved By *(Signature)* /s/George MacDonell	Name (Printed/Typed) /s/George MacDonell	Date JUL 30 2013
Title CARLSBAD FIELD OFFICE	Office FIELD MANAGER	

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

APPROVAL FOR TWO YEARS

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

(Continued on page 2)

(Instructions on page 2)

SEE ATTACHED FOR CONDITIONS OF APPROVAL

Carlsbad Controlled Water Basin

Approval Subject to General Requirements & Special Stipulations Attached

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- 41588	97949	WC 015-S252815D; ~~Wildcat~~ Wolfcamp (GAS)

Property Code	Property Name	Well Number
40059	RIVERBEND 14 FEDERAL Com	1H

OGRID No.	Operator Name	Elevation
162683	CIMAREX ENERGY CO. OF COLORADO	2960'

Surface Location

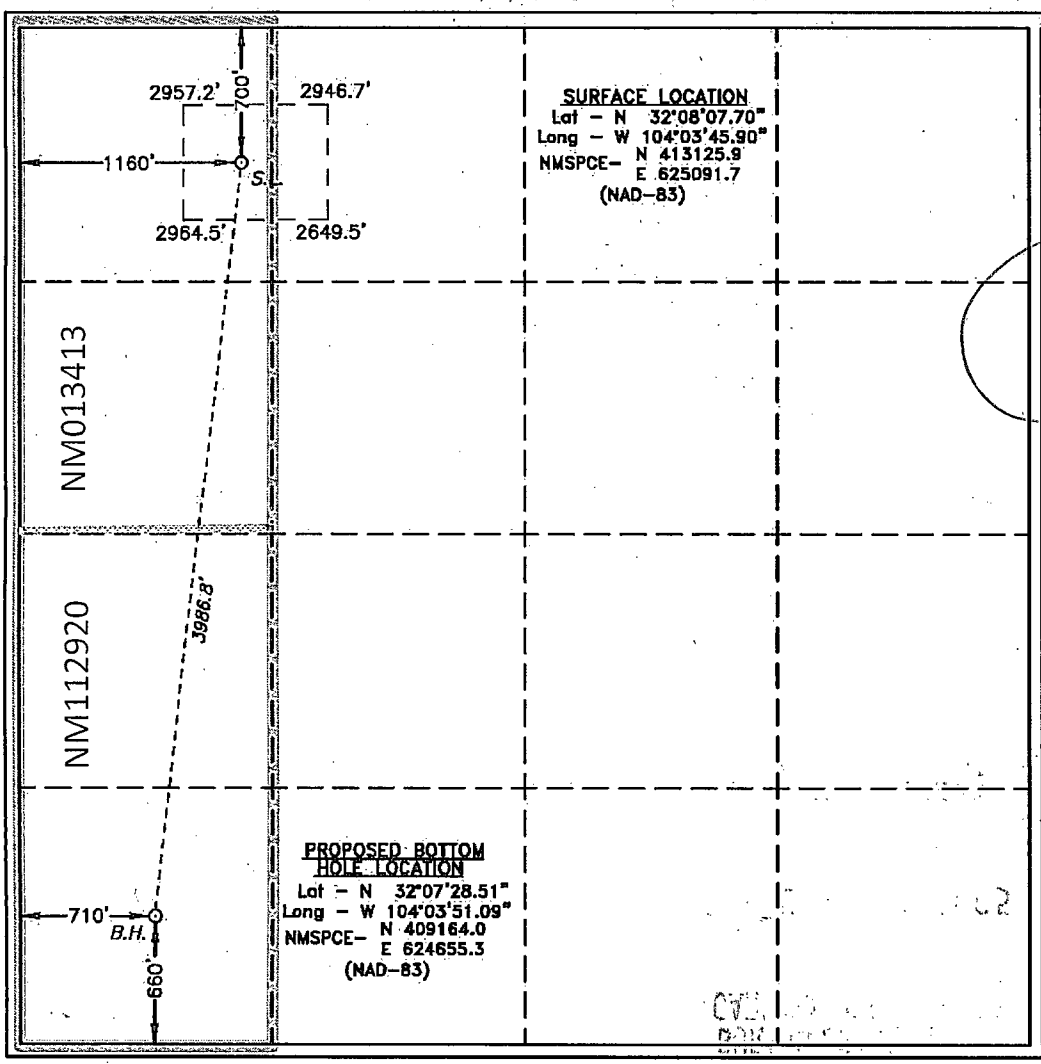
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	14	25 S	28 E		700	NORTH	1160	WEST	EDDY

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
M	14	25 S	28 E		660	SOUTH	710	WEST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
160			

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.

4/24/13
Signature Date

Terri Stathem
Printed Name

tstathem@cimarex.com
Email Address

SURVEYOR CERTIFICATION

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

AUGUST 24, 2012
Date Surveyed

Signature & Seal of Professional Surveyor

NEW MEXICO 7977 REGISTERED PROFESSIONAL SURVEYOR

Certificate No. Gary L. Jones 7977

BASIN SURVEYS 27179

Operator Certification Statement
Riverbend 14 Federal Com 1H
Cimarex Energy Co. of Colorado
UL: D - Sec 14-25S-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 23rd day of April, 2013

NAME: Terri Stathem

TITLE: Regulatory Analyst

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

TELEPHONE: 432-571-7848

EMAIL: tstathem@cimarex.com

Field Representative: Same as above

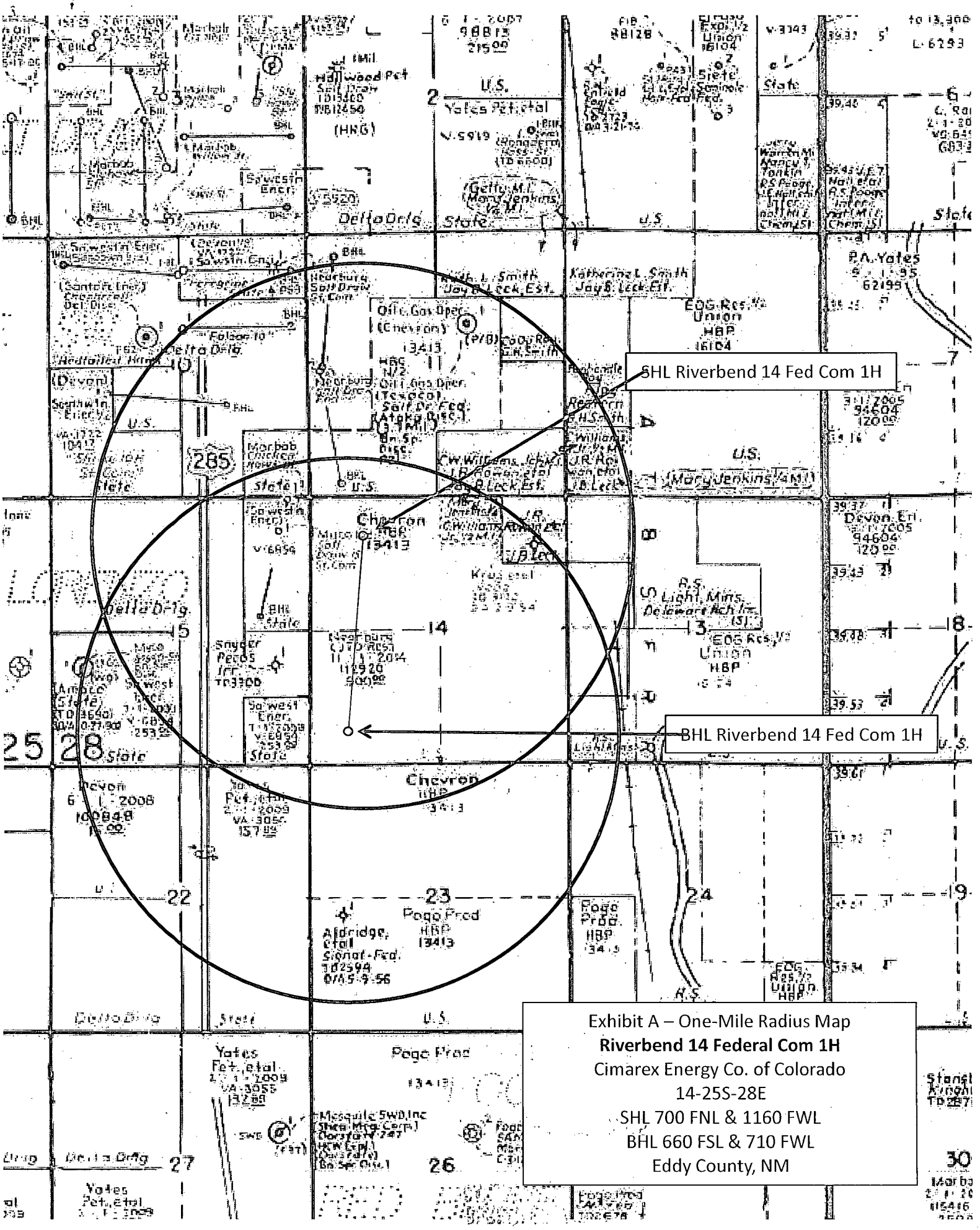
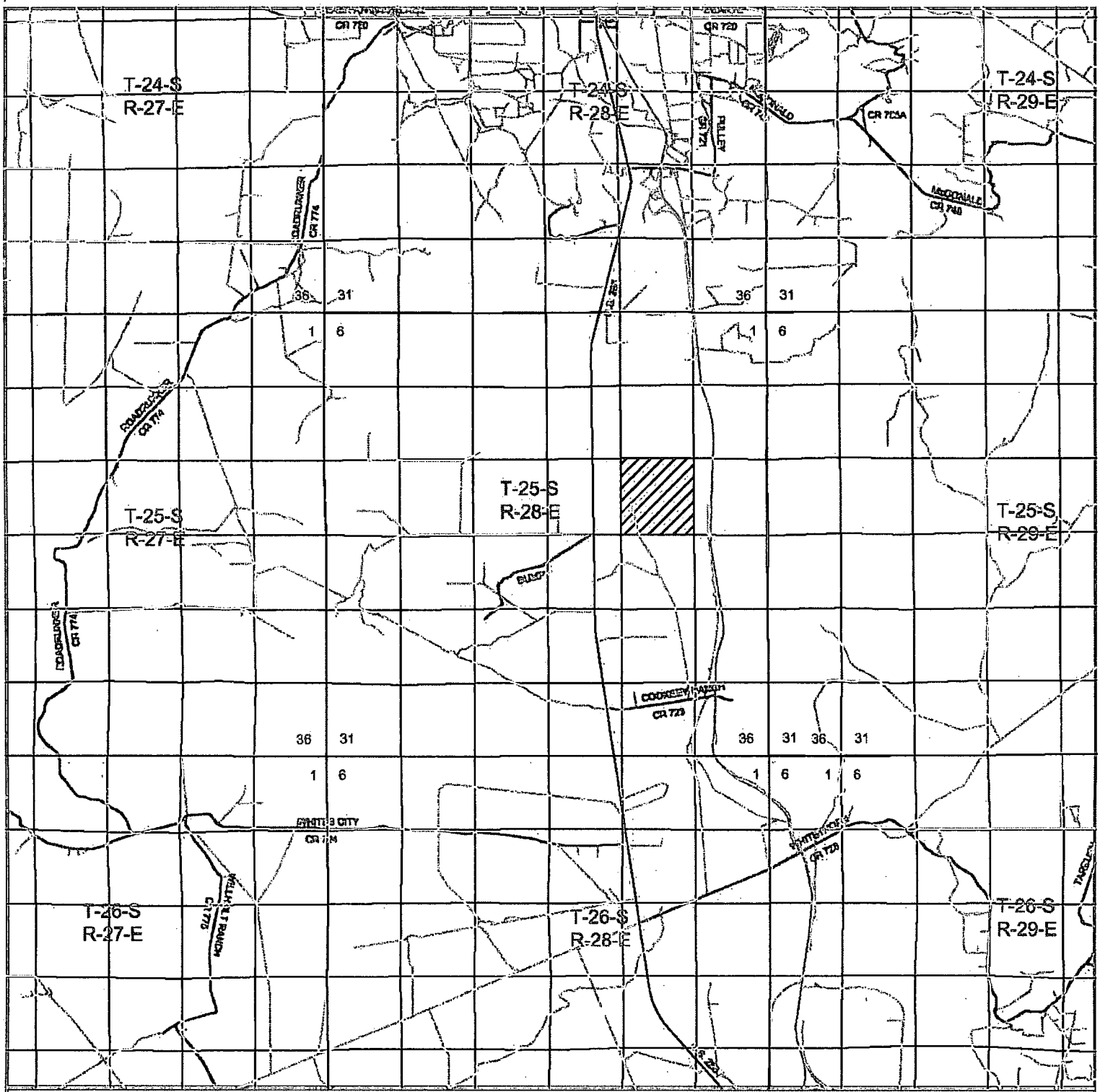


Exhibit A – One-Mile Radius Map
Riverbend 14 Federal Com 1H
Cimarex Energy Co. of Colorado
14-25S-28E
SHL 700 FNL & 1160 FWL
BHL 660 FSL & 710 FWL
Eddy County, NM



RIVERBEND 14 FEDERAL Com #1H
Located 700' FNL and 1160' FWL
Section 14, Township 25 South, Range 28 East,
N.M.P.M., Eddy County, New Mexico.

