SECRETARY'S POTASH

OCD Artesia

RECEIVED
MAY 13 2013
NMOCD ARTESIA

Form 3160-3
(March 2012)

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

TES 5/23/2013

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. NMNM114978
	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. <39917> FORTY NINER RIDGE 25 FEDERAL 1H
2. Name of Operator Cimarex Energy Co. <215099>	9. API Well No. 30-015-41388
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 WC; 015 G-06 S233036D; B.S. Bone Spring Wildcat
4. Location of Well *(Report location clearly and in accordance with any State requirements.*)* At Surface 255' FSL & 250 FEL', Sec. 23 At proposed prod. Zone 330 FSL & 990 FWL, Sec. 25 *Horizontal Bone Spring test*	11. Sec., T. R. M. or Blk. and Survey or Area <97944> SHL: Sec. 23, 23S, 30E BHL: Sec. 25, 23S, 30E
14. Distance in miles and direction from nearest town or post office* Approx 14 miles WSW of Loving, 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
250'	960 acres	160 acres
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
50' from #2H	MD 15017' TVD 9870'	NM2575; NMB000835
21. Elevations (Show whether DF, KDB, RT, GL, etc.)	22. Approximate date work will start*	23. Estimated duration
3298' GR	5.1.13	25-30 days

24. Attachments

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

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

25. Signature	Name *(Printed/Typed)*	Date
	Terri Stathem	12.11.12
Title Regulatory		

Approved By *(Signature)* /s/ Aden L. Seidlitz	Name (Printed/Typed)	Date MAY - 3 2013
Title STATE DIRECTOR	Office NM STATE OFFICE	

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

APPROVAL FOR TWO YEARS

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

(Continued on page 2)

(Instructions on page 2)

Carlsbad Controlled Water Basin

Approval Subject to General Requirements & Special Stipulations Attached

SEE ATTACHED FOR CONDITIONS OF APPROVAL

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	97994	WC; 015 G-06 S233036O; BS. Wildcat Bone Spring

Property Code	Property Name	Well Number
39917	FORTY NINER RIDGE 25 FEDERAL	1H

OGRID No.	Operator Name	Elevation
215099	CIMAREX ENERGY CO.	3293'

Surface Location

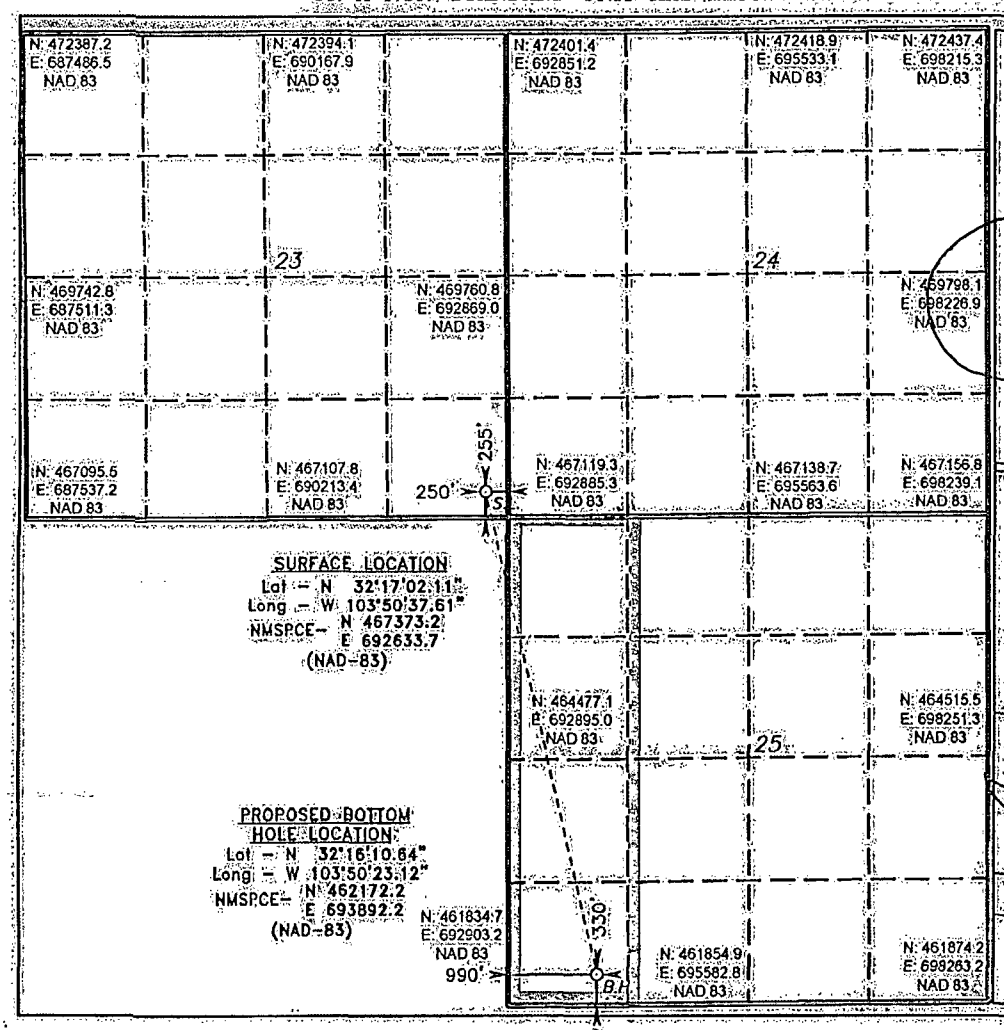
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	23	23 S	30 E		255	SOUTH	250	EAST	EDDY

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
M	25	23 S	30 E		330	SOUTH	990	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.

4/9/13
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.

Date Surveyed

Signature & Seal of Professional Surveyor

Certificate No. Gary L. Jones 7977

BASIN SURVEYS 28459

Operator Certification Statement
Forty Niner Ridge 25 Federal 1H
Cimarex Energy Co.
Unit P, Sec. 23
T23S-R30E; 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 December, 2012

NAME: Terri Stathem

TITLE: Regulatory

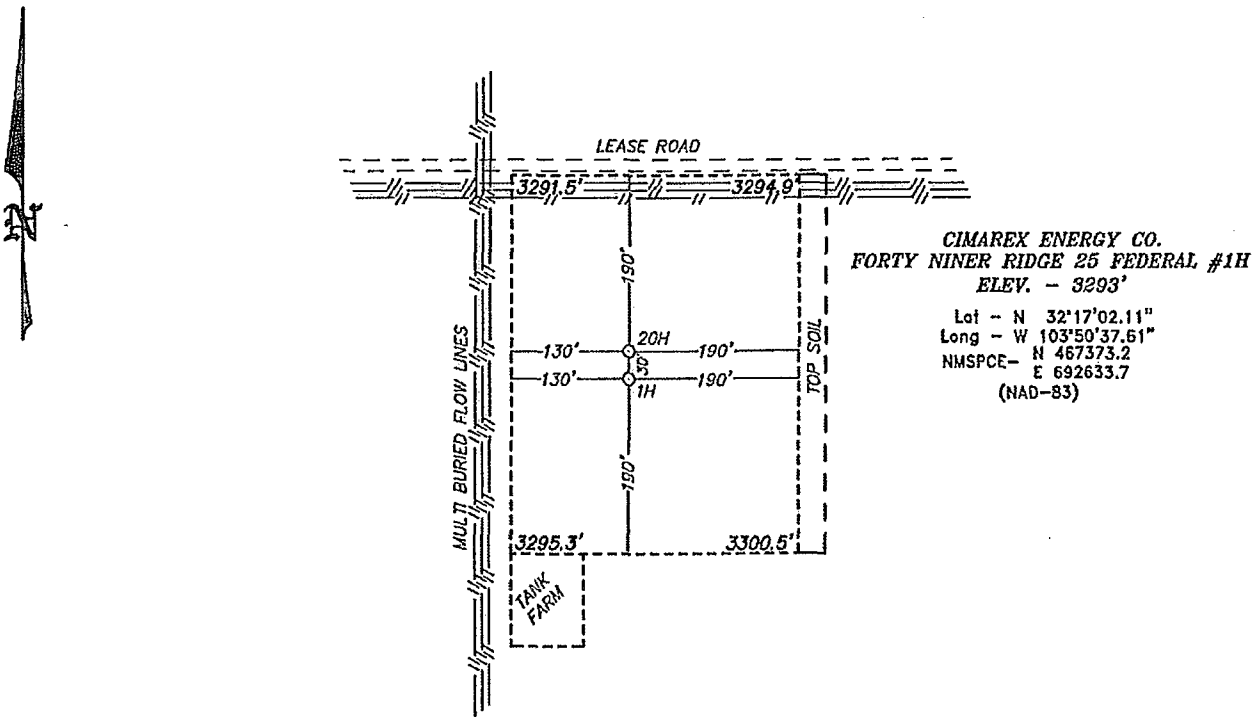
ADDRESS: 600 N. Marienfeld St., Ste. 600
Midland, TX 79701

TELEPHONE: 432-571-7848

EMAIL: tstathem@cimarex.com

Field Representative: Same as above

SECTION 23, TOWNSHIP 23 SOUTH, RANGE 30 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO.



CIMAREX ENERGY CO.
FORTY NINER RIDGE 25 FEDERAL #1H
ELEV. - 3293'

Lat - N 32°17'02.11"
Long - W 103°50'37.61"
NMSPCE- N 467373.2
E 692633.7
(NAD-83)

LOVING, NM IS ±15 MILES TO THE WEST OF LOCATION.

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

Directions to Location:

FROM THE JUNCTION OF HWY 128 AND MOBLEY, GO SOUTH ON MOBLEY FOR 0.6 MILES TO LEASE ROAD, GO SOUTHERLY ON LEASE ROAD FOR 2.5 MILES TURNING EAST 1.2 MILES TURNING SOUTH AGAIN FOR 0.5 MILES TO PROPOSED LOCATION.

CIMAREX ENERGY CO.

REF: FORTY NINER RIDGE 25 FEDERAL #1H / WELL PAD TOPO

THE FORTY NINER RIDGE 25 FEDERAL #1H LOCATED 255' FROM THE SOUTH LINE AND 250' FROM THE EAST LINE OF SECTION 23, TOWNSHIP 23 SOUTH, RANGE 30 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO.

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

W.O. Number: 28459	Drawn By: J. SMALL		
Date: 04-04-2013	Disk: JMS 28459	Survey Date: 04-01-2013	Sheet 1 of 1 Sheets

Exhibit C-1

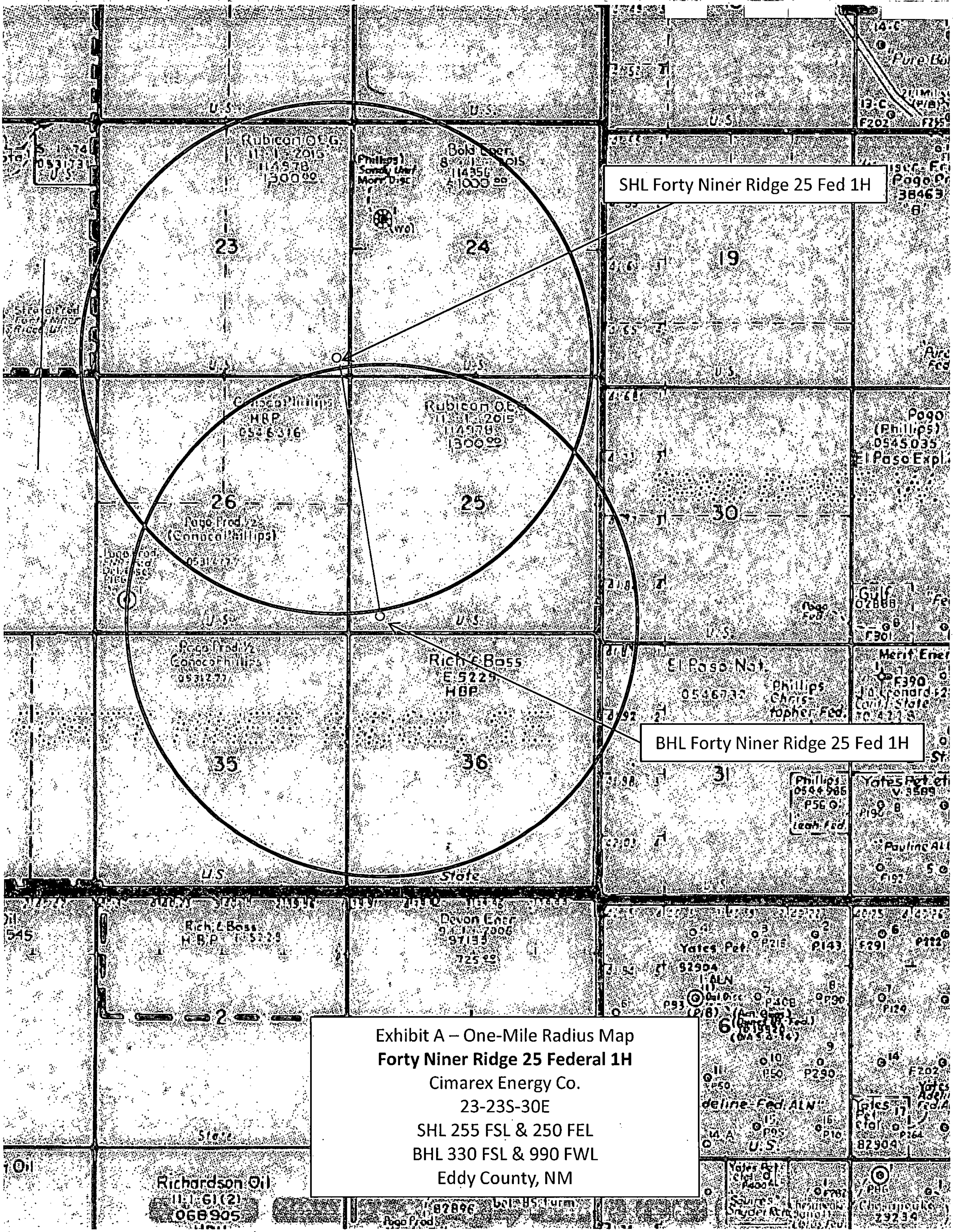
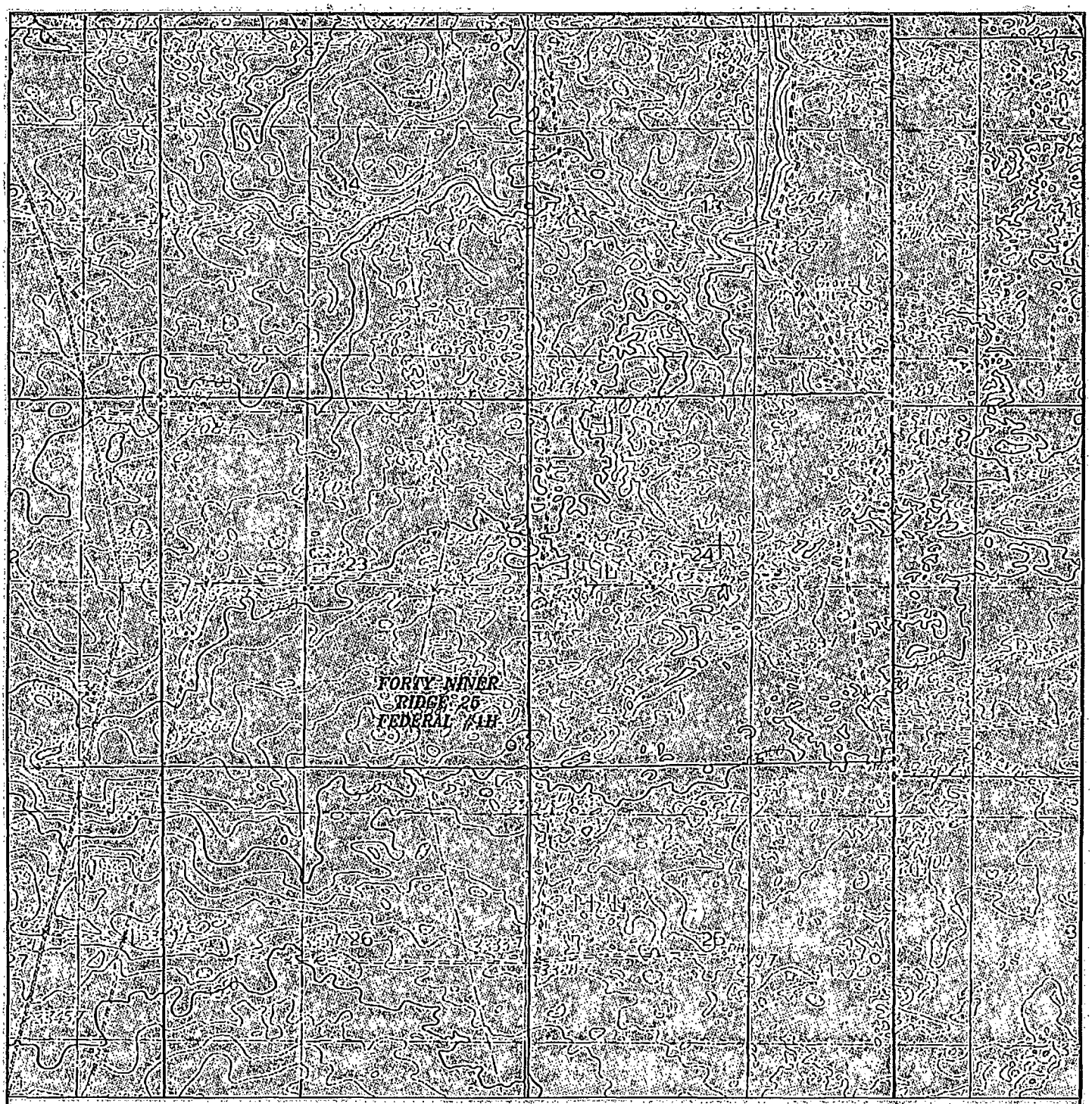


Exhibit A – One-Mile Radius Map
Forty Niner Ridge 25 Federal 1H
Cimarex Energy Co.
23-23S-30E
SHL 255 FSL & 250 FEL
BHL 330 FSL & 990 FWL
Eddy County, NM



FORTY NINER RIDGE 25 FEDERAL #1H
Located 255' FSL and 250' FEL
Section 23, Township 23 South, Range 30 East,
N.M.P.M., Eddy County, New Mexico.

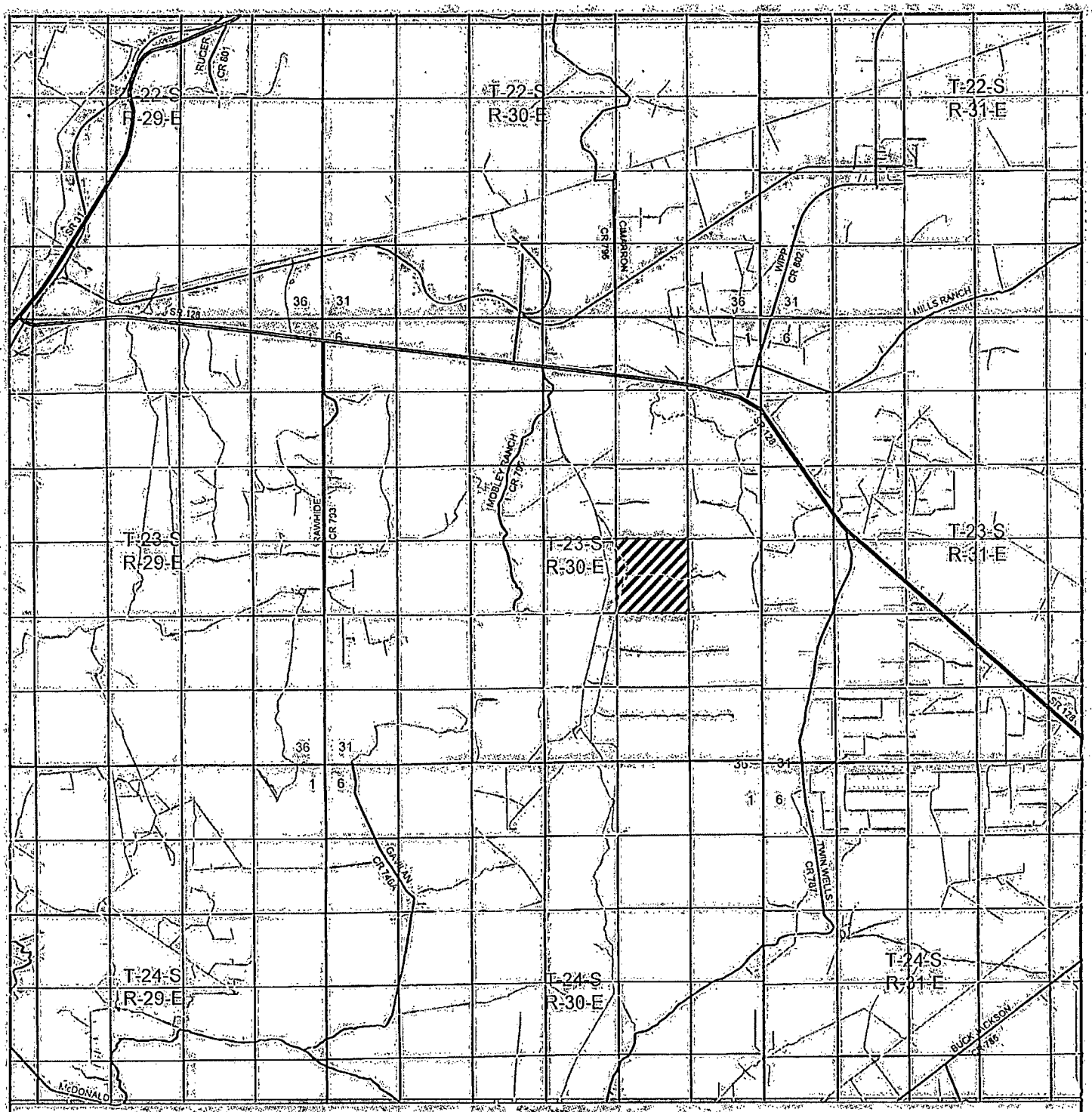
Basin Surveys
focused on excellence in the oilfield
P.O. Box 1786
1120 N. West County Rd.
Hobbs, New Mexico 88241
(575) 393-7316 - Office
(575) 392-2206 - Fax
basinsurveys.com

W.O. Number: JMS 28459
Survey Date: 04-01-2013
Scale: 1" = 2000'
Date: 04-04-2013

N

CIMAREX ENERGY CO.

Exhibit C



FORTY NINER RIDGE 25 FEDERAL #1H
Located 255' FSL and 250' FEL
Section 23, Township 23 South, Range 30 East,
N.M.P.M., Eddy County, New Mexico.

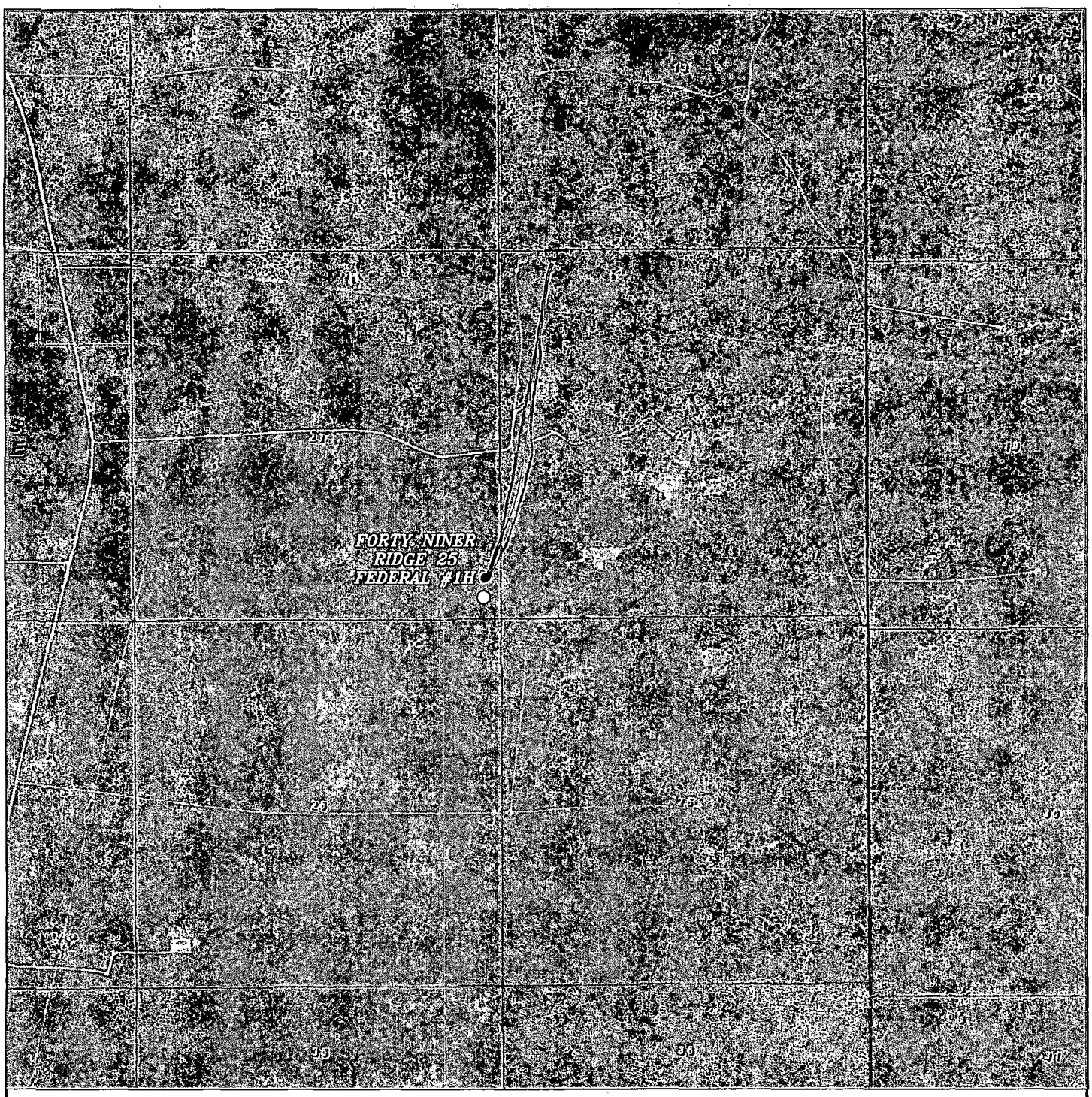
Basin Surveys
focused on excellence in the oilfield
P.O. Box 1786
1120 N. West County Rd.
Hobbs, New Mexico 88241
(575) 393-7316 - Office
(575) 392-2206 - Fax
basinsurveys.com

W.O. Number: JMS 28459
Survey Date: 04-01-2013
Scale: 1" = 2 Miles
Date: 04-04-2013

N

CIMAREX ENERGY CO.