Basin Surveys
focused on excellence in the oilfield

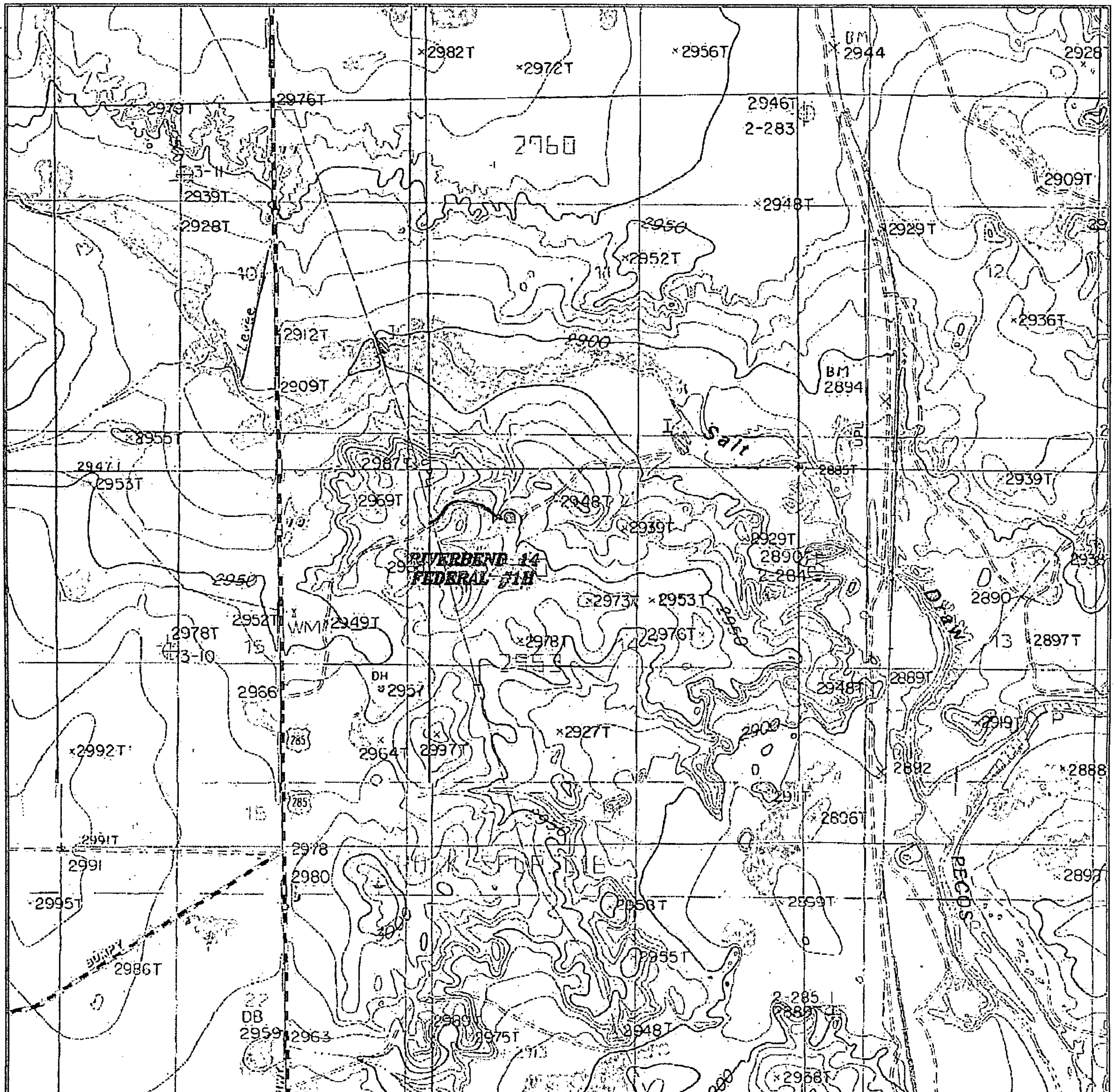
P.O. Box 1786
1120 N. West County Rd.
Hobbs, New Mexico 88241
(575) 393-7316 - Office
(575) 392-2206 - Fax
basinsurveys.com

W.O. Number:	JMS 27179
Survey Date:	08-24-2012
Scale:	1" = 2 Miles
Date:	08-29-2012

N

CIMAREX ENERGY CO. OF COLORADO

Exhibit B



RIVERBEND 14 FEDERAL Com #1H

Located 700' FNL and 1160' FWL
Section 14, Township 25 South, Range 28 East,
N.M.P.M., Eddy County, New Mexico.

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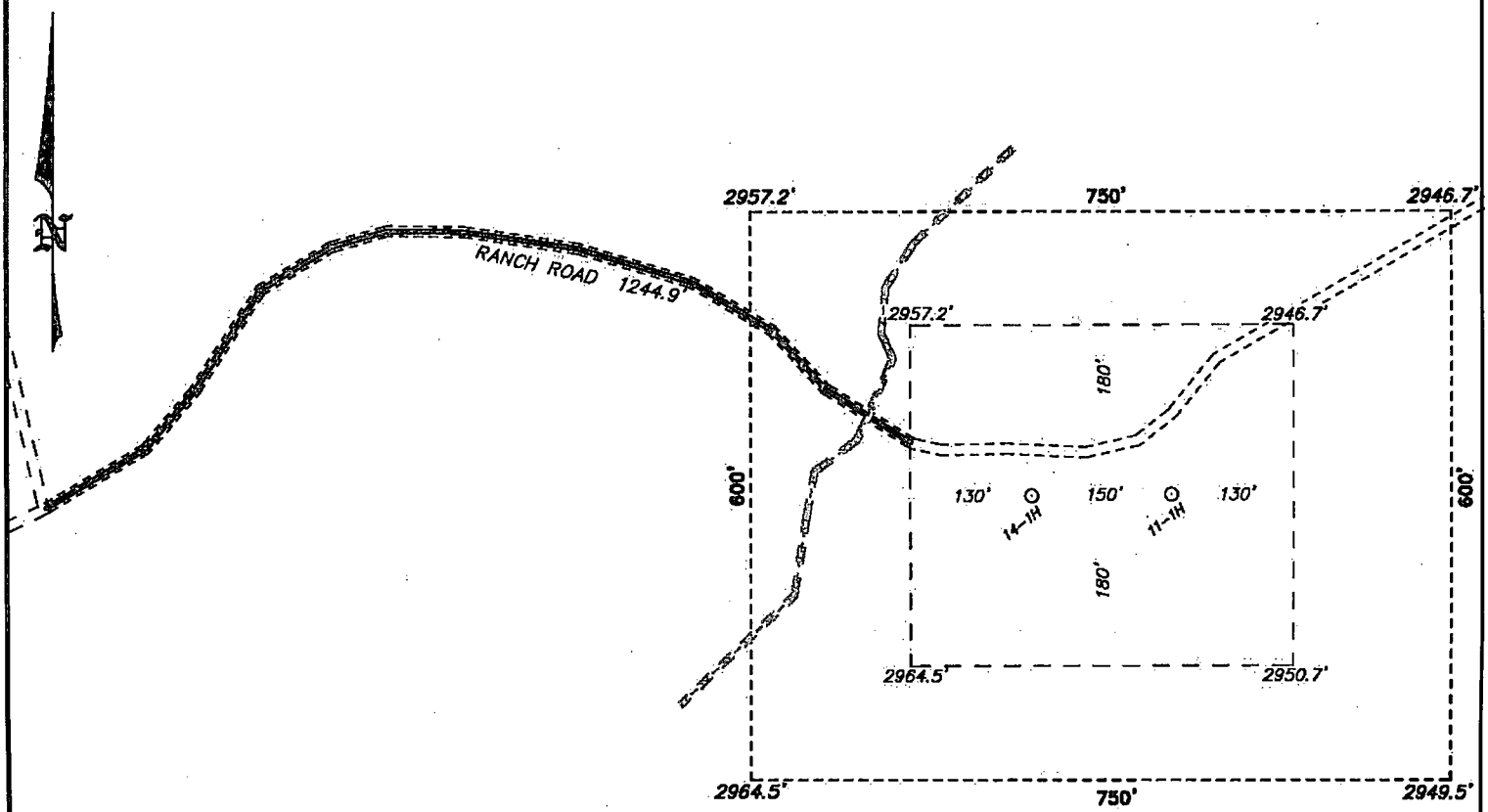
P.O. Box 1786
1120 N. West County Rd.
Hobbs, New Mexico 88241
(575) 393-7316 — Office
(575) 392-2206 — Fax
basinsurveys.com

W.O. Number:	JMS 27179
Survey Date:	08-24-2012
Scale:	1" = 2000'
Date:	08-29-2012

CIMAREX ENERGY CO. OF COLORADO

Exhibit C

SECTION 14, TOWNSHIP 25 SOUTH, RANGE 28 EAST, N.M.P.M.,
EDDY COUNTY, **NEW MEXICO.**



CIMAREX ENERGY CO. OF COLORADO
RIVERBEND 14 FEDERAL #1H
ELEV. - 2960'

Lat - N 32°08'07.70"
Long - W 104°03'45.90"
NMSPCE- N 413125.9
E 625091.7
(NAD-83)

200 0 200 400 FEET
SCALE: 1" = 200'

Directions to Location:

FROM MILE MARKER 10 OF HWY 285, GO SOUTH 0.5 MILES TO LEASE ROAD, ON LEASE ROAD GO EAST TURNING NORTHERLY 0.7 MILES TO RANCH ROAD, FOLLOW RANCH ROAD EASTERLY 0.25 MILES TO PROPOSED LOCATION.