Exhibit B



FORTY NINER RIDGE 25 FEDERAL #1H
Located 255' FSL and 250' FEL
Section 23, Township 23 South, Range 30 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 28459

Scale: 1" = 2000'

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

N

CIMAREX ENERGY CO.

Application to Drill
Forty Niner Ridge 25 Federal 1H
Cimarex Energy Co.
Unit P, Sec. 23
T23S-R30E; Eddy County, NM

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

1 Location: SHL 255' FSL & 250 FEL', Sec. 23
BHL 330 FSL & 990 FWL, Sec. 25

2 Elevation above sea level: 3293' per plat ~~3298'~~ 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: MD 15017' TVD 9870'

6 Estimated tops of geological markers:

Rustler	150	
Groundwater per OSE	200	
T. Salt	500	
B. Salt	3630	
Bell Canyon	3910	
Cherry Canyon	4750	
Brushy Canyon	6400	
Bone Spring	7740	Hydrocarbons
1st Bone Spring SS	8750	Hydrocarbons
2nd BSS	9650	Hydrocarbons

7 Possible mineral bearing formation:
Shown above

8 Proposed Mud Circulating System:

Depth	Mud Wt	Visc	Fluid Loss	Type Mud
0' to 350'	8.4 - 8.6	28	NC	FW
350' to 3890'	10.0	30-32	NC	Brine water
3890' to 15017'	8.4	30-32	NC	2% KCL

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 a electronic Paseon system satisfying requirements of Onshore Order 1.

Proposed Drilling Plan
Set surface and intermediate string. Drill 7 7/8" or 8 3/4" hole to KOP @ 9393' and log. Continue drilling lateral through the curve to TD @ 15017' MD, 9870' TVD. Run 5 1/2" casing and cement per program.

Drilling Plan
Forty Niner Ridge 25 Federal 1H
Cimarex Energy Co.
Unit P, Sec. 23
T23S-R30E; Eddy County, NM

8 Casing & Cementing Program:

String	Hole Size	Depth			Casing OD		Weight	Collar	Grade
Surface	17 1/2"	0'	to	350'	New	13 3/8"	48#	STC	H-40
Intermediate	12 1/4"	0'	to	3890'	New	9 5/8"	36#	LTC	J-55
Production	7 7/8" or 8 3/4"	0'	to	9393'	New	5 1/2"	17#	LTC	P-110
Production	7 7/8"or 8 3/4"	9393'	to	15017'	New	5 1/2"	17#	BTC	P-110

9 Cementing:

Surface	Sacks	Yield (cuft/sx)	Weight (ppg)	Cubic Feet	Cement Blend
Lead	40	1.75	13.5	69	Class C + Bentonite + Calcium Chloride + LCM
Tail	194	1.34	14.8	261	Class C + LCM

TOC: Surface 36% Excess **Centralizers per Onshore Order 2.III.B.1f**

Intermediate	Sacks	Yield (cuft/sx)	Weight (ppg)	Cubic Feet	Cement Blend
Lead	979	1.88	12.9	1840	35:65 (poz/C) + Salt + Bentonite + LCM + retarder
Tail	227	1.34	14.8	305	Class C + retarder + LCM

TOC: Surface 84% Excess

Production	Sacks	Yield (cuft/sx)	Weight (ppg)	Cubic Feet	Cement Blend
Lead	1054	2.4	11.9	2530	35:65 (poz/H) + salt + Sodium Metasilicate + Bentonite + Fluid Loss + Dispersant + LCM +
Tail	1483	1.24	14.5	1839	– 50:50 (poz/H) + Bentonite + Salt + Fluid Loss + Dispersant + LCM + Retarder

Cement volumes will be adjusted depending on hole size.
TOC: Surface 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.**

Collapse Factor	*Burst Factor*	*Tension Factor*
1.125	1.125	1.6

see COA

10 Pressure Control Equipment:
Exhibit "E". 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. 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
Forty Niner Ridge 25 Federal 1H
Cimarex Energy Co.
Unit P, Sec. 23
T23S-R30E; Eddy County, NM

11 Testing, Logging and Coring Program:

A. Mud logging program: 2 man unit from 3890 to TD
B. Electric logging program: CNL / LDT / CAL / GR, DLL / CAL / GR -- Inter. Csg to TD
C. No DSTs or cores are planned at this time.

12 Potential Hazards:

No abnormal pressures or temperatures are expected. In accordance with Onshore Order 6, Cimarex does not anticipate that there will be enough H_2S from the surface to the Bone Spring formations to meet the BLM's minimum requirements for the submission of an "H_2S Drilling Operation Plan" or "Public Protection Plan" for the drilling and completion of this well. Since we have an H_2S Safety package on all wells, attached is an "H_2S Drilling Operations Plan." Adequate flare lines will be installed off the mud / gas separator where gas may be flared safely. All personnel will be familiar with all aspects of safe operation of equipment being used.

Estimated BHP **4227 psi** Estimated BHT **138°**

13 Road and location construction will begin after BLM approval of APD. Anticipated spud date as soon as approved.
Drilling expected to take 25-30 days
If production casing is run an additional 30 days will be required to complete and construct surface facilities.

14 Other Facets of Operations:

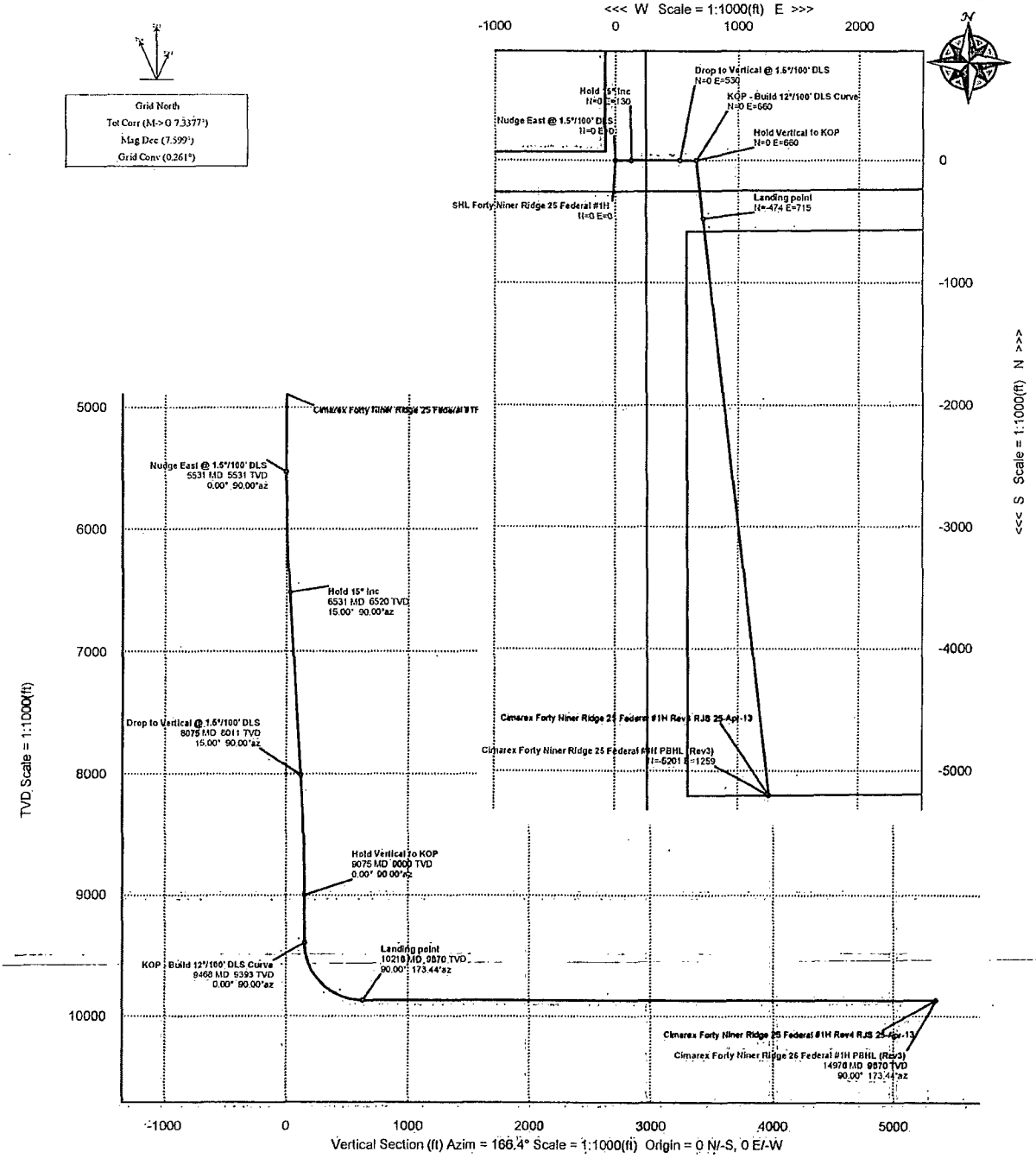
After running casing, cased hole gamma ray neutron collar logs will be run from total depth over possible pay intervals.
Bone Spring pay will be perforated and stimulated.
The proposed well will be tested and potentialed as **an oil well.**

CIMAREX

Cimarex

PATHFINDER
A Schlumberger Company

WELL	FIELD	STRUCTURE
Forty Niner Ridge 25 Fed #1H	NM Eddy County	TBD



Critical Points

Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+) / S(-)	E(+) / W(-)	DLS
SHL Forty Niner Ridge 25 Federal #1H	0.00	0.00	90.00	0.00	0.00	0.00	0.00	
Nudge East @ 1.5°/100' DLS	5531.00	0.00	90.00	5531.00	0.00	0.00	0.00	0.00
Hold 15° Inc	6530.94	15.00	90.00	6519.56	30.61	0.00	130.14	1.50
Drop to Vertical @ 1.5°/100' DLS	8075.45	15.00	90.00	8011.44	124.62	0.00	529.86	0.00
Hold Vertical to KOP	9075.39	0.00	90.00	9000.00	155.22	0.00	660.00	1.50
KOP - Build 12°/100' DLS Curve	9468.00	0.00	90.00	9392.61	155.22	0.00	660.00	0.00
Landing point	10217.88	90.00	173.44	9870.00	629.01	-474.26	714.58	12.00
Cimarex Forty Niner Ridge 25 Federal #1H PBHL (Rev3)	14976.17	90.00	173.44	9870.00	5351.45	-5201.35	1258.58	0.00

Cimarex Forty Niner Ridge 25 Federal #1H Rev4 RJS 25-Apr-13 Proposal Report

(Non-Def Plan)