CIMAREX ENERGY CO. OF COLORADO

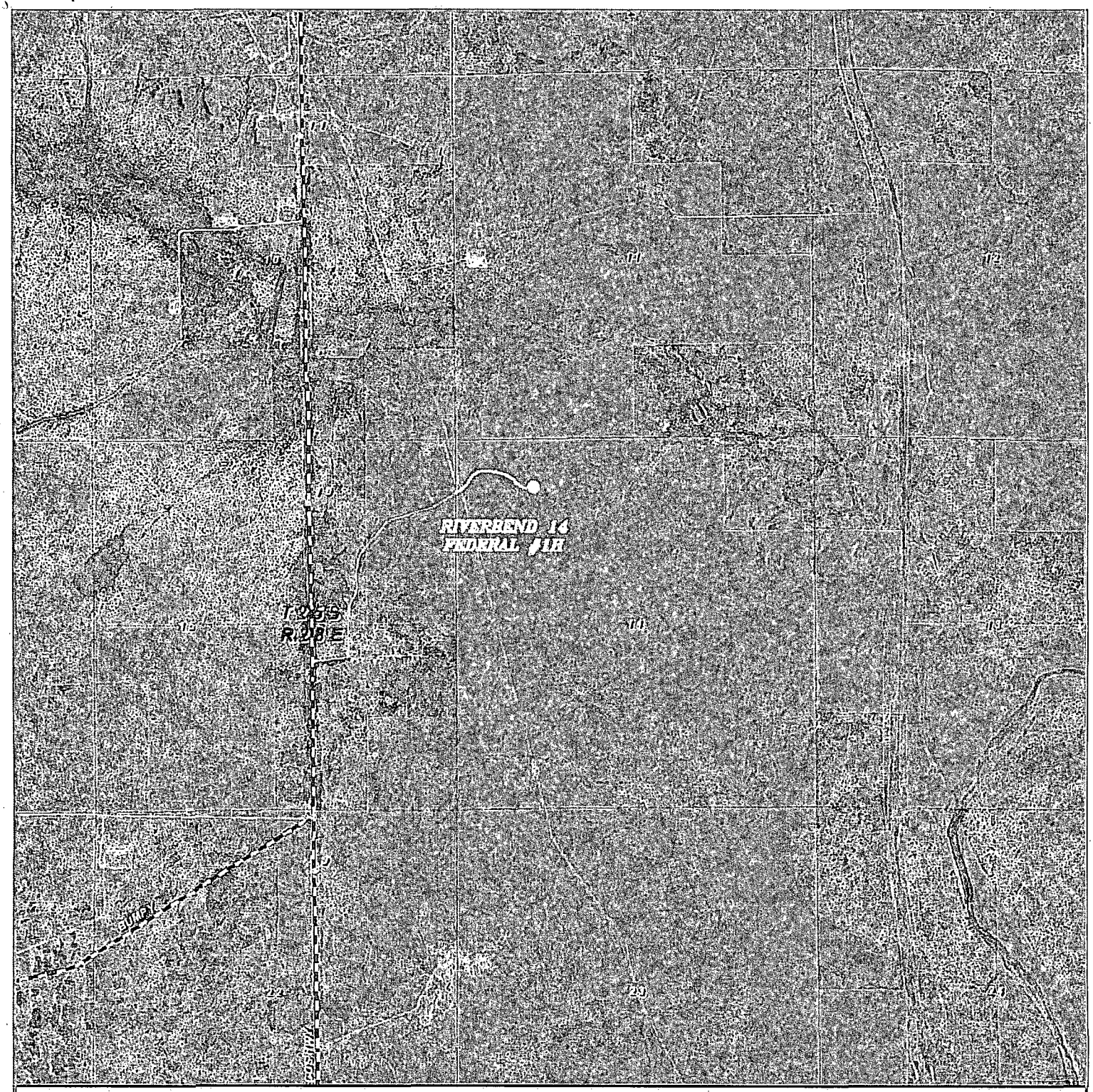
REF: RIVERBEND 14 FEDI Com #1H WELL PAD TOPO

THE RIVERBEND 14 FEDI Com #1H I LOCATED 700' FROM THE NORTH LINE AND 1160' FROM THE WEST LINE OF SECTION 14, TOWNSHIP 25 SOUTH, RANGE 28 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO.

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

W.O. Number: 27179	Drawn By: J SMALL		
Date: 08-29-2012	Disk: JMS 27179	Survey Date: 08-24-2012	Sheet 1 of 1 Sheets

Exhibit C-1



RIVERBEND 14 FEDERAL Com #1H
Located 700' FNL and 1160' FWL
Section 14, Township 25 South, Range 28 East,
N.M.P.M., Eddy County, New Mexico.

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

W.O. Number: JMS 27179

Scale: 1" = 2000'

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

CIMAREX ENERGY CO. OF COLORADO

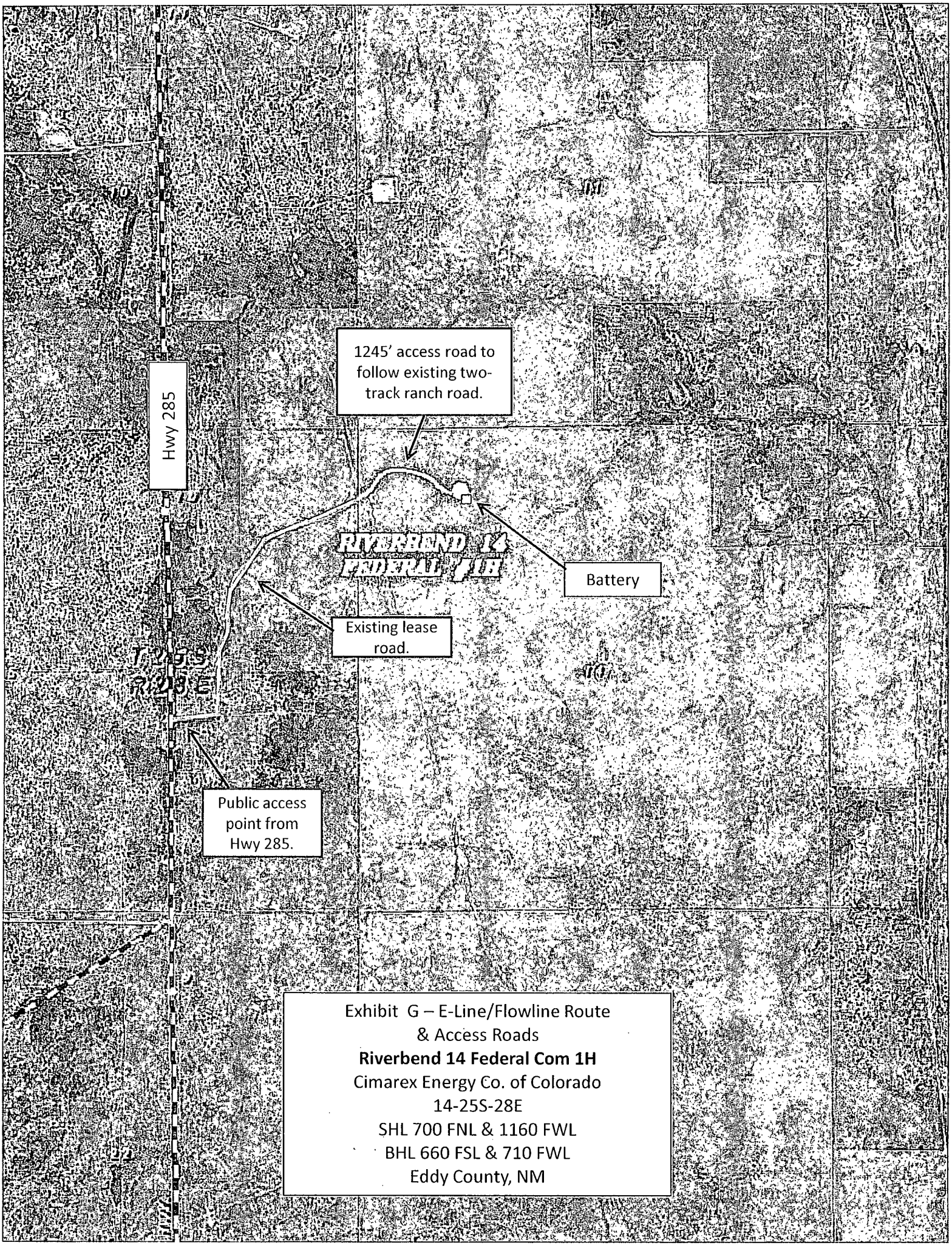


Exhibit G – E-Line/Flowline Route
& Access Roads
Riverbend 14 Federal Com 1H
Cimarex Energy Co. of Colorado
14-25S-28E
SHL 700 FNL & 1160 FWL
BHL 660 FSL & 710 FWL
Eddy County, NM

Application to Drill
Riverbend 14 Federal Com 1H
Cimarex Energy Co. of Colorado
UL: D - Sec 14-25S-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 700' FNL & 1160' FWL
BHL 660' FSL & 710' FWL

2 Elevation above sea level: 2960' GR

3 Geologic name of surface formation: Quaternary Alluvium Deposits

4 Drilling tools and associated equipment: Conventional rotary drilling rig using fluid as a circulating medium for solids removal.

5 Proposed drilling depth: 14,313' MD 10,532' TVD 11,200' Pilot Hole

6 Estimated tops of geological markers:

Formation	Est. Top	Bearing
Rustler	415	NA
Top Salt	1843	NA
Base-Salt	2374	NA
Delaware	2569	Hydrocarbons
Bone Spring	6225	Hydrocarbons
Bone Spring "A" Shale	6329	Hydrocarbons
Bone Spring "C" Shale	6876	Hydrocarbons
1st Bone Spring Ss	7205	Hydrocarbons
2nd Bone Spring Ss	8036	Hydrocarbons
2nd BS Ss Lower	8670	Hydrocarbons
3rd Bone Spring Ss	9122	Hydrocarbons
Wolfcamp	9506	Hydrocarbons
Wolfcamp B	10183	Hydrocarbons
Wolfcamp C	10357	Hydrocarbons
Wolfcamp D	10482	Hydrocarbons
Wolfcamp E	10917	Hydrocarbons
TD (Pilot Hole)	11200	Hydrocarbons

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)
	500'	500'					Surface							
0'	450'	450'	17 1/2	13 3/8	48	H-40	ST&C	New	203	8.4	3.76	8.5	21600	14.9
							Intermediate							
0'	2549'	2549'	12 1/4	9 5/8	36	J-55	LT&C	New	1147	10	1.52	3.1	91764	6.1
							Production							
0'	10052'	10052'	8 3/4	5 1/2	17	P-110	LT&C	New	2722.96	8.4	1.70	3.9	179044	2.5
10052'	14313'	10532'	8 3/4	5 1/2	17	P-110	BT&C	New	5040	8.4	1.63	2.1	8160	66.9

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 14 Federal Com 1H
Cimarex Energy Co. of Colorado
UL: D - Sec 14-25S-28E
Eddy County, NM

9 **Cementing Program:**

Surface	Sacks	Yield (cuft/sx)	Weight (ppg)	Cubic Feet	Cement Blend
Lead	120	1.75	13.5	208	Class C + Bentonite + Calcium Chloride + LCM
Tail	200	1.34	14.8	261	Class C + LCM

TOC: 0' 50% Excess Centralizers per Onshore Order 2.III.B.1f
See COA

Intermediate	Sacks	Yield (cuft/sx)	Weight (ppg)	Cubic Feet	Cement Blend
Lead	600	1.88	12.9	1112	35:65 (poz/C) + Salt + Bentonite + LCM + retarder
Tail	170	1.34	14.8	215	Class C + retarder + LCM

TOC: 0' 80% Excess

Production	Sacks	Yield (cuft/sx)	Weight (ppg)	Cubic Feet	Cement Blend
Lead	967	2.4	11.9	2321	35:65 (poz/H) + salt + Sodium Metasilcate + Bentonite + Fluid Loss + Dispersant + LCM + Retarder
Tail	1226	1.24	14.5	1520	50:50 (poz/H) + Bentonite + Salt + Fluid Loss + Dispersant + LCM + Retarder

Cement volumes will be adjusted depending on hole size.
TOC: 2049' 25% Excess No centralizers planned in the lateral section. 1 every jt from EOC to KOP. 1 every 4th joint from KOP to 500' inside previous casing.
See COA

10 **Pressure Control Equipment:**
Exhibit "E-1". A 13⅝" 5000 PSI working pressure BOP, tested to 3000 psi on the surface casing and 5000 psi on the intermediate, consisting of one set of blind rams and one set of pipe rams and a 5000# annular type preventer. A choke manifold and 120 gallon accumulator with floor and remote operating stations and auxiliary power system. Rotating head 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 unit will be hydraulically operated. BOP will be installed and 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.

BOPS will be tested by an independent service company to 250 psi low and 3000 psi high on the surface casing and 250 psi low and 5000 psi high on the intermediate. Hydril will be tested to 250 psi low and 2500 psi high on the surface and intermediate casings.

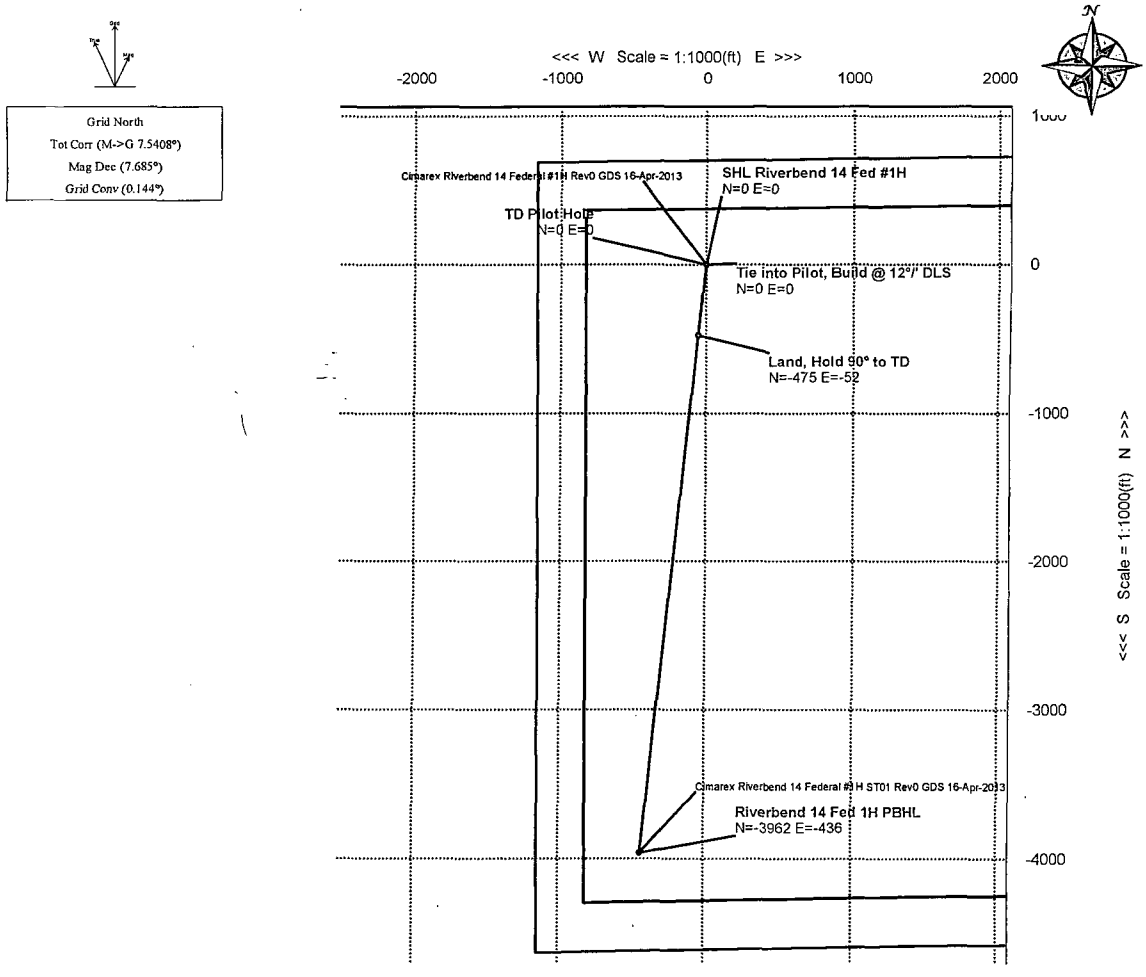
See COA
Cimarex Energy Co. of Colorado requests a variance to drill this well using a co-flex line between the BOP and choke manifold. Certification for proposed co-flex hose is attached (please see Exhibit F, F-1, F-2, F-3). The hose is not required by the manufacturer to be anchored. In the event the specific hose is not available, one of equal or higher rating will be used.

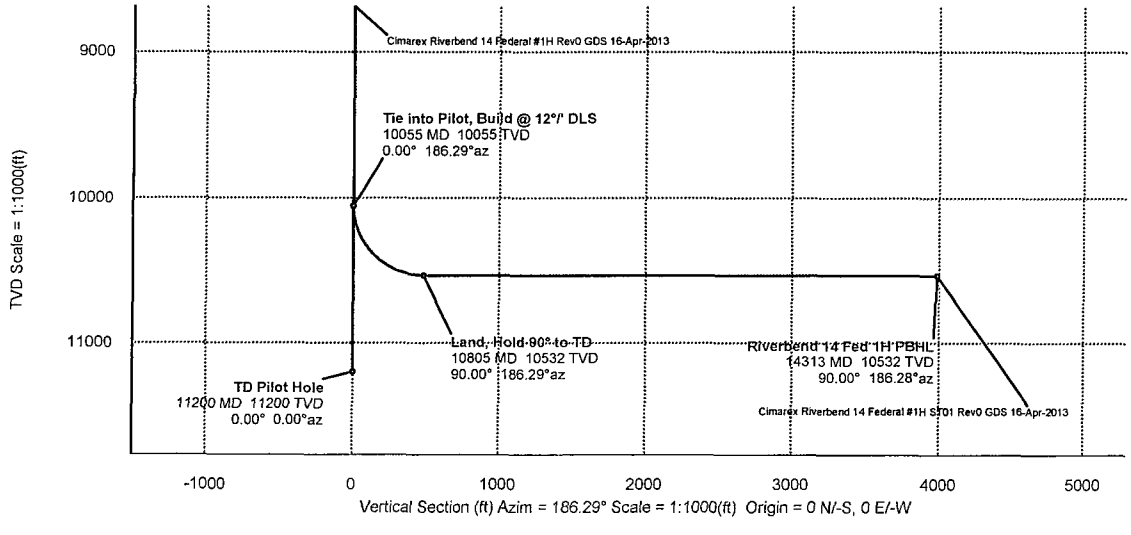
Cimarex

PATHFINDER
A Schlumberger Company

WELL	FIELD	STRUCTURE
Riverbend 14 Federal #1H	NM Eddy County	TBA

Magnetic Parameters				Surface Location				Miscellaneous	
Model: BGGM 2012	Dip: 59.927°	Date: April 16, 2013		Lat: N 32 8 7.702	Northing: 413125.90 ftUS	Grid Conv: 0.144°		Slot: Riverbend 14 Federal #1H	TVD Ref: Ground Level(2966ft above)
	Mag Dec: 7.685°	FS: 48298.1nT		Lon: W 104 3 45.900	Easting: 625091.70 ftUS	Scale Fact: 0.99991713		Plan: ST01 Rev0 GDS 16-Apr-2013	Survey Date: April 16, 2013





Critical Points

Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+) / S(-)	E(+) / W(-)	DLS
Tie into Pilot, Build @ 12°/' DLS	10054.54	0.00	186.29	10054.54	0.00	0.00	0.00	
Land, Hold 90° to TD	10804.54	90.00	186.29	10532.00	477.46	-474.59	-52.28	12.00
Riverbend 14 Fed 1H PBHL	14313.28	90.00	186.28	10532.00	3986.20	-3962.24	-436.44	0.00

Cimarex Riverbend 14 Federal #1H ST01 Rev0 GDS 16-Apr-2013 Proposal Report 100' Interpolated

(Non-Def Plan)