PATHFINDER
A Schlumberger Company

Report Date:	April 25, 2013 - 12:47 PM	**Survey / DLS Computation:**	Minimum Curvature / Lubinski
Client:	Cimarex	**Vertical Section Azimuth:**	166.397 ° (Grid North)
Field:	NM Eddy County (NAD 83)	**Vertical Section Origin:**	0.000 ft, 0.000 ft
Structure / Slot:	TBD / Cimarex Forty Niner Ridge 25 Federal #1H	**TVD Reference Datum:**	Ground Level
Well:	Cimarex Forty Niner Ridge 25 Federal #1H	**TVD Reference Elevation:**	3293.000 ft above
Borehole:	Original Borehole	**Seabed / Ground Elevation:**	3293.000 ft above
UWI / API#:	Unknown / Unknown	**Magnetic Declination:**	7.599 °
Survey Name:	Cimarex Forty Niner Ridge 25 Federal #1H Rev4 RJS 25-Apr-13	**Total Gravity Field Strength:**	998.5029mgn (9.80665 Based)
Survey Date:	April 08, 2013	**Total Magnetic Field Strength:**	48415.796 nT
Tort / AHD / DDI / ERD Ratio:	119.998 ° / 5895.677 ft / 6.031 / 0.597	**Magnetic Dip Angle:**	60.107 °
Coordinate Reference System:	NAD83 New Mexico State Plane, Eastern Zone, US Feet	**Declination Date:**	April 08, 2013
Location Lat / Long:	N 32° 17' 2.16211", W 103° 50' 37.50043"	**Magnetic Declination Model:**	BGGM 2012
Location Grid N/E Y/X:	N 467373.200 ftUS, E 692633.700 ftUS	**North Reference:**	Grid North
CRS Grid Convergence Angle:	0.2615 °	**Grid Convergence Used:**	0.2615 °
Grid Scale Factor:	0.99993531	**Total Corr Mag North->Grid North:**	7.3377 °
		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 Forty Niner Ridge 25 Federal #1H	0.00	0.00	90.00	0.00	0.00	0.00	0.00	467373.20	692633.70	N 32 17 2.16	W 103 50 37.50	0.00	0.00	N/A
	100.00	0.00	90.00	100.00	0.00	0.00	0.00	467373.20	692633.70	N 32 17 2.16	W 103 50 37.50	0.00	0.00	0.00
	200.00	0.00	90.00	200.00	0.00	0.00	0.00	467373.20	692633.70	N 32 17 2.16	W 103 50 37.50	0.00	0.00	0.00
	300.00	0.00	90.00	300.00	0.00	0.00	0.00	467373.20	692633.70	N 32 17 2.16	W 103 50 37.50	0.00	0.00	0.00
	400.00	0.00	90.00	400.00	0.00	0.00	0.00	467373.20	692633.70	N 32 17 2.16	W 103 50 37.50	0.00	0.00	0.00
	500.00	0.00	90.00	500.00	0.00	0.00	0.00	467373.20	692633.70	N 32 17 2.16	W 103 50 37.50	0.00	0.00	0.00
	600.00	0.00	90.00	600.00	0.00	0.00	0.00	467373.20	692633.70	N 32 17 2.16	W 103 50 37.50	0.00	0.00	0.00
	700.00	0.00	90.00	700.00	0.00	0.00	0.00	467373.20	692633.70	N 32 17 2.16	W 103 50 37.50	0.00	0.00	0.00
	800.00	0.00	90.00	800.00	0.00	0.00	0.00	467373.20	692633.70	N 32 17 2.16	W 103 50 37.50	0.00	0.00	0.00
	900.00	0.00	90.00	900.00	0.00	0.00	0.00	467373.20	692633.70	N 32 17 2.16	W 103 50 37.50	0.00	0.00	0.00
	1000.00	0.00	90.00	1000.00	0.00	0.00	0.00	467373.20	692633.70	N 32 17 2.16	W 103 50 37.50	0.00	0.00	0.00
	1100.00	0.00	90.00	1100.00	0.00	0.00	0.00	467373.20	692633.70	N 32 17 2.16	W 103 50 37.50	0.00	0.00	0.00
	1200.00	0.00	90.00	1200.00	0.00	0.00	0.00	467373.20	692633.70	N 32 17 2.16	W 103 50 37.50	0.00	0.00	0.00
	1300.00	0.00	90.00	1300.00	0.00	0.00	0.00	467373.20	692633.70	N 32 17 2.16	W 103 50 37.50	0.00	0.00	0.00
	1400.00	0.00	90.00	1400.00	0.00	0.00	0.00	467373.20	692633.70	N 32 17 2.16	W 103 50 37.50	0.00	0.00	0.00
	1500.00	0.00	90.00	1500.00	0.00	0.00	0.00	467373.20	692633.70	N 32 17 2.16	W 103 50 37.50	0.00	0.00	0.00
	1600.00	0.00	90.00	1600.00	0.00	0.00	0.00	467373.20	692633.70	N 32 17 2.16	W 103 50 37.50	0.00	0.00	0.00
	1700.00	0.00	90.00	1700.00	0.00	0.00	0.00	467373.20	692633.70	N 32 17 2.16	W 103 50 37.50	0.00	0.00	0.00
	1800.00	0.00	90.00	1800.00	0.00	0.00	0.00	467373.20	692633.70	N 32 17 2.16	W 103 50 37.50	0.00	0.00	0.00
	1900.00	0.00	90.00	1900.00	0.00	0.00	0.00	467373.20	692633.70	N 32 17 2.16	W 103 50 37.50	0.00	0.00	0.00
	2000.00	0.00	90.00	2000.00	0.00	0.00	0.00	467373.20	692633.70	N 32 17 2.16	W 103 50 37.50	0.00	0.00	0.00
	2100.00	0.00	90.00	2100.00	0.00	0.00	0.00	467373.20	692633.70	N 32 17 2.16	W 103 50 37.50	0.00	0.00	0.00
	2200.00	0.00	90.00	2200.00	0.00	0.00	0.00	467373.20	692633.70	N 32 17 2.16	W 103 50 37.50	0.00	0.00	0.00
	2300.00	0.00	90.00	2300.00	0.00	0.00	0.00	467373.20	692633.70	N 32 17 2.16	W 103 50 37.50	0.00	0.00	0.00
	2400.00	0.00	90.00	2400.00	0.00	0.00	0.00	467373.20	692633.70	N 32 17 2.16	W 103 50 37.50	0.00	0.00	0.00
	2500.00	0.00	90.00	2500.00	0.00	0.00	0.00	467373.20	692633.70	N 32 17 2.16	W 103 50 37.50	0.00	0.00	0.00
	2600.00	0.00	90.00	2600.00	0.00	0.00	0.00	467373.20	692633.70	N 32 17 2.16	W 103 50 37.50	0.00	0.00	0.00
	2700.00	0.00	90.00	2700.00	0.00	0.00	0.00	467373.20	692633.70	N 32 17 2.16	W 103 50 37.50	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)
	2800.00	0.00	90.00	2800.00	0.00	0.00	0.00	467373.20	692633.70	N 32 17 2.16	W 103 50 37.50	0.00	0.00	0.00
	2900.00	0.00	90.00	2900.00	0.00	0.00	0.00	467373.20	692633.70	N 32 17 2.16	W 103 50 37.50	0.00	0.00	0.00
	3000.00	0.00	90.00	3000.00	0.00	0.00	0.00	467373.20	692633.70	N 32 17 2.16	W 103 50 37.50	0.00	0.00	0.00
	3100.00	0.00	90.00	3100.00	0.00	0.00	0.00	467373.20	692633.70	N 32 17 2.16	W 103 50 37.50	0.00	0.00	0.00
	3200.00	0.00	90.00	3200.00	0.00	0.00	0.00	467373.20	692633.70	N 32 17 2.16	W 103 50 37.50	0.00	0.00	0.00
	3300.00	0.00	90.00	3300.00	0.00	0.00	0.00	467373.20	692633.70	N 32 17 2.16	W 103 50 37.50	0.00	0.00	0.00
	3400.00	0.00	90.00	3400.00	0.00	0.00	0.00	467373.20	692633.70	N 32 17 2.16	W 103 50 37.50	0.00	0.00	0.00
	3500.00	0.00	90.00	3500.00	0.00	0.00	0.00	467373.20	692633.70	N 32 17 2.16	W 103 50 37.50	0.00	0.00	0.00
	3600.00	0.00	90.00	3600.00	0.00	0.00	0.00	467373.20	692633.70	N 32 17 2.16	W 103 50 37.50	0.00	0.00	0.00
	3700.00	0.00	90.00	3700.00	0.00	0.00	0.00	467373.20	692633.70	N 32 17 2.16	W 103 50 37.50	0.00	0.00	0.00
	3800.00	0.00	90.00	3800.00	0.00	0.00	0.00	467373.20	692633.70	N 32 17 2.16	W 103 50 37.50	0.00	0.00	0.00
	3900.00	0.00	90.00	3900.00	0.00	0.00	0.00	467373.20	692633.70	N 32 17 2.16	W 103 50 37.50	0.00	0.00	0.00
	4000.00	0.00	90.00	4000.00	0.00	0.00	0.00	467373.20	692633.70	N 32 17 2.16	W 103 50 37.50	0.00	0.00	0.00
	4100.00	0.00	90.00	4100.00	0.00	0.00	0.00	467373.20	692633.70	N 32 17 2.16	W 103 50 37.50	0.00	0.00	0.00
	4200.00	0.00	90.00	4200.00	0.00	0.00	0.00	467373.20	692633.70	N 32 17 2.16	W 103 50 37.50	0.00	0.00	0.00
	4300.00	0.00	90.00	4300.00	0.00	0.00	0.00	467373.20	692633.70	N 32 17 2.16	W 103 50 37.50	0.00	0.00	0.00
	4400.00	0.00	90.00	4400.00	0.00	0.00	0.00	467373.20	692633.70	N 32 17 2.16	W 103 50 37.50	0.00	0.00	0.00
	4500.00	0.00	90.00	4500.00	0.00	0.00	0.00	467373.20	692633.70	N 32 17 2.16	W 103 50 37.50	0.00	0.00	0.00
	4600.00	0.00	90.00	4600.00	0.00	0.00	0.00	467373.20	692633.70	N 32 17 2.16	W 103 50 37.50	0.00	0.00	0.00
	4700.00	0.00	90.00	4700.00	0.00	0.00	0.00	467373.20	692633.70	N 32 17 2.16	W 103 50 37.50	0.00	0.00	0.00
	4800.00	0.00	90.00	4800.00	0.00	0.00	0.00	467373.20	692633.70	N 32 17 2.16	W 103 50 37.50	0.00	0.00	0.00
	4900.00	0.00	90.00	4900.00	0.00	0.00	0.00	467373.20	692633.70	N 32 17 2.16	W 103 50 37.50	0.00	0.00	0.00
	5000.00	0.00	90.00	5000.00	0.00	0.00	0.00	467373.20	692633.70	N 32 17 2.16	W 103 50 37.50	0.00	0.00	0.00
	5100.00	0.00	90.00	5100.00	0.00	0.00	0.00	467373.20	692633.70	N 32 17 2.16	W 103 50 37.50	0.00	0.00	0.00
	5200.00	0.00	90.00	5200.00	0.00	0.00	0.00	467373.20	692633.70	N 32 17 2.16	W 103 50 37.50	0.00	0.00	0.00
	5300.00	0.00	90.00	5300.00	0.00	0.00	0.00	467373.20	692633.70	N 32 17 2.16	W 103 50 37.50	0.00	0.00	0.00
	5400.00	0.00	90.00	5400.00	0.00	0.00	0.00	467373.20	692633.70	N 32 17 2.16	W 103 50 37.50	0.00	0.00	0.00
	5500.00	0.00	90.00	5500.00	0.00	0.00	0.00	467373.20	692633.70	N 32 17 2.16	W 103 50 37.50	0.00	0.00	0.00
Nudge East @ 1.5°/100' DLS	5531.00	0.00	90.00	5531.00	0.00	0.00	0.00	467373.20	692633.70	N 32 17 2.16	W 103 50 37.50	0.00	0.00	0.00
	5600.00	1.04	90.00	5600.00	0.15	0.00	0.62	467373.20	692634.32	N 32 17 2.16	W 103 50 37.49	0.62	90.00	1.50
	5700.00	2.54	90.00	5699.94	0.88	0.00	3.74	467373.20	692637.44	N 32 17 2.16	W 103 50 37.46	3.74	90.00	1.50
	5800.00	4.04	90.00	5799.78	2.23	0.00	9.47	467373.20	692643.17	N 32 17 2.16	W 103 50 37.39	9.47	90.00	1.50
	5900.00	5.54	90.00	5899.43	4.19	0.00	17.81	467373.20	692651.51	N 32 17 2.16	W 103 50 37.29	17.81	90.00	1.50
	6000.00	7.04	90.00	5998.82	6.76	0.00	28.76	467373.20	692662.45	N 32 17 2.16	W 103 50 37.17	28.76	90.00	1.50
	6100.00	8.54	90.00	6097.90	9.95	0.00	42.30	467373.20	692676.00	N 32 17 2.16	W 103 50 37.01	42.30	90.00	1.50
	6200.00	10.04	90.00	6196.58	13.74	0.00	58.44	467373.20	692692.13	N 32 17 2.16	W 103 50 36.82	58.44	90.00	1.50
	6300.00	11.54	90.00	6294.82	18.14	0.00	77.15	467373.20	692710.84	N 32 17 2.16	W 103 50 36.60	77.15	90.00	1.50
	6400.00	13.04	90.00	6392.52	23.15	0.00	98.42	467373.20	692732.12	N 32 17 2.16	W 103 50 36.35	98.42	90.00	1.50
	6500.00	14.54	90.00	6489.64	28.75	0.00	122.25	467373.20	692755.94	N 32 17 2.16	W 103 50 36.08	122.25	90.00	1.50
Hold 15° Inc	6530.94	15.00	90.00	6519.56	30.61	0.00	130.14	467373.20	692763.83	N 32 17 2.16	W 103 50 35.98	130.14	90.00	1.50
	6600.00	15.00	90.00	6586.27	34.81	0.00	148.01	467373.20	692781.70	N 32 17 2.16	W 103 50 35.78	148.01	90.00	0.00
	6700.00	15.00	90.00	6682.86	40.90	0.00	173.89	467373.20	692807.58	N 32 17 2.15	W 103 50 35.47	173.89	90.00	0.00
	6800.00	15.00	90.00	6779.45	46.98	0.00	199.77	467373.20	692833.46	N 32 17 2.15	W 103 50 35.17	199.77	90.00	0.00
	6900.00	15.00	90.00	6876.04	53.07	0.00	225.65	467373.20	692859.34	N 32 17 2.15	W 103 50 34.87	225.65	90.00	0.00
	7000.00	15.00	90.00	6972.64	59.16	0.00	251.53	467373.20	692885.22	N 32 17 2.15	W 103 50 34.57	251.53	90.00	0.00
	7100.00	15.00	90.00	7069.23	65.24	0.00	277.41	467373.20	692911.09	N 32 17 2.15	W 103 50 34.27	277.41	90.00	0.00
	7200.00	15.00	90.00	7165.82	71.33	0.00	303.29	467373.20	692936.97	N 32 17 2.15	W 103 50 33.97	303.29	90.00	0.00
	7300.00	15.00	90.00	7262.42	77.42	0.00	329.17	467373.20	692962.85	N 32 17 2.15	W 103 50 33.67	329.17	90.00	0.00
	7400.00	15.00	90.00	7359.01	83.50	0.00	355.05	467373.20	692988.73	N 32 17 2.15	W 103 50 33.36	355.05	90.00	0.00