Report Date:	April 17, 2013 - 11:11 AM	**Survey / DLS Computation:**	Minimum Curvature / Lubinski
Client:	Cimarex	**Vertical Section Azimuth:**	186.286 ° (Grid North)
Field:	NM Eddy County (NAD 83)	**Vertical Section Origin:**	0.000 ft, 0.000 ft
Structure / Slot:	TBA / Cimarex Riverbend 14 Federal #1H	**TVD Reference Datum:**	Ground Level
Well:	Cimarex Riverbend 14 Federal #1H	**TVD Reference Elevation:**	2960.000 ft above
Borehole:	ST01	**Seabed / Ground Elevation:**	2960.000 ft above
UWI / API#:	Unknown / Unknown	**Magnetic Declination:**	7.685 °
Survey Name:	Cimarex Riverbend 14 Federal #1H ST01 Rev0 GDS 16-Apr-2013	**Total Gravity Field Strength:**	998.5225mgn (9.80665 Based)
Survey Date:	April 16, 2013	**Total Magnetic Field Strength:**	48298.106 nT
Tort / AHD / DDI / ERD Ratio:	90.002 ° / 3986.200 ft / 5.688 / 0.378	**Magnetic Dip Angle:**	59.927 °
Coordinate Reference System:	NAD83 New Mexico State Plane, Eastern Zone, US Feet	**Declination Date:**	April 16, 2013
Location Lat / Long:	N 32° 8' 7.70173", W 104° 3' 45.89973"	**Magnetic Declination Model:**	BGGM 2012
Location Grid N/E Y/X:	N 413125.900 ftUS, E 625091.700 ftUS	**North Reference:**	Grid North
CRS Grid Convergence Angle:	0.1439 °	**Grid Convergence Used:**	0.1439 °
Grid Scale Factor:	0.99991713	**Total Corr Mag North->Grid North:**	7.5408 °
		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 14 Fed #1H	0.00	0.00	186.29	0.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	N/A
	100.00	0.00	186.29	100.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	200.00	0.00	186.29	200.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	300.00	0.00	186.29	300.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	400.00	0.00	186.29	400.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	500.00	0.00	186.29	500.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	600.00	0.00	186.29	600.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	700.00	0.00	186.29	700.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	800.00	0.00	186.29	800.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	900.00	0.00	186.29	900.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	1000.00	0.00	186.29	1000.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	1100.00	0.00	186.29	1100.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	1200.00	0.00	186.29	1200.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	1300.00	0.00	186.29	1300.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	1400.00	0.00	186.29	1400.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	1500.00	0.00	186.29	1500.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	1600.00	0.00	186.29	1600.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	1700.00	0.00	186.29	1700.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	1800.00	0.00	186.29	1800.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	1900.00	0.00	186.29	1900.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	2000.00	0.00	186.29	2000.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	2100.00	0.00	186.29	2100.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	2200.00	0.00	186.29	2200.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	2300.00	0.00	186.29	2300.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	2400.00	0.00	186.29	2400.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	2500.00	0.00	186.29	2500.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	2600.00	0.00	186.29	2600.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	2700.00	0.00	186.29	2700.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	2800.00	0.00	186.29	2800.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	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	186.29	2900.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	3000.00	0.00	186.29	3000.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	3100.00	0.00	186.29	3100.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	3200.00	0.00	186.29	3200.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	3300.00	0.00	186.29	3300.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	3400.00	0.00	186.29	3400.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	3500.00	0.00	186.29	3500.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	3600.00	0.00	186.29	3600.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	3700.00	0.00	186.29	3700.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	3800.00	0.00	186.29	3800.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	3900.00	0.00	186.29	3900.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	4000.00	0.00	186.29	4000.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	4100.00	0.00	186.29	4100.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	4200.00	0.00	186.29	4200.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	4300.00	0.00	186.29	4300.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	4400.00	0.00	186.29	4400.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	4500.00	0.00	186.29	4500.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	4600.00	0.00	186.29	4600.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	4700.00	0.00	186.29	4700.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	4800.00	0.00	186.29	4800.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	4900.00	0.00	186.29	4900.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	5000.00	0.00	186.29	5000.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	5100.00	0.00	186.29	5100.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	5200.00	0.00	186.29	5200.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	5300.00	0.00	186.29	5300.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	5400.00	0.00	186.29	5400.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	5500.00	0.00	186.29	5500.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	5600.00	0.00	186.29	5600.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	5700.00	0.00	186.29	5700.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	5800.00	0.00	186.29	5800.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	5900.00	0.00	186.29	5900.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	6000.00	0.00	186.29	6000.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	6100.00	0.00	186.29	6100.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	6200.00	0.00	186.29	6200.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	6300.00	0.00	186.29	6300.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	6400.00	0.00	186.29	6400.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	6500.00	0.00	186.29	6500.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	6600.00	0.00	186.29	6600.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	6700.00	0.00	186.29	6700.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	6800.00	0.00	186.29	6800.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	6900.00	0.00	186.29	6900.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	7000.00	0.00	186.29	7000.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	7100.00	0.00	186.29	7100.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	7200.00	0.00	186.29	7200.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	7300.00	0.00	186.29	7300.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	7400.00	0.00	186.29	7400.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	7500.00	0.00	186.29	7500.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	7600.00	0.00	186.29	7600.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	7700.00	0.00	186.29	7700.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	7800.00	0.00	186.29	7800.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	7900.00	0.00	186.29	7900.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	8000.00	0.00	186.29	8000.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	8100.00	0.00	186.29	8100.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	8200.00	0.00	186.29	8200.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	8300.00	0.00	186.29	8300.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	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)
	8400.00	0.00	186.29	8400.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	8500.00	0.00	186.29	8500.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	8600.00	0.00	186.29	8600.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	8700.00	0.00	186.29	8700.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	8800.00	0.00	186.29	8800.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	8900.00	0.00	186.29	8900.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	9000.00	0.00	186.29	9000.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	9100.00	0.00	186.29	9100.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	9200.00	0.00	186.29	9200.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	9300.00	0.00	186.29	9300.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	9400.00	0.00	186.29	9400.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	9500.00	0.00	186.29	9500.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	9600.00	0.00	186.29	9600.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	9700.00	0.00	186.29	9700.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	9800.00	0.00	186.29	9800.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	9900.00	0.00	186.29	9900.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	10000.00	0.00	186.29	10000.00	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
Tie Into Pilot, Build 12°/100ft DLS	10054.54	0.00	186.29	10054.54	0.00	0.00	0.00	413125.90	625091.70	N 32 8 7.70	W 104 3 45.90	0.00	0.00	0.00
	10100.00	5.46	186.29	10099.93	2.16	-2.15	-0.24	413123.75	625091.46	N 32 8 7.68	W 104 3 45.90	2.16	186.29	12.00
	10200.00	17.46	186.29	10197.76	21.99	-21.85	-2.41	413104.05	625089.29	N 32 8 7.49	W 104 3 45.93	21.99	186.29	12.00
	10300.00	29.46	186.29	10289.33	61.72	-61.35	-6.76	413064.56	625084.94	N 32 8 7.09	W 104 3 45.98	61.72	186.29	12.00
	10400.00	41.46	186.29	10370.64	119.62	-118.90	-13.10	413007.01	625078.61	N 32 8 6.53	W 104 3 46.06	119.62	186.29	12.00
	10500.00	53.46	186.29	10438.13	193.16	-192.00	-21.15	412933.92	625070.56	N 32 8 5.80	W 104 3 46.15	193.16	186.29	12.00
	10600.00	65.46	186.29	10488.86	279.12	-277.45	-30.56	412848.48	625061.15	N 32 8 4.96	W 104 3 46.26	279.12	186.29	12.00
	10700.00	77.46	186.29	10520.61	373.76	-371.51	-40.92	412754.42	625050.79	N 32 8 4.03	W 104 3 46.39	373.76	186.29	12.00
	10800.00	89.46	186.29	10531.98	472.92	-470.08	-51.77	412655.86	625039.93	N 32 8 3.05	W 104 3 46.52	472.92	186.29	12.00
Land, Hold 90° to TD	10804.54	90.00	186.29	10532.00	477.46	-474.60	-52.27	412651.35	625039.43	N 32 8 3.01	W 104 3 46.52	477.46	186.29	12.00
	10900.00	90.00	186.29	10532.00	572.92	-569.48	-62.72	412556.47	625028.98	N 32 8 2.07	W 104 3 46.65	572.92	186.29	0.00
	11000.00	90.00	186.29	10532.00	672.92	-668.88	-73.67	412457.08	625018.04	N 32 8 1.08	W 104 3 46.78	672.92	186.29	0.00
	11100.00	90.00	186.29	10532.00	772.92	-768.28	-84.62	412357.69	625007.09	N 32 8 0.10	W 104 3 46.91	772.92	186.29	0.00
	11200.00	90.00	186.29	10532.00	872.92	-867.68	-95.56	412258.30	624996.14	N 32 7 59.12	W 104 3 47.04	872.92	186.29	0.00
	11300.00	90.00	186.29	10532.00	972.92	-967.08	-106.51	412158.90	624985.20	N 32 7 58.13	W 104 3 47.17	972.92	186.29	0.00
	11400.00	90.00	186.29	10532.00	1072.92	-1066.48	-117.46	412059.51	624974.25	N 32 7 57.15	W 104 3 47.30	1072.92	186.29	0.00
	11500.00	90.00	186.29	10532.00	1172.92	-1165.87	-128.41	411960.12	624963.30	N 32 7 56.17	W 104 3 47.43	1172.92	186.29	0.00
	11600.00	90.00	186.29	10532.00	1272.92	-1265.27	-139.35	411860.73	624952.36	N 32 7 55.18	W 104 3 47.56	1272.92	186.29	0.00
	11700.00	90.00	186.29	10532.00	1372.92	-1364.67	-150.30	411761.34	624941.41	N 32 7 54.20	W 104 3 47.69	1372.92	186.29	0.00
	11800.00	90.00	186.29	10532.00	1472.92	-1464.07	-161.25	411661.95	624930.46	N 32 7 53.22	W 104 3 47.82	1472.92	186.29	0.00
	11900.00	90.00	186.29	10532.00	1572.92	-1563.47	-172.20	411562.56	624919.52	N 32 7 52.24	W 104 3 47.95	1572.92	186.29	0.00
	12000.00	90.00	186.29	10532.00	1672.92	-1662.87	-183.15	411463.17	624908.57	N 32 7 51.25	W 104 3 48.08	1672.92	186.29	0.00
	12100.00	90.00	186.29	10532.00	1772.92	-1762.27	-194.10	411363.78	624897.62	N 32 7 50.27	W 104 3 48.21	1772.92	186.29	0.00
	12200.00	90.00	186.29	10532.00	1872.92	-1861.67	-205.04	411264.39	624886.67	N 32 7 49.29	W 104 3 48.34	1872.92	186.29	0.00
	12300.00	90.00	186.29	10532.00	1972.92	-1961.07	-215.99	411165.00	624875.72	N 32 7 48.30	W 104 3 48.47	1972.92	186.29	0.00
	12400.00	90.00	186.29	10532.00	2072.92	-2060.46	-226.94	411065.61	624864.78	N 32 7 47.32	W 104 3 48.60	2072.92	186.29	0.00
	12500.00	90.00	186.29	10532.00	2172.92	-2159.86	-237.89	410966.22	624853.83	N 32 7 46.34	W 104 3 48.73	2172.92	186.29	0.00
	12600.00	90.00	186.29	10532.00	2272.92	-2259.26	-248.84	410866.83	624842.88	N 32 7 45.35	W 104 3 48.86	2272.92	186.29	0.00
	12700.00	90.00	186.29	10532.00	2372.92	-2358.66	-259.79	410767.44	624831.93	N 32 7 44.37	W 104 3 48.99	2372.92	186.29	0.00
	12800.00	90.00	186.29	10532.00	2472.92	-2458.06	-270.74	410668.05	624820.99	N 32 7 43.39	W 104 3 49.12	2472.92	186.29	0.00
	12900.00	90.00	186.29	10532.00	2572.92	-2557.46	-281.69	410568.66	624810.04	N 32 7 42.40	W 104 3 49.25	2572.92	186.29	0.00
	13000.00	90.00	186.29	10532.00	2672.92	-2656.86	-292.64	410469.27	624799.09	N 32 7 41.42	W 104 3 49.38	2672.92	186.29	0.00
	13100.00	90.00	186.29	10532.00	2772.92	-2756.26	-303.59	410369.88	624788.14	N 32 7 40.44	W 104 3 49.51	2772.92	186.29	0.00
	13200.00	90.00	186.29	10532.00	2872.92	-2855.65	-314.53	410270.49	624777.19	N 32 7 39.45	W 104 3 49.64	2872.92	186.29	0.00
	13300.00	90.00	186.29	10532.00	2972.92	-2955.05	-325.48	410171.10	624766.24	N 32 7 38.47	W 104 3 49.77	2972.92	186.29	0.00
	13400.00	90.00	186.29	10532.00	3072.92	-3054.45	-336.43	410071.71	624755.29	N 32 7 37.49	W 104 3 49.90	3072.92	186.29	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)
	13500.00	90.00	186.29	10532.00	3172.92	-3153.85	-347.38	409972.32	624744.35	N 32 7 36.50	W 104 3 50.03	3172.92	186.29	0.00
	13600.00	90.00	186.29	10532.00	3272.92	-3253.25	-358.33	409872.93	624733.40	N 32 7 35.52	W 104 3 50.16	3272.92	186.29	0.00
	13700.00	90.00	186.29	10532.00	3372.92	-3352.65	-369.28	409773.54	624722.45	N 32 7 34.54	W 104 3 50.29	3372.92	186.29	0.00
	13800.00	90.00	186.29	10532.00	3472.92	-3452.05	-380.23	409674.15	624711.50	N 32 7 33.55	W 104 3 50.42	3472.92	186.29	0.00
	13900.00	90.00	186.29	10532.00	3572.92	-3551.45	-391.18	409574.76	624700.55	N 32 7 32.57	W 104 3 50.55	3572.92	186.29	0.00
	14000.00	90.00	186.29	10532.00	3672.92	-3650.84	-402.13	409475.37	624689.60	N 32 7 31.59	W 104 3 50.68	3672.92	186.29	0.00
	14100.00	90.00	186.29	10532.00	3772.92	-3750.24	-413.08	409375.98	624678.65	N 32 7 30.60	W 104 3 50.81	3772.92	186.29	0.00
	14200.00	90.00	186.29	10532.00	3872.92	-3849.64	-424.03	409276.58	624667.70	N 32 7 29.62	W 104 3 50.94	3872.92	186.29	0.00
	14300.00	90.00	186.29	10532.00	3972.92	-3949.04	-434.98	409177.19	624656.75	N 32 7 28.64	W 104 3 51.07	3972.92	186.29	0.00
Riverbend 14 Fed 1H PBHL	14313.28	90.00	186.29	10532.00	3986.20	-3962.24	-436.44	409164.00	624655.30	N 32 7 28.51	W 104 3 51.09	3986.20	186.29	0.00

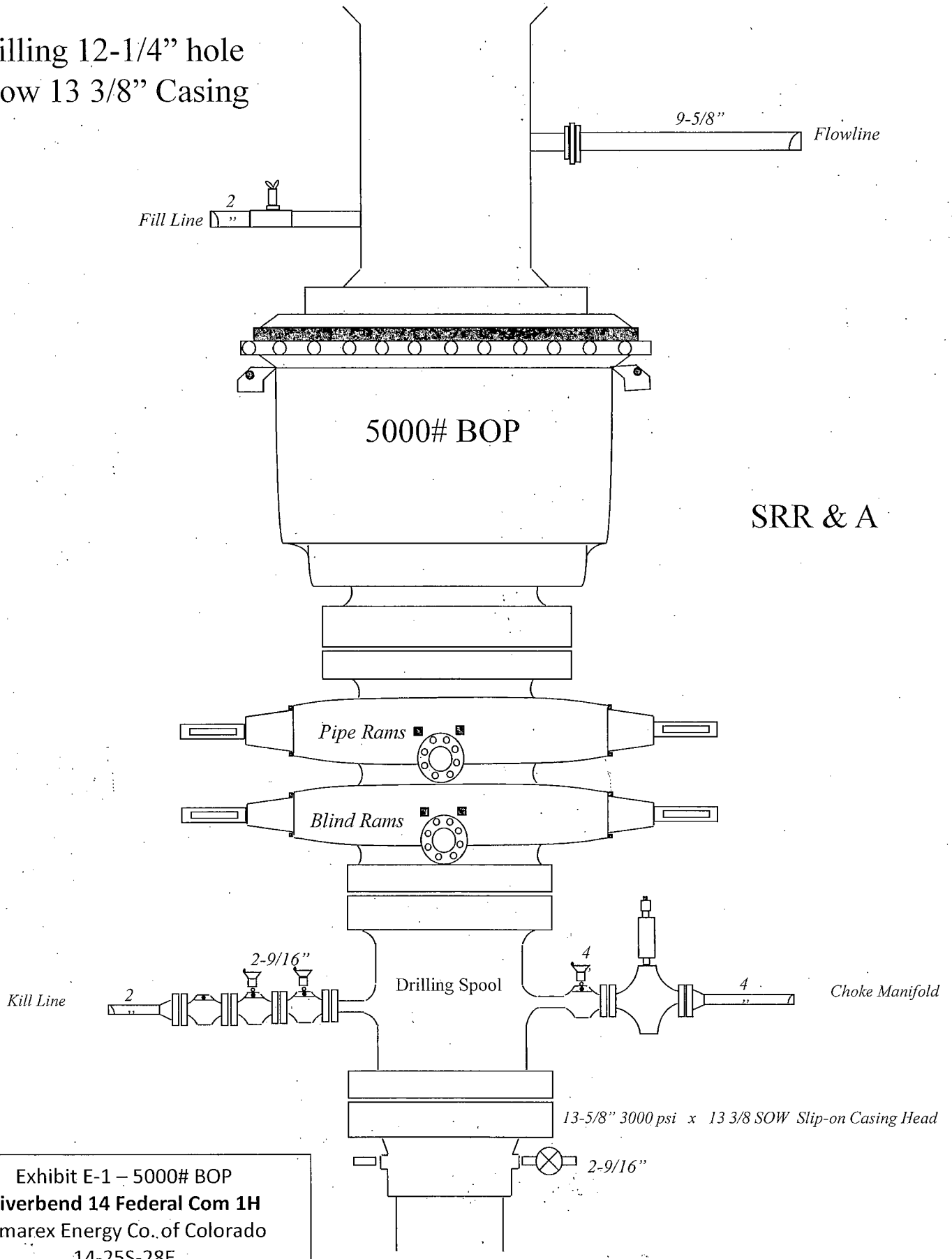
Survey Type: Non-Def Plan

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

Survey Program:

Description	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Survey Tool Type	Borehole / Survey
	0.000	14313.276	1/100.000	30.000	30.000	SLB_UNKNOWN	ST01 / Cimarex Riverbend 14 Federal #1H ST01 Rev0 GDS 16-

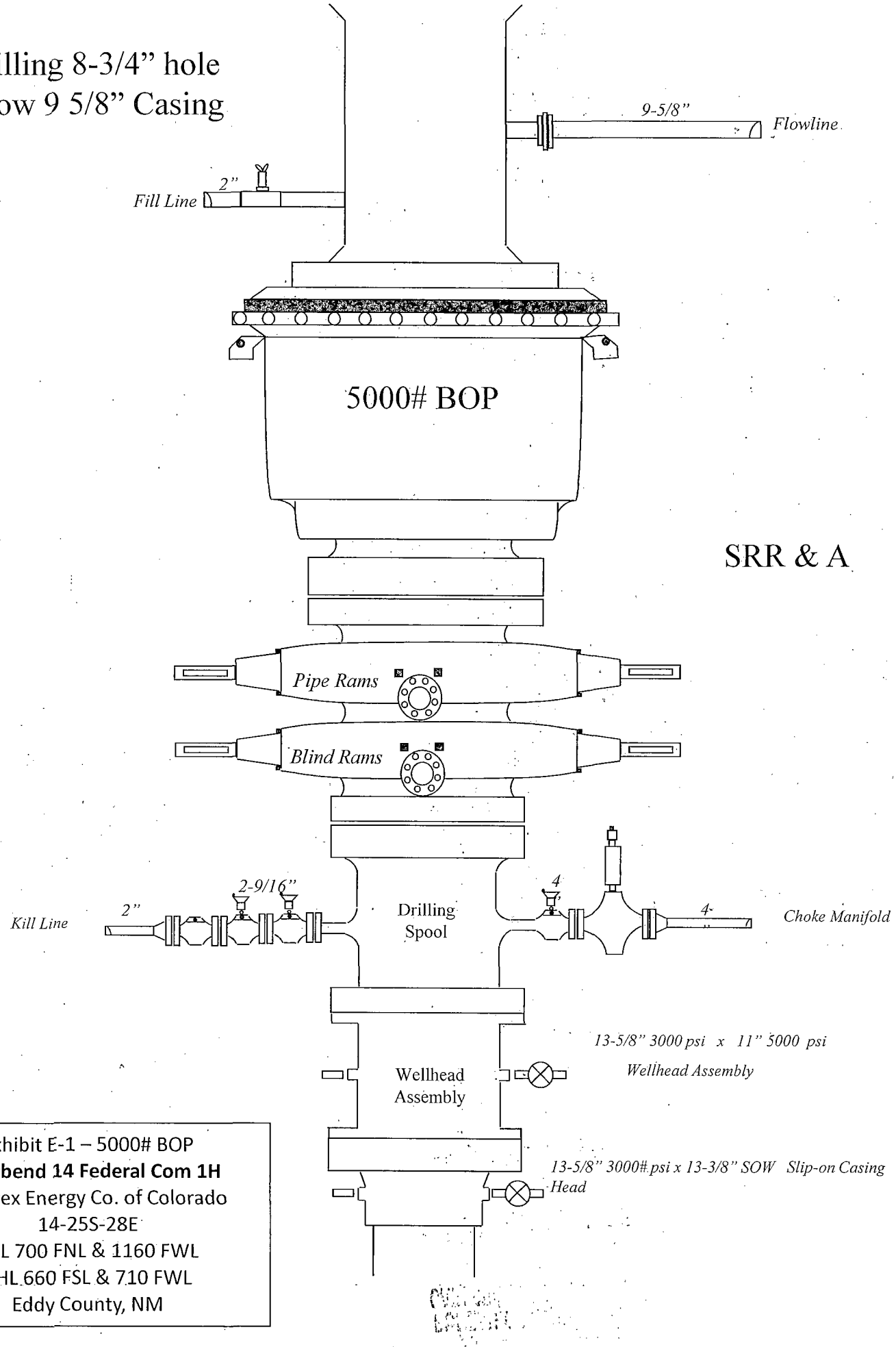
Drilling 12-1/4" hole
below 13 3/8" Casing



SRR & A

Exhibit E-1 – 5000# BOP
Riverbend 14 Federal Com 1H
Cimarex Energy Co. of Colorado
14-25S-28E
SHL 700 FNL & 1160 FWL
BHL 660 FSL & 710 FWL
Eddy County, NM

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



SRR & A

Exhibit E-1 – 5000# BOP
Riverbend 14 Federal Com 1H
Cimarex Energy Co. of Colorado
14-25S-28E
SHL 700 FNL & 1160 FWL
BHL 660 FSL & 710 FWL
Eddy County, NM

Drilling Operations
Choke Manifold
5M Service

Exhibit E-1 – Choke Manifold Diagram
Riverbend 14 Federal Com 1H
Cimarex Energy Co. of Colorado
14-25S-28E
SHL 700 FNL & 1160 FWL
BHL 660 FSL & 710 FWL
Eddy County, NM

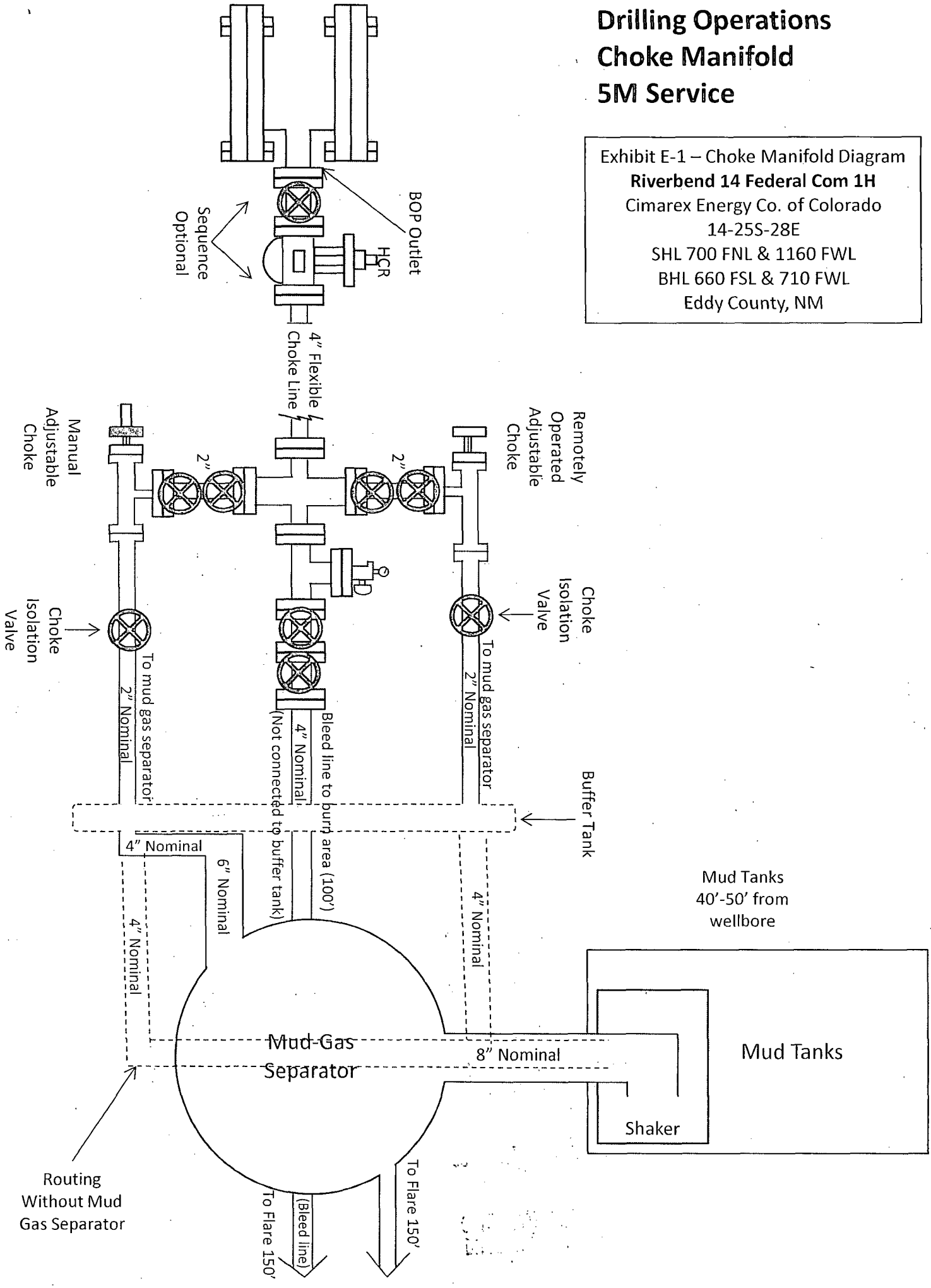


Exhibit F-2 – Co-Flex Hose
Riverbend 14 Federal Com 1H
Cimarex Energy Co. of Colorado
14-25S-28E
SHL 700 FNL & 1160 FWL
BHL 660 FSL & 710 FWL
Eddy County, NM

Midwest Hose
& Specialty, Inc.

Certificate of Conformity

Customer:	PO
DEM	ODYD-271

SPECIFICATIONS

Sales Order	Dated:
79793	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:
Jaime Garcia	3/8/2011

Exhibit F-1 – Co-Flex Hose Hydrostatic Test
Riverbend 14 Federal Com 1H
Cimarex Energy Co. of Colorado
14-25S-28E
SHL 700 FNL & 1160 FWL
BHL 660 FSL & 710 FWL
Eddy County, NM

Midwest Hose & Specialty, Inc.

Internal Hydrostatic Test Graph

March 3, 2011

Customer: Houston

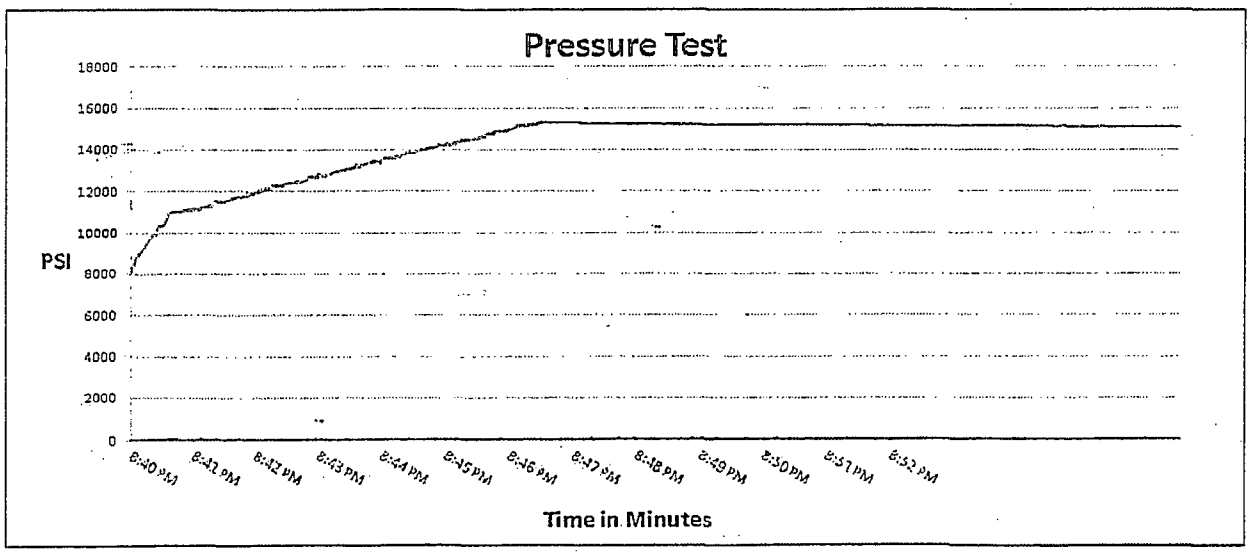
Pick Ticket #: 94260

Hose Specifications

Hose Type	Length
C & K	45'
I.D.	**O.D.**
4"	6.09"
Working Pressure	**Burst Pressure**
10000 PSI	Standard Safety Multiplier Applies

Verification

Type of Fitting	Coupling Method
4 1/16 10K	Swage
Die Size	**Final O.D.**
6.38"	6.25"
Hose Serial #	**Hose Assembly Serial #**
5544	79793



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

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

Tested By: *Zac Mcconnell*

Approved By: *Kim Thomas*

Exhibit F-1 – Co-Flex Hose Hydrostatic Test
Riverbend 14 Federal Com 1H
Cimarex Energy Co. of Colorado
14-25S-28E
SHL 700 FNL & 1160 FWL
BHL 660 FSL & 710 FWL
Eddy County, NM

Midwest Hose
& Specialty, Inc.

INTERNAL HYDROSTATIC TEST REPORT

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

HOSE SPECIFICATIONS

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

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

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

COUPLINGS

Stem Part No.	Ferrule No.
OKC OKC	OKC OKC
Type of Coupling:	
Swage-It	

PROCEDURE

Hose assembly pressure tested with water at ambient temperature.

TIME HELD AT TEST PRESSURE	ACTUAL BURST PRESSURE:
15 MIN.	0 PSI

Hose Assembly Serial Number:	Hose Serial Number:
79793	OKC

Comments:

Date:	Tested:	Approved:
3/8/2011	A. Jaime Sanchez	

Exhibit F – Co-Flex Hose

Riverbend 14 Federal Com 1H

Cimarex Energy Co. of Colorado

14-25S-28E

SHL 700 FNL & 1160 FWL

BHL 660 FSL & 710 FWL

Eddy County, NM

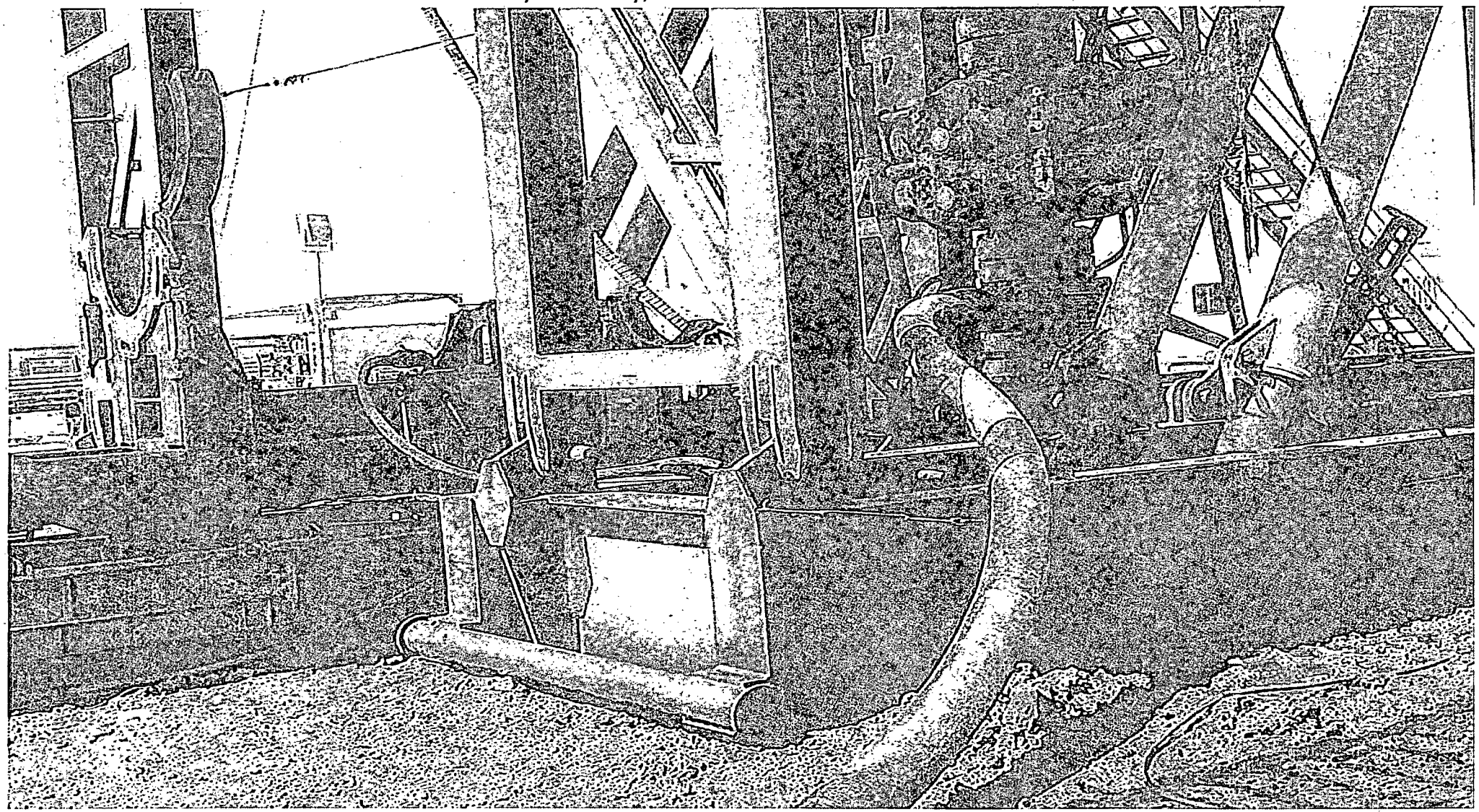


Exhibit F -3– Co-Flex Hose
Riverbend 14 Federal Com 1H
Cimarex Energy Co. of Colorado
14-25S-28E
SHL 700 FNL & 1160 FWL
BHL 660 FSL & 710 FWL
Eddy County, NM

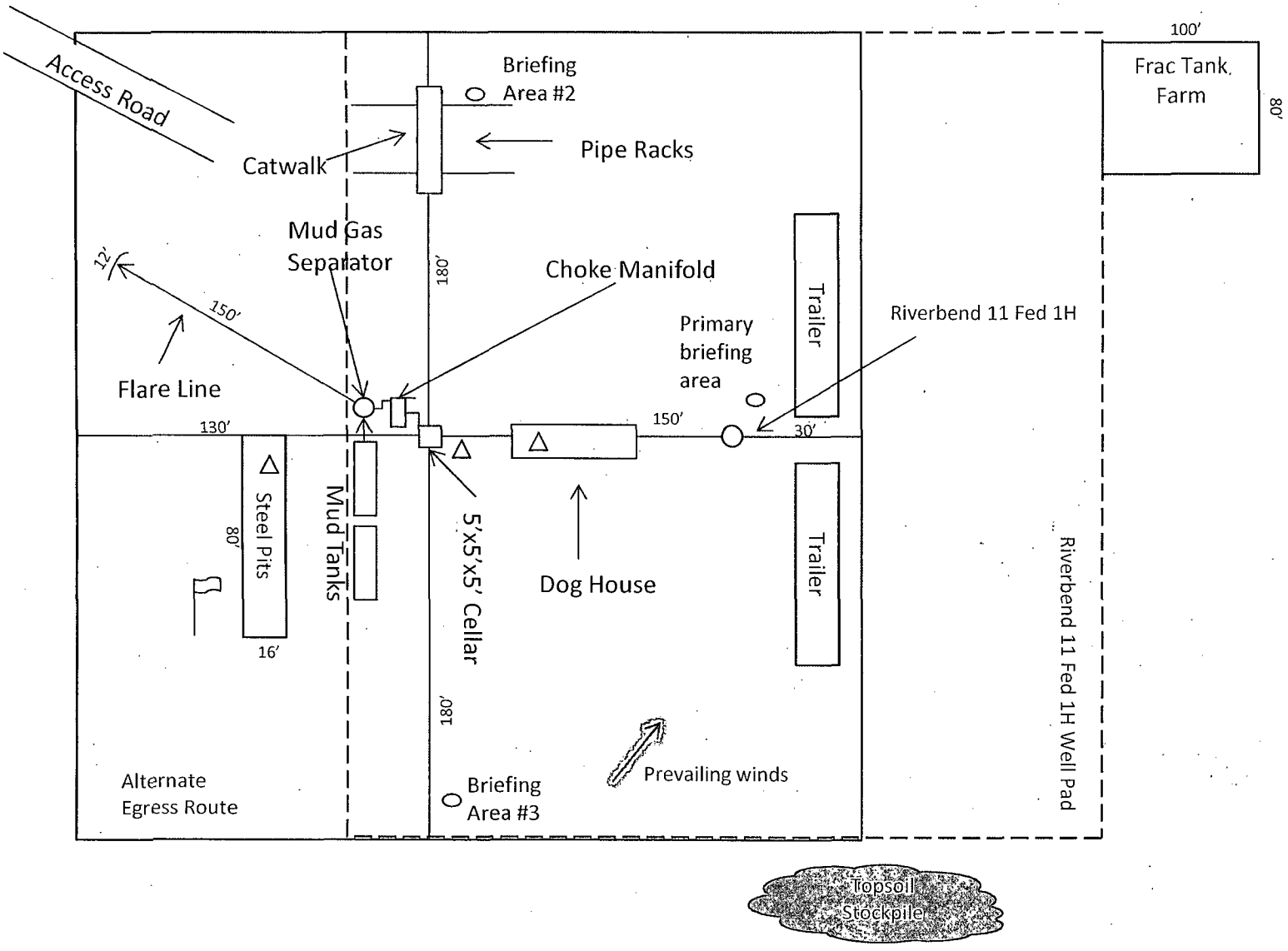
Midwest Hose & Specialty, Inc.

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



Wind Direction Indicators (wind sock or streamers)

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

Briefing Areas

N

Exhibit D – Rig Diagram
Riverbend 14 Federal Com 1H
Cimarex Energy Co. of Colorado
14-25S-28E
SHL 700 FNL & 1160 FWL
BHL 660 FSL & 710 FWL
Eddy County, NM

Hydrogen Sulfide Drilling Operations Plan
Riverbend 14 Federal Com 1H
Cimarex Energy Co. of Colorado
UL: D - Sec 14-25S-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 14 Federal Com 1H
Cimarex Energy Co. of Colorado
UL: D - Sec 14-25S-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 14 Federal Com 1H