	7500.00	15.00	90.00	7455.60	89.59	0.00	380.93	467373.20	693014.61	N 32 17 2.14	W 103 50 33.06	380.93	90.00	0.00
	7600.00	15.00	90.00	7552.20	95.68	0.00	406.81	467373.20	693040.49	N 32 17 2.14	W 103 50 32.76	406.81	90.00	0.00
	7700.00	15.00	90.00	7648.79	101.76	0.00	432.70	467373.20	693066.37	N 32 17 2.14	W 103 50 32.46	432.70	90.00	0.00
	7800.00	15.00	90.00	7745.38	107.85	0.00	458.58	467373.20	693092.24	N 32 17 2.14	W 103 50 32.16	458.58	90.00	0.00
	7900.00	15.00	90.00	7841.97	113.94	0.00	484.46	467373.20	693118.12	N 32 17 2.14	W 103 50 31.86	484.46	90.00	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)
	8000.00	15.00	90.00	7938.57	120.02	0.00	510.34	467373.20	693144.00	N 32 17 2.14	W 103 50 31.56	510.34	90.00	0.00
Drop to Vertical @ 1.5°/100' DLS	8075.45	15.00	90.00	8011.44	124.62	0.00	529.86	467373.20	693163.53	N 32 17 2.14	W 103 50 31.33	529.86	90.00	0.00
	8100.00	14.63	90.00	8035.18	126.09	0.00	536.14	467373.20	693169.80	N 32 17 2.14	W 103 50 31.26	536.14	90.00	1.50
	8200.00	13.13	90.00	8132.26	131.73	0.00	560.13	467373.20	693193.79	N 32 17 2.14	W 103 50 30.98	560.13	90.00	1.50
	8300.00	11.63	90.00	8229.93	136.78	0.00	581.57	467373.20	693215.23	N 32 17 2.14	W 103 50 30.73	581.57	90.00	1.50
	8400.00	10.13	90.00	8328.13	141.22	0.00	600.45	467373.20	693234.11	N 32 17 2.13	W 103 50 30.51	600.45	90.00	1.50
	8500.00	8.63	90.00	8426.79	145.05	0.00	616.75	467373.20	693250.40	N 32 17 2.13	W 103 50 30.32	616.75	90.00	1.50
	8600.00	7.13	90.00	8525.84	148.27	0.00	630.46	467373.20	693264.11	N 32 17 2.13	W 103 50 30.16	630.46	90.00	1.50
	8700.00	5.63	90.00	8625.22	150.89	0.00	641.57	467373.20	693275.23	N 32 17 2.13	W 103 50 30.03	641.57	90.00	1.50
	8800.00	4.13	90.00	8724.85	152.89	0.00	650.08	467373.20	693283.73	N 32 17 2.13	W 103 50 29.93	650.08	90.00	1.50
	8900.00	2.63	90.00	8824.68	154.28	0.00	655.97	467373.20	693289.63	N 32 17 2.13	W 103 50 29.86	655.97	90.00	1.50
	9000.00	1.13	90.00	8924.62	155.05	0.00	659.26	467373.20	693292.91	N 32 17 2.13	W 103 50 29.82	659.26	90.00	1.50
Hold Vertical to KOP	9075.39	0.00	90.00	9000.00	155.22	0.00	660.00	467373.20	693293.66	N 32 17 2.13	W 103 50 29.81	660.00	90.00	1.50
	9100.00	0.00	90.00	9024.61	155.22	0.00	660.00	467373.20	693293.66	N 32 17 2.13	W 103 50 29.81	660.00	90.00	0.00
	9200.00	0.00	90.00	9124.61	155.22	0.00	660.00	467373.20	693293.66	N 32 17 2.13	W 103 50 29.81	660.00	90.00	0.00
	9300.00	0.00	90.00	9224.61	155.22	0.00	660.00	467373.20	693293.66	N 32 17 2.13	W 103 50 29.81	660.00	90.00	0.00
	9400.00	0.00	90.00	9324.61	155.22	0.00	660.00	467373.20	693293.66	N 32 17 2.13	W 103 50 29.81	660.00	90.00	0.00
KOP - Build 12°/100' DLS Curve	9468.00	0.00	90.00	9392.61	155.22	0.00	660.00	467373.20	693293.66	N 32 17 2.13	W 103 50 29.81	660.00	90.00	0.00
	9500.00	3.84	173.44	9424.59	156.29	-1.07	660.12	467372.13	693293.78	N 32 17 2.12	W 103 50 29.81	660.12	90.09	12.00
	9600.00	15.84	173.44	9522.94	173.22	-18.01	662.07	467355.19	693295.73	N 32 17 1.95	W 103 50 29.79	662.32	91.56	12.00
	9700.00	27.84	173.44	9615.59	210.08	-54.91	666.32	467318.29	693299.97	N 32 17 1.59	W 103 50 29.74	668.58	94.71	12.00
	9800.00	39.85	173.44	9698.49	265.25	-110.14	672.68	467263.07	693306.33	N 32 17 1.04	W 103 50 29.67	681.63	99.30	12.00
	9900.00	51.85	173.44	9768.02	336.33	-181.29	680.86	467191.92	693314.52	N 32 17 0.34	W 103 50 29.58	704.59	104.91	12.00
	10000.00	63.85	173.44	9821.14	420.21	-265.24	690.53	467107.97	693324.18	N 32 16 59.51	W 103 50 29.47	739.72	111.01	12.00
	10100.00	75.85	173.44	9855.52	513.21	-358.34	701.24	467014.88	693334.89	N 32 16 58.58	W 103 50 29.35	787.49	117.07	12.00
	10200.00	87.85	173.44	9869.67	611.27	-456.50	712.54	466916.73	693346.19	N 32 16 57.61	W 103 50 29.23	846.23	122.65	12.00
Landing point	10217.88	90.00	173.44	9870.00	629.01	-474.26	714.58	466898.98	693348.23	N 32 16 57.44	W 103 50 29.20	857.64	123.57	12.00
	10300.00	90.00	173.44	9870.00	710.52	-555.84	723.97	466817.40	693357.62	N 32 16 56.63	W 103 50 29.10	912.74	127.52	0.00
	10400.00	90.00	173.44	9870.00	809.76	-655.19	735.40	466718.06	693369.05	N 32 16 55.65	W 103 50 28.97	984.93	131.70	0.00
	10500.00	90.00	173.44	9870.00	909.01	-754.53	746.83	466618.72	693380.48	N 32 16 54.66	W 103 50 28.84	1061.64	135.29	0.00
	10600.00	90.00	173.44	9870.00	1008.26	-853.87	758.27	466519.38	693391.92	N 32 16 53.68	W 103 50 28.71	1141.96	138.39	0.00
	10700.00	90.00	173.44	9870.00	1107.50	-953.22	769.70	466420.04	693403.35	N 32 16 52.70	W 103 50 28.59	1225.18	141.08	0.00
	10800.00	90.00	173.44	9870.00	1206.75	-1052.56	781.13	466320.71	693414.78	N 32 16 51.71	W 103 50 28.46	1310.75	143.42	0.00
	10900.00	90.00	173.44	9870.00	1306.00	-1151.91	792.57	466221.37	693426.21	N 32 16 50.73	W 103 50 28.33	1398.23	145.47	0.00
	11000.00	90.00	173.44	9870.00	1405.24	-1251.25	804.00	466122.03	693437.64	N 32 16 49.74	W 103 50 28.20	1487.29	147.28	0.00
	11100.00	90.00	173.44	9870.00	1504.49	-1350.60	815.43	466022.69	693449.08	N 32 16 48.76	W 103 50 28.07	1577.67	148.88	0.00
	11200.00	90.00	173.44	9870.00	1603.74	-1449.94	826.86	465923.36	693460.51	N 32 16 47.78	W 103 50 27.95	1669.14	150.30	0.00
	11300.00	90.00	173.44	9870.00	1702.98	-1549.28	838.30	465824.02	693471.94	N 32 16 46.79	W 103 50 27.82	1761.54	151.58	0.00
	11400.00	90.00	173.44	9870.00	1802.23	-1648.63	849.73	465724.68	693483.37	N 32 16 45.81	W 103 50 27.69	1854.73	152.73	0.00
	11500.00	90.00	173.44	9870.00	1901.48	-1747.97	861.16	465625.34	693494.80	N 32 16 44.83	W 103 50 27.56	1948.59	153.77	0.00
	11600.00	90.00	173.44	9870.00	2000.72	-1847.32	872.59	465526.01	693506.24	N 32 16 43.84	W 103 50 27.44	2043.04	154.72	0.00
	11700.00	90.00	173.44	9870.00	2099.97	-1946.66	884.03	465426.67	693517.67	N 32 16 42.86	W 103 50 27.31	2137.99	155.58	0.00
	11800.00	90.00	173.44	9870.00	2199.22	-2046.01	895.46	465327.33	693529.10	N 32 16 41.88	W 103 50 27.18	2233.38	156.36	0.00
	11900.00	90.00	173.44	9870.00	2298.46	-2145.35	906.89	465227.99	693540.53	N 32 16 40.89	W 103 50 27.05	2329.16	157.09	0.00
	12000.00	90.00	173.44	9870.00	2397.71	-2244.69	918.33	465128.66	693551.96	N 32 16 39.91	W 103 50 26.92	2425.28	157.75	0.00
	12100.00	90.00	173.44	9870.00	2496.96	-2344.04	929.76	465029.32	693563.40	N 32 16 38.93	W 103 50 26.80	2521.70	158.36	0.00
	12200.00	90.00	173.44	9870.00	2596.20	-2443.38	941.19	464929.98	693574.83	N 32 16 37.94	W 103 50 26.67	2618.39	158.93	0.00
	12300.00	90.00	173.44	9870.00	2695.45	-2542.73	952.62	464830.64	693586.26	N 32 16 36.96	W 103 50 26.54	2715.32	159.46	0.00
	12400.00	90.00	173.44	9870.00	2794.70	-2642.07	964.06	464731.30	693597.69	N 32 16 35.98	W 103 50 26.41	2812.46	159.95	0.00
	12500.00	90.00	173.44	9870.00	2893.94	-2741.42	975.49	464631.97	693609.12	N 32 16 34.99	W 103 50 26.28	2909.80	160.41	0.00
	12600.00	90.00	173.44	9870.00	2993.19	-2840.76	986.92	464532.63	693620.56	N 32 16 34.01	W 103 50 26.16	3007.31	160.84	0.00
	12700.00	90.00	173.44	9870.00	3092.43	-2940.10	998.36	464433.29	693631.99	N 32 16 33.02	W 103 50 26.03	3104.98	161.24	0.00
	12800.00	90.00	173.44	9870.00	3191.68	-3039.45	1009.79	464333.95	693643.42	N 32 16 32.04	W 103 50 25.90	3202.80	161.62	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)
	12900.00	90.00	173.44	9870.00	3290.93	-3138.79	1021.22	464234.62	693654.85	N 32 16 31.06	W 103 50 25.77	3300.74	161.98	0.00
	13000.00	90.00	173.44	9870.00	3390.17	-3238.14	1032.65	464135.28	693666.28	N 32 16 30.07	W 103 50 25.65	3398.81	162.31	0.00
	13100.00	90.00	173.44	9870.00	3489.42	-3337.48	1044.09	464035.94	693677.72	N 32 16 29.09	W 103 50 25.52	3496.98	162.63	0.00
	13200.00	90.00	173.44	9870.00	3588.67	-3436.83	1055.52	463936.60	693689.15	N 32 16 28.11	W 103 50 25.39	3595.26	162.93	0.00
	13300.00	90.00	173.44	9870.00	3687.91	-3536.17	1066.95	463837.27	693700.58	N 32 16 27.12	W 103 50 25.26	3693.63	163.21	0.00
	13400.00	90.00	173.44	9870.00	3787.16	-3635.51	1078.38	463737.93	693712.01	N 32 16 26.14	W 103 50 25.13	3792.08	163.48	0.00
	13500.00	90.00	173.44	9870.00	3886.41	-3734.86	1089.82	463638.59	693723.44	N 32 16 25.16	W 103 50 25.01	3890.61	163.73	0.00
	13600.00	90.00	173.44	9870.00	3985.65	-3834.20	1101.25	463539.25	693734.88	N 32 16 24.17	W 103 50 24.88	3989.22	163.98	0.00
	13700.00	90.00	173.44	9870.00	4084.90	-3933.55	1112.68	463439.91	693746.31	N 32 16 23.19	W 103 50 24.75	4087.89	164.21	0.00
	13800.00	90.00	173.44	9870.00	4184.15	-4032.89	1124.12	463340.58	693757.74	N 32 16 22.21	W 103 50 24.62	4186.63	164.42	0.00
	13900.00	90.00	173.44	9870.00	4283.39	-4132.24	1135.55	463241.24	693769.17	N 32 16 21.22	W 103 50 24.49	4285.42	164.63	0.00
	14000.00	90.00	173.44	9870.00	4382.64	-4231.58	1146.98	463141.90	693780.60	N 32 16 20.24	W 103 50 24.37	4384.27	164.83	0.00
	14100.00	90.00	173.44	9870.00	4481.89	-4330.93	1158.41	463042.56	693792.04	N 32 16 19.26	W 103 50 24.24	4483.17	165.03	0.00
	14200.00	90.00	173.44	9870.00	4581.13	-4430.27	1169.85	462943.23	693803.47	N 32 16 18.27	W 103 50 24.11	4582.12	165.21	0.00
	14300.00	90.00	173.44	9870.00	4680.38	-4529.61	1181.28	462843.89	693814.90	N 32 16 17.29	W 103 50 23.98	4681.11	165.38	0.00
	14400.00	90.00	173.44	9870.00	4779.63	-4628.96	1192.71	462744.55	693826.33	N 32 16 16.30	W 103 50 23.86	4780.15	165.55	0.00
	14500.00	90.00	173.44	9870.00	4878.87	-4728.30	1204.14	462645.21	693837.76	N 32 16 15.32	W 103 50 23.73	4879.22	165.71	0.00
	14600.00	90.00	173.44	9870.00	4978.12	-4827.65	1215.58	462545.88	693849.20	N 32 16 14.34	W 103 50 23.60	4978.33	165.87	0.00
	14700.00	90.00	173.44	9870.00	5077.37	-4926.99	1227.01	462446.54	693860.63	N 32 16 13.35	W 103 50 23.47	5077.48	166.02	0.00
	14800.00	90.00	173.44	9870.00	5176.61	-5026.34	1238.44	462347.20	693872.06	N 32 16 12.37	W 103 50 23.34	5176.66	166.16	0.00
	14900.00	90.00	173.44	9870.00	5275.86	-5125.68	1249.88	462247.86	693883.49	N 32 16 11.39	W 103 50 23.22	5275.87	166.30	0.00
Cimarex Forty Niner Ridge 25 Federal #1H PBHL (Rev3)	14976.17	90.00	173.44	9870.00	5351.45	-5201.35	1258.58	462172.20	693892.20	N 32 16 10.64	W 103 50 23.12	5351.45	166.40	0.00

Survey Type: Non-Def Plan

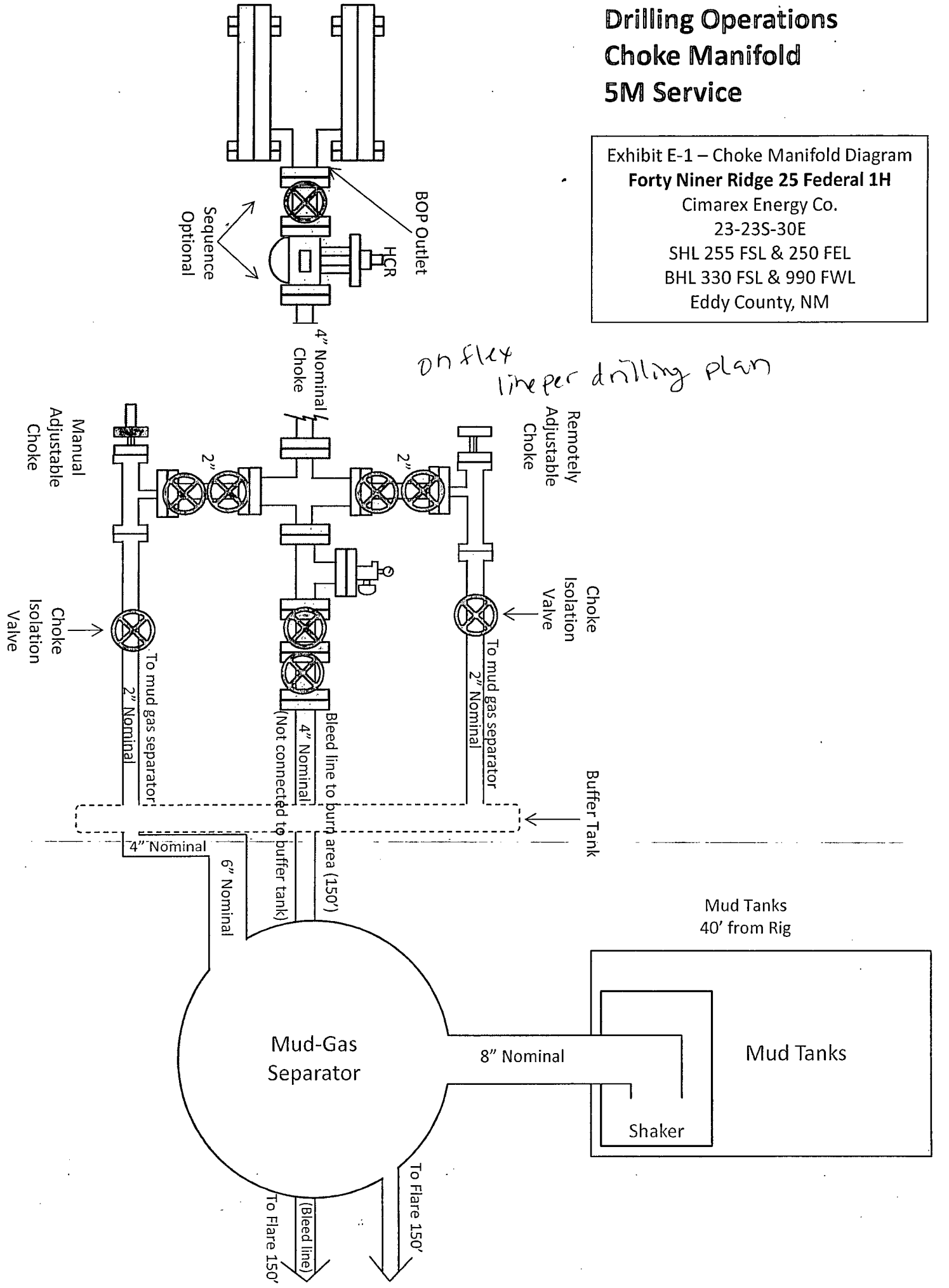
Survey Error Model: ISCWSA Rev 0 *** 3-D 95.000% Confidence 2.7955 sigma

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	14976.167		1/100.000	30.000	30.000	SLB_MWD-STD	Original Borehole / Cimarex Forty Niner Ridge 25 Federal #1H Rev4

Drilling Operations
Choke Manifold
5M Service

Exhibit E-1 – Choke Manifold Diagram
Forty Niner Ridge 25 Federal 1H
Cimarex Energy Co.
23-23S-30E
SHL 255 FSL & 250 FEL
BHL 330 FSL & 990 FWL
Eddy County, NM



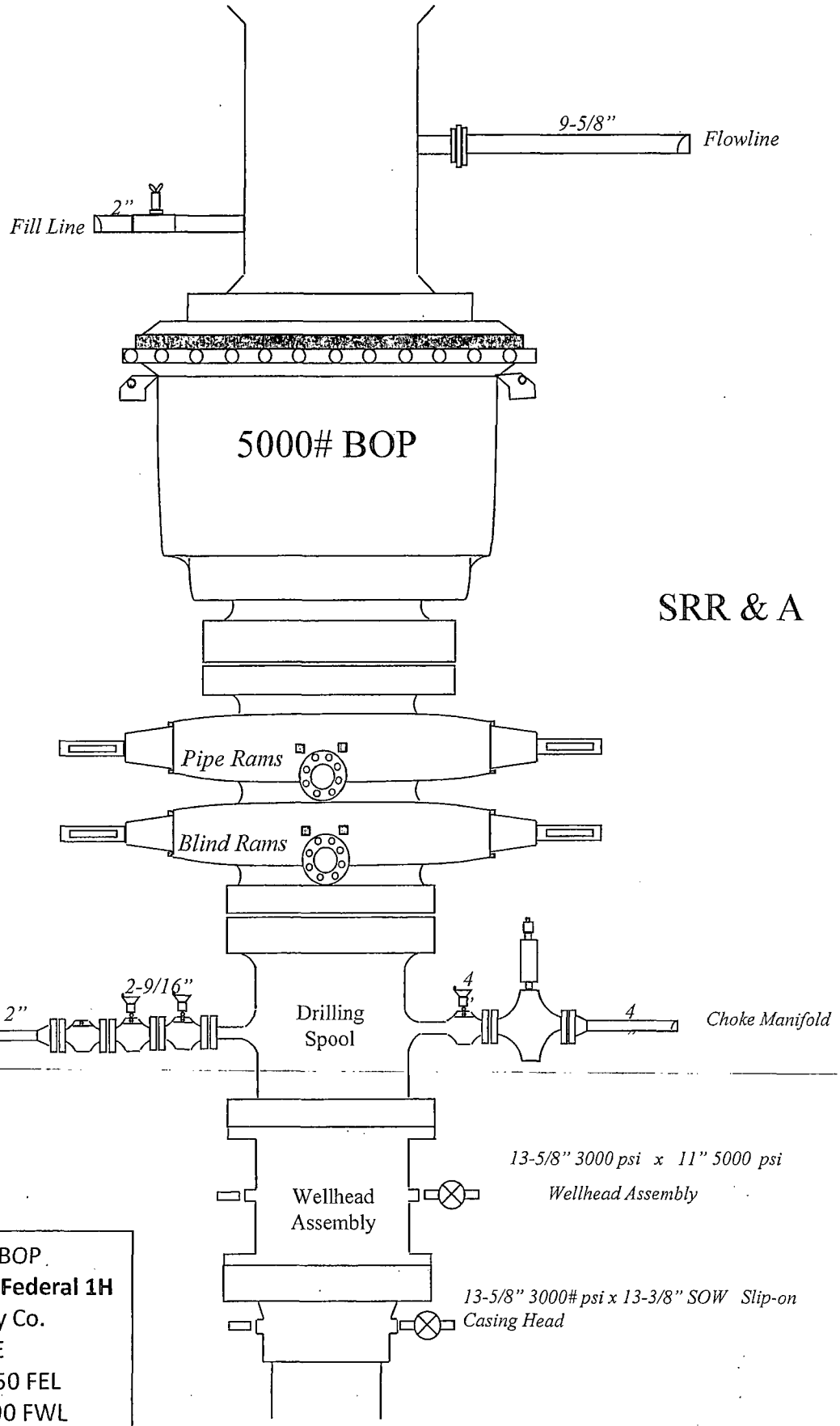


Exhibit E – 5M BOP
Forty Niner Ridge 25 Federal 1H
Cimarex Energy Co.
23-23S-30E
SHL 255 FSL & 250 FEL
BHL 330 FSL & 990 FWL
Eddy County, NM

Midwest Hose
& Specialty, Inc.