Cimarex Energy Co. of Colorado

UL: D - Sec 14-25S-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

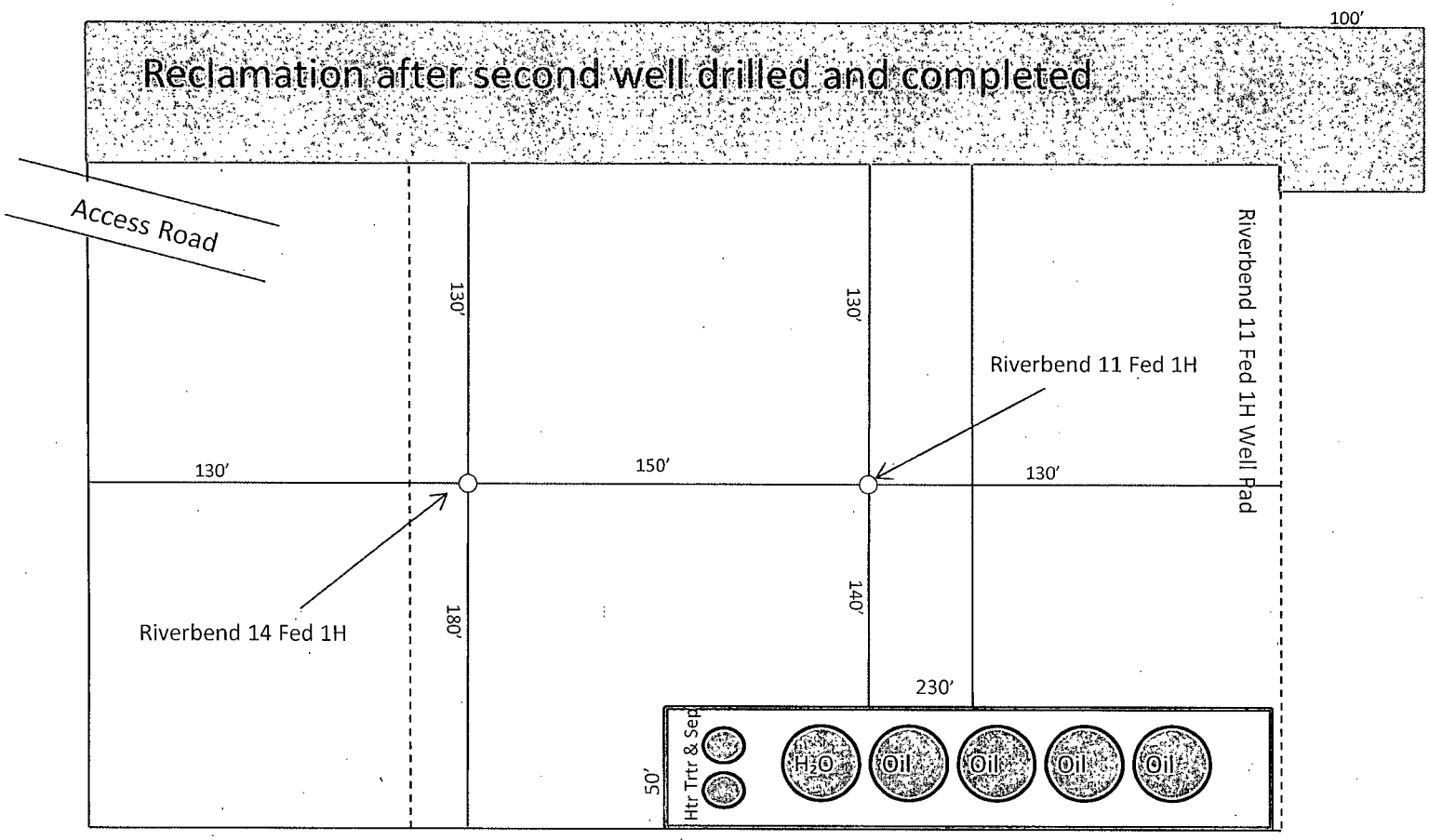
Carlsbad	
Ambulance	911
State Police	575-885-3137
City Police	575-885-2111
Sheriff's Office	575-887-7551
Fire Department	**575-887-3798**
Local Emergency Planning Committee	575-887-6544
US Bureau of Land Management	575-887-6544

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		



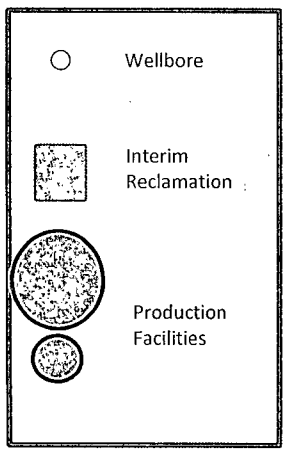


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Exhibit D-1
Interim Reclamation & Production Facilities Diagram
Riverbend 14 Federal Com 1H
Cimarex Energy Co. of Colorado
14-25S-28E
SHL 700 FNL & 1160 FWL
BHL 660 FSL & 710 FWL
Eddy County, NM

Surface Use Plan
Riverbend 14 Federal Com 1H
Cimarex Energy Co. of Colorado
UL: D - Sec 14-25S-28E
Eddy County, NM

1. **Existing Roads:** Area maps: 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. From Mile Marker 10 of Hwy 285, go south 0.5 miles to lease road. On lease road go east turning northerly 0.7 miles to ranch road. Follow rand road easterly 0.25 miles to proposed location.

2. **Planned Access Roads:** Planned access road will follow 1245' of existing two-track ranch road.

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 at the Riverbend 11 Federal 1H well, which shares a pad with the 14 #1, 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 11 Federal 1H, 150 apart. V-door north. Battery south. Top soil south. Interim reclamation: North. Access road from the southwest corner, west, following two-track road, to lease road.

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	**Cimarex Energy Co. of Colorado**
LEASE NO.:	**NMNM-112920**
WELL NAME & NO.:	**Riverbend 14 Federal Com 1H**
SURFACE HOLE FOOTAGE:	**0700' FNL & 1160' FWL**
BOTTOM HOLE FOOTAGE	**0660' FSL & 0710' FWL**
LOCATION:	**Section 14, T. 25 S., R 28 E., NMPM**
COUNTY:	**Eddy County, New Mexico**

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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.

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. EXCLOSURE FENCING (CELLARS & PITS)

Exclosure Fencing

The operator will install and maintain exclosure fencing for all open well cellars to prevent access to public, livestock, and large forms of wildlife before and after drilling operations until the pit is free of fluids and the operator initiates backfilling. (For

examples of exclosure fencing design, refer to BLM's Oil and Gas Gold Book, Exclosure Fence Illustrations, Figure 1, Page 18.)

G. ON LEASE ACCESS ROADS

Road Width

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

Surfacing

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

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

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

Crowning

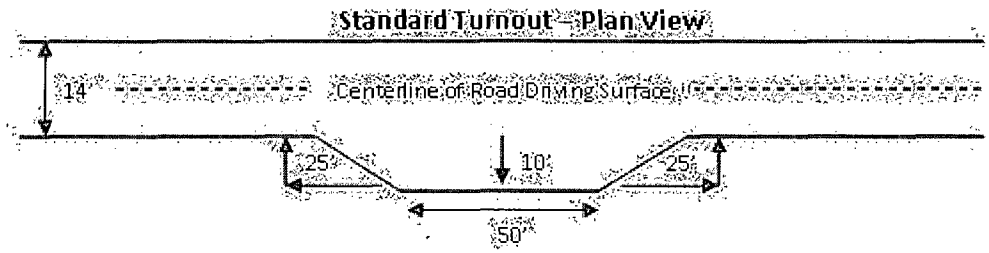
Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

Ditching

Ditching shall be required on both sides of the road.

Turnouts

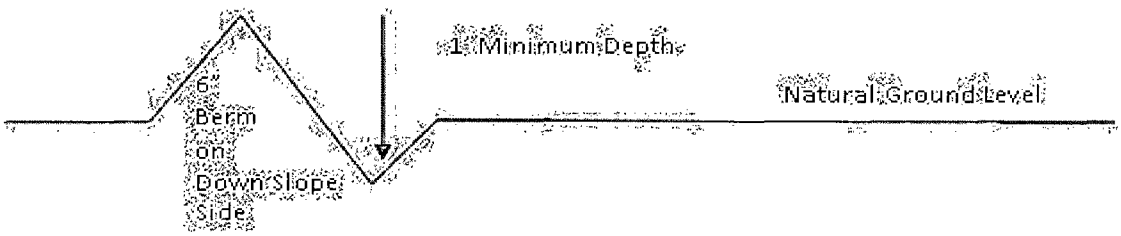
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall be constructed on all blind curves. Turnouts shall conform to the following diagram:



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

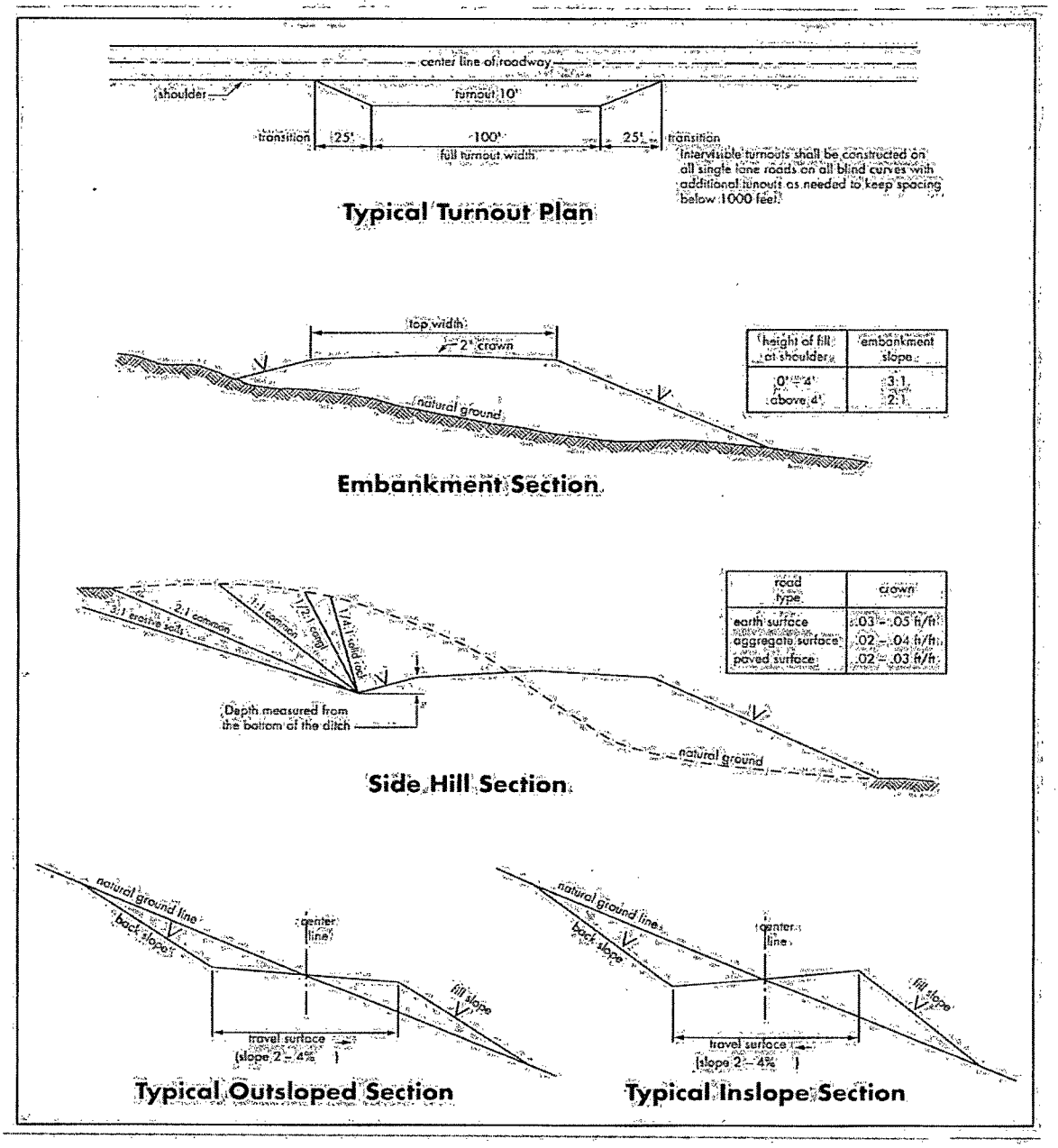
Where entry is required across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting.

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 and Wolfcamp formation.

1. The **13-3/8** inch surface casing shall be set at approximately **500** 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. Excess calculates to 19% - Additional cement may be required.**

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

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

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

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

2. The minimum required fill of cement behind the **9-5/8** inch intermediate casing is:

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

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

Centralizers approved as written.

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

   ☒ Cement should tie-back at least 500 feet into previous casing string. Operator shall provide method of verification. **Excess calculates to 23% - Additional cement may be required.**

The pilot hole plugging procedure is approved as written. Note plug top on drilling report.

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 **3000 (3M)** psi **(Operator installing a 5M testing to 3,000 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. 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.

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

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

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

D. DRILL STEM TEST

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

E. WASTE MATERIAL AND FLUIDS

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

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

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VIII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

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

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

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

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

Containment Structures

Proposed production facilities such as storage tanks and other vessels will have a secondary containment structure that is constructed to hold the capacity of 1.5 times the largest tank, plus freeboard to account for precipitation, unless more stringent protective requirements are deemed necessary.

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

B. PIPELINES (not applied for in APD)

C. ELECTRIC LINES (not applied for in APD)

IX. INTERIM RECLAMATION

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

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

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

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

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

X. FINAL ABANDONMENT & RECLAMATION

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

Earthwork for final reclamation must be completed within six (6) months of well plugging. All pads, pits, facility locations and roads must be reclaimed to a satisfactory revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

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

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

Seed Mixture 1, for Loamy Sites

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

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

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

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

*Pounds of pure live seed:

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