INTERNAL HYDROSTATIC TEST REPORT

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

HOSE SPECIFICATIONS

Type: Stainless Steel Armor Choke & Kill Hose	Hose Length: 45'ft.
I.D. 4 *INCHES*	O.D. 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: 79793	Hose Serial Number: OKC
Comments:	

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

Midwest Hose & Specialty, Inc.

Internal Hydrostatic Test Graph

March 3, 2011

Customer: Houston

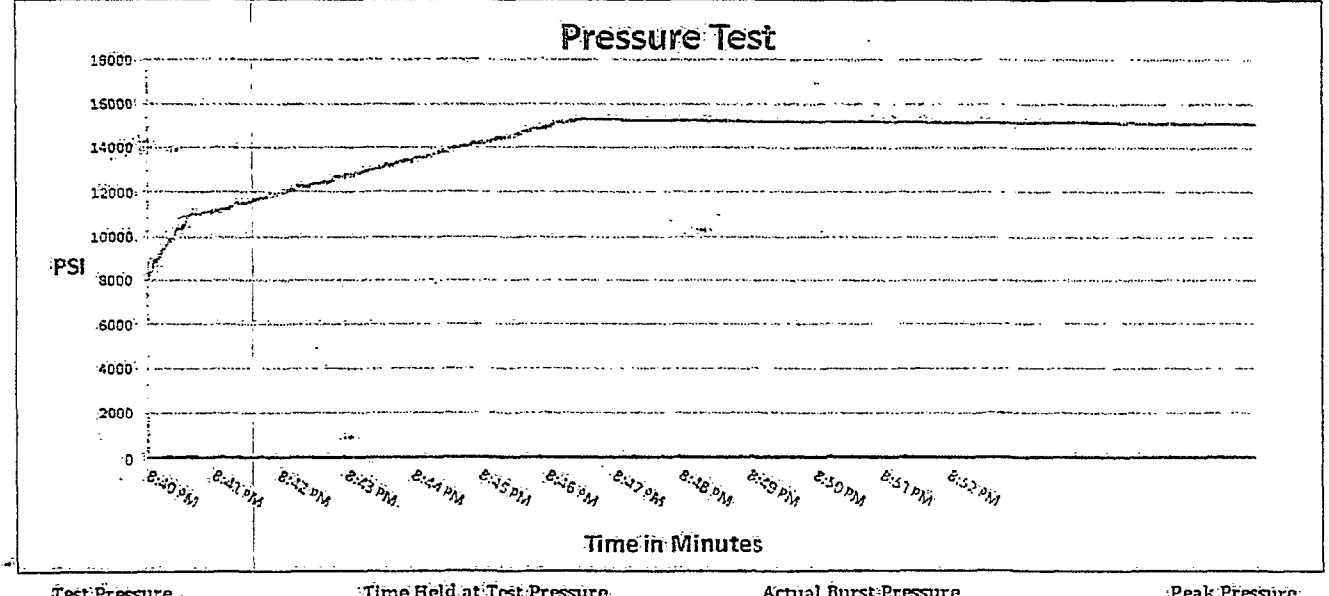
Pick Ticket #: 94260

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 #**
S544	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

Midwest Hose
& Specialty, Inc.

Certificate of Conformity

Customer:	PO
DEM	ODYD-271

SPECIFICATIONS

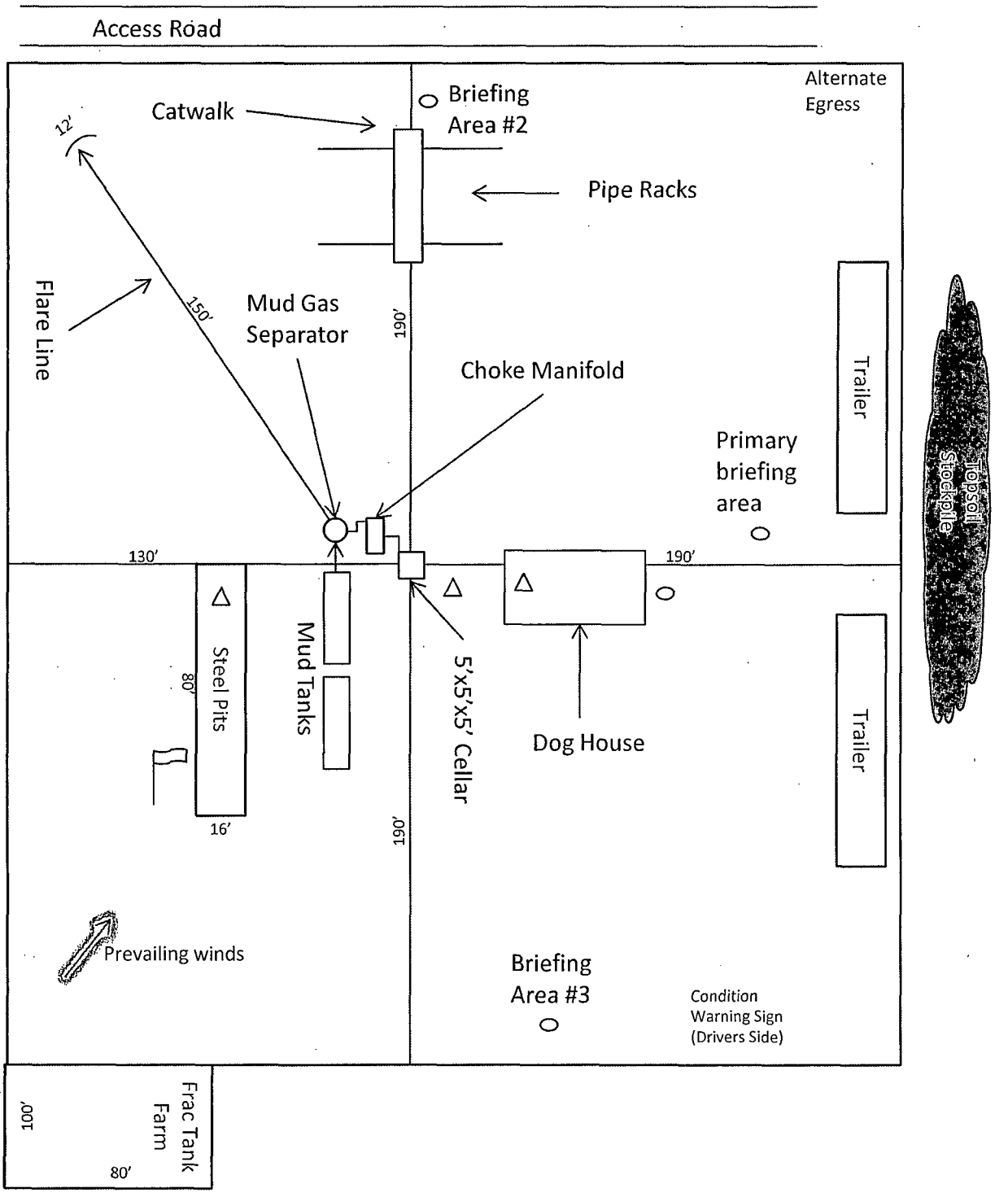
Sales Order	Dated:
79793	3/8/2011

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



Wind Direction Indicators (wind sock or streamers)

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

○ Briefing Areas

N

Exhibit D – Rig Diagram
Forty Niner Ridge 25 Federal 1H
Cimarex Energy Co.
23-23S-30E
SHL 255 FSL & 250 FEL
BHL 330 FSL & 990 FWL
Eddy County, NM

Hydrogen Sulfide Drilling Operations Plan
Forty Niner Ridge 25 Federal 1H
Cimarex Energy Co.
Unit P, Sec. 23
T23S-R30E; 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. Principle 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"

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
Forty Niner Ridge 25 Federal 1H
Cimarex Energy Co.
Unit P, Sec. 23
T23S-R30E; 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
Forty Niner Ridge 25 Federal 1H
Cimarex Energy Co.
Unit P, Sec. 23
T23S-R30E; 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	

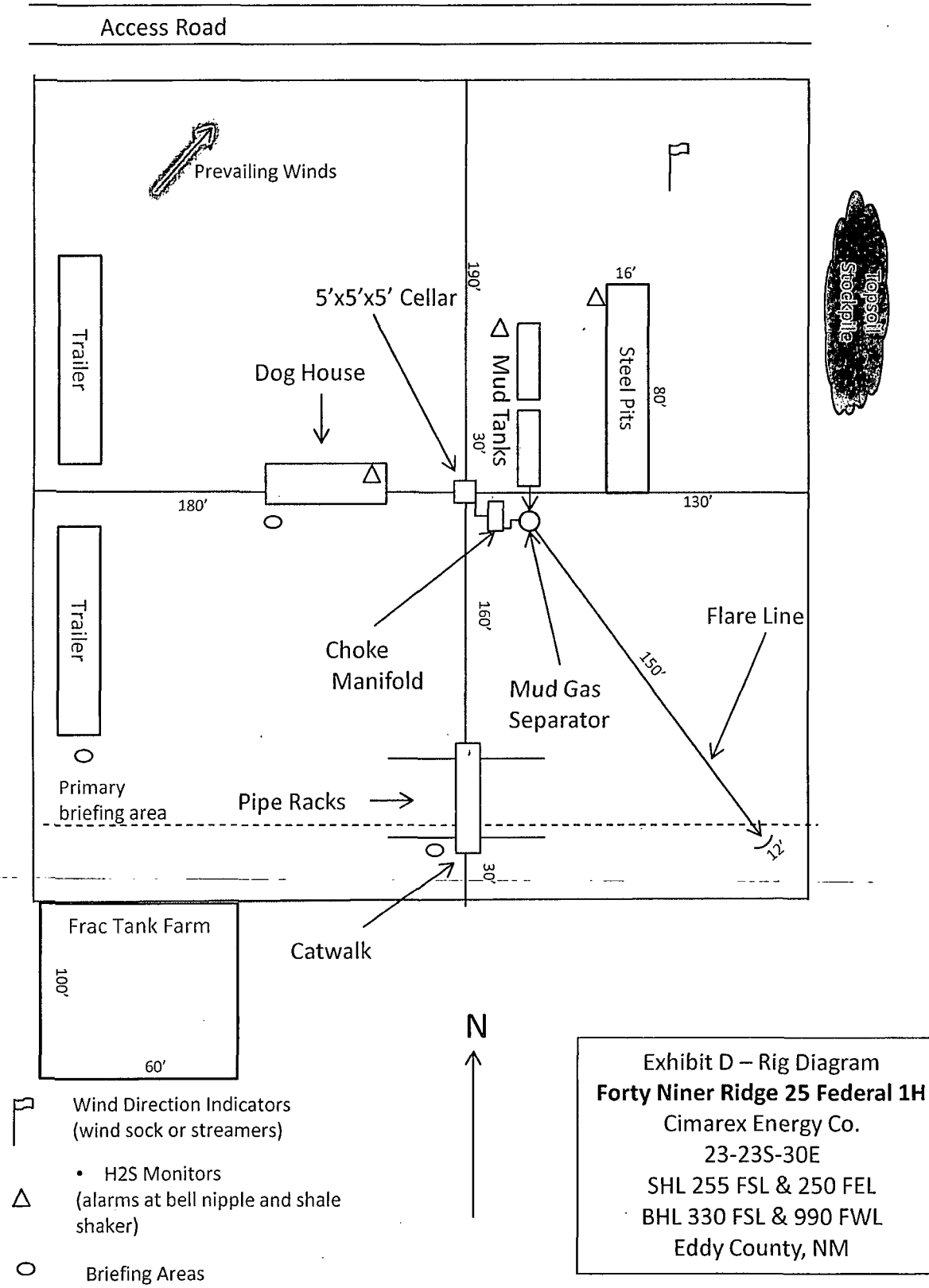


Exhibit D – Rig Diagram
Forty Niner Ridge 25 Federal 1H
Cimarex Energy Co.
23-23S-30E
SHL 255 FSL & 250 FEL
BHL 330 FSL & 990 FWL
Eddy County, NM

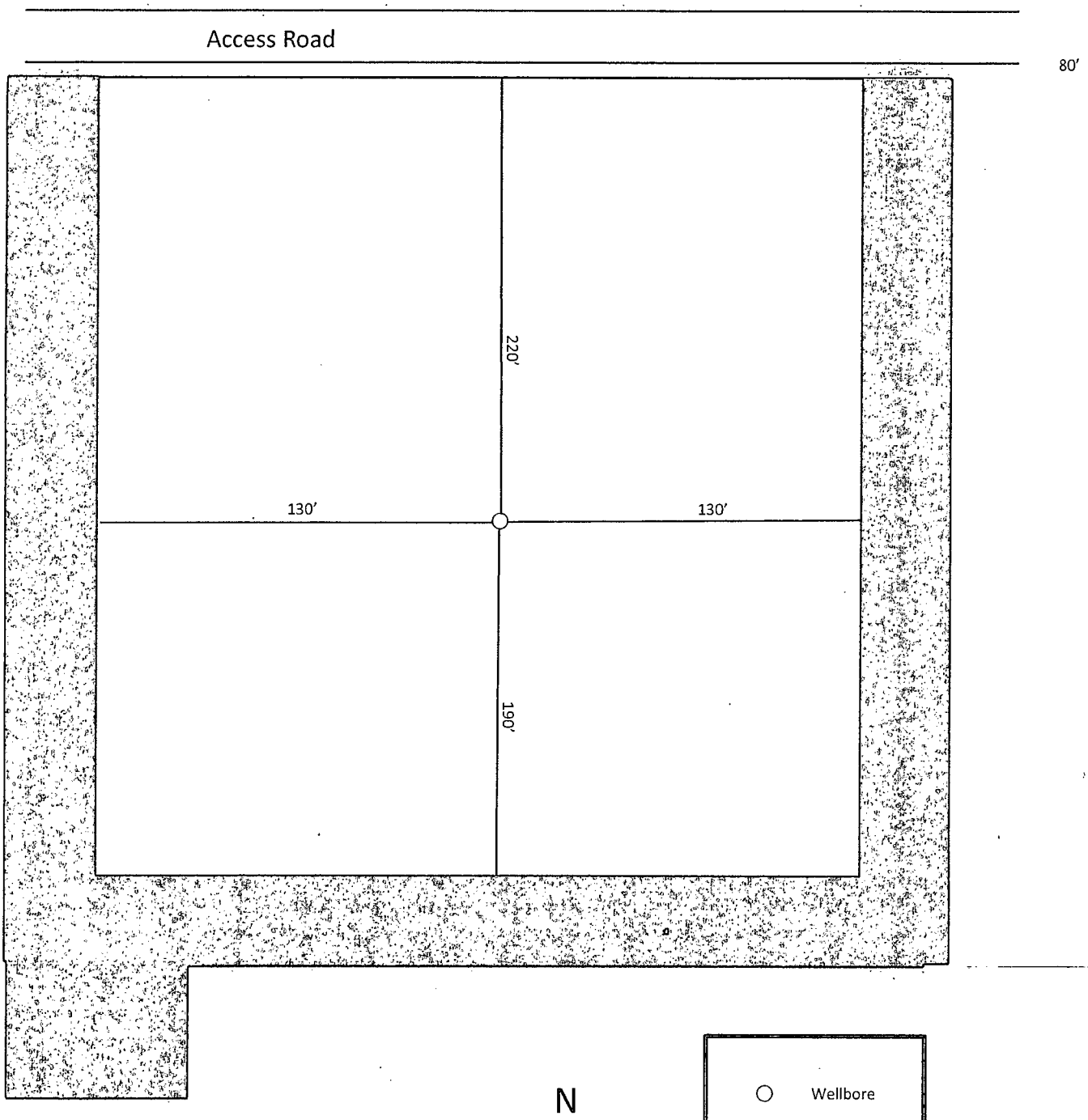


Exhibit D-1
Interim Reclamation Diagram
Forty Niner Ridge 25 Federal 1H
Cimarex Energy Co.
23-23S-30E
SHL 255 FSL & 250 FEL
BHL 330 FSL & 990 FWL
Eddy County, NM

Surface Use Plan
Forty Niner Ridge 25 Federal 1H
Cimarex Energy Co.
Unit P, Sec. 23
T23S-R30E; 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. From the intersection of Highway 128 and Ranch Road, go south 0.6 miles on Ranch Road. At "Y" go east on lease road for 2.8 miles, then turn east on lease road. Go 1.2 miles to "T" then turn south and go 0.5 mile to proposed location.

2. Planned Access Roads: No new access road will be necessary for this well.

   Planned Electric Line: 3 phase 4 wire electric will be constructed to connect to the Forty Niner Ridge 23 Federal 1H battery. A ROW application will be submitted for any off-lease portion.

3. Location of Existing Wells in a One-Mile Radius - Exhibit A
   A. Water wells - None known
   B. Disposal wells - None known
   C. Drilling wells - None known
   D. Producing wells - As shown on Exhibits "A"
   E. Abandoned wells - As shown on Exhibits "A"

4. Location of Proposed Production Facilities:
   If on completion this well is a producer, the tank battery will be used at the Forty Niner Ridge 23 Federal 1H and the necessary production equipment will be installed at the wellsite. Any changes to the facilities or off-site facilites will be accompanied by a Sundry Notice. A ROW application will be submitted for any off-lease portion.

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.
   C. Mud pits in the closed circulating system will be steel pits and the cuttings will be stored in steel containment pits.
   D. Cuttings will be stored in steel pits until they are hauled to a state-approved disposal facility.
   E. 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 a producer, those areas of the location not essential toproduction 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. In lieu of an archaeological survey report, Cimarex will be submitting an MOA application for this well pad and access road since they are within the MOA boundary.
   D. There are no know dwellings within 1½ miles of this location.

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	**Cimarex Energy Co. of Colorado**
LEASE NO.:	**NMNM-114978**
WELL NAME & NO.:	**Forty Niner Ridge 25 Federal 1H**
SURFACE HOLE FOOTAGE:	**0255' FSL & 0250' FEL**
BOTTOM HOLE FOOTAGE	**0330' FSL & 0990' FWL Sec. 25, T. 23 S., R 30 E.**
LOCATION:	**Section 23, T. 23 S., R 30 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)

Protect USGS section corner marker pictured below in Figure 1

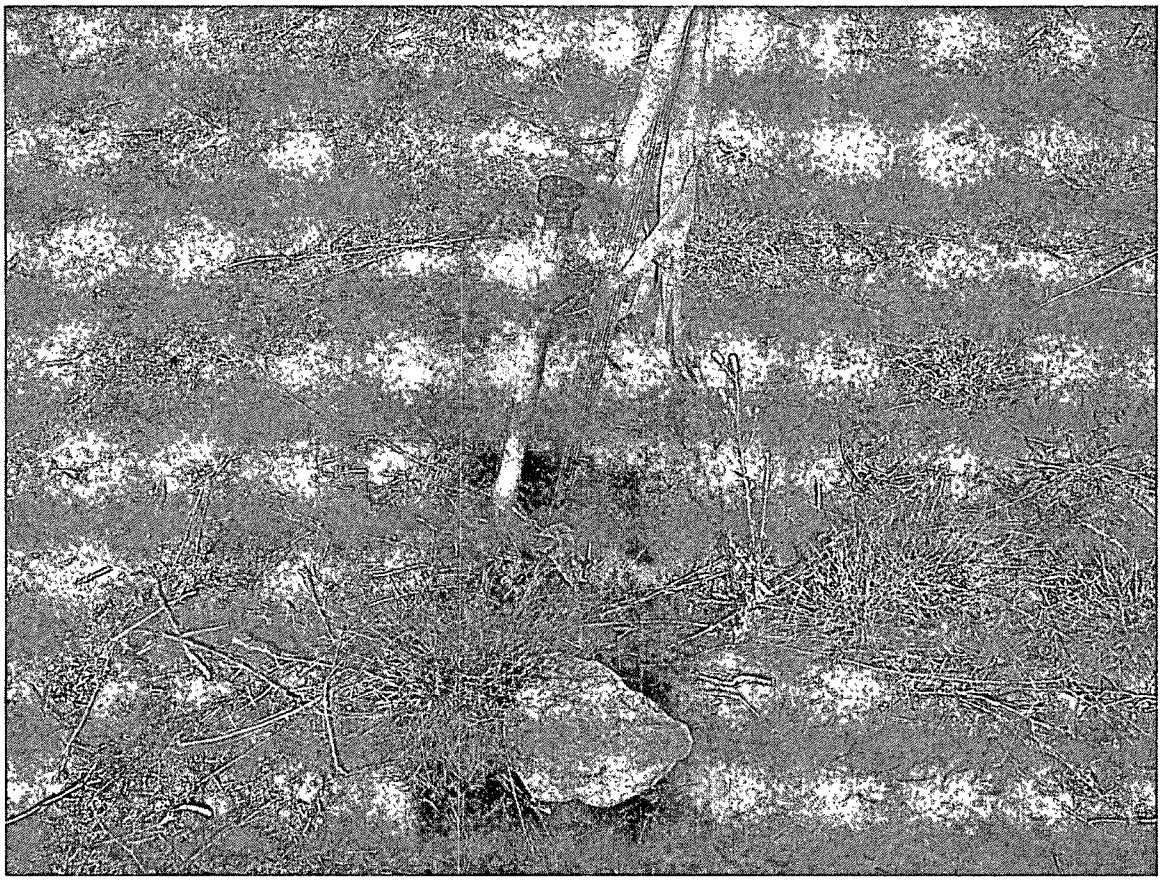


Figure 1

Reclaim bypass road after wells are on production

Raptor Nest

Raptor nests on special, natural habitat features, such as trees, large brush, cliff faces and escarpments, will be protected by not allowing surface disturbance within up to 200 meters of nests or by delaying activity for up to 90 days, or a combination of both. Exceptions to this requirement for raptor nests will be considered if the nests expected to be disturbed are inactive, the proposed activity is of short duration (e.g. habitat enhancement projects, fences, pipelines), and will not result in continuing activity in proximity to the nest. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 ft. from the source of the noise.

Proponent must contact a CFO Blm Wildlife Biologist at least three days prior to construction to make sure raptor nest is not active. (575)234-5972

Cave and Karst

** Depending on location, additional Drilling, Casing, and Cementing procedures may be required by engineering to protect critical karst groundwater recharge areas.

Cave/Karst Surface Mitigation

The following stipulations will be applied to minimize impacts during construction, drilling and production.

Construction:
In the advent that any underground voids are opened up during construction activities, construction activities will be halted and the BLM will be notified immediately.

No Blasting:
No blasting will be utilized for pad construction. The pad will be constructed and leveled by adding the necessary fill and caliche.

Pad Berming:
The pad will be bermed to prevent oil, salt, and other chemical contaminants from leaving the pad. All sides will be bermed.

Tank Battery Liners and Berms:
Tank battery locations will be lined and bermed. A 20 mil permanent liner will be installed with a 4 oz. felt backing to prevent tears or punctures. Tank battery berms must be large enough to contain 1 ½ times the content of the largest tank.

Leak Detection System:
A method of detecting leaks is required. The method could incorporate gauges to measure loss, situating values and lines so they can be visually inspected, or installing electronic sensors to alarm when a leak is present. Leak detection plan will be submitted to BLM for approval.

Automatic Shut-off Systems:
Automatic shut off, check values, or similar systems will be installed for pipelines and tanks to minimize the effects of catastrophic line failures used in production or drilling.

Cave/Karst Subsurface Mitigation

The following stipulations will be applied to protect cave/karst and ground water concerns:

Rotary Drilling with Fresh Water:
Fresh water will be used as a circulating medium in zones where caves or karst features are expected. SEE ALSO: Drilling COAs for this well.

Directional Drilling:
Kick off for directional drilling will occur at least 100 feet below the bottom of the cave occurrence zone. SEE ALSO: Drilling COAs for this well.

Lost Circulation:
ALL lost circulation zones from the surface to the base of the cave occurrence zone will be logged and reported in the drilling report.

Regardless of the type of drilling machinery used, if a void of four feet or more and circulation losses greater than 70 percent occur simultaneously while drilling in any cave-bearing zone, the BLM will be notified immediately by the operator. The BLM will assess the situation and work with the operator on corrective actions to resolve the problem.

Abandonment Cementing:
Upon well abandonment in high cave karst areas additional plugging conditions of approval may be required. The BLM will assess the situation and work with the operator to ensure proper plugging of the wellbore.

Pressure Testing:
Annual pressure monitoring will be performed by the operator on all casing annuli and reported in a sundry notice. If the test results indicated a casing failure has occurred, remedial action will be undertaken to correct the problem to the BLM's approval.

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 4 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 (20) feet.

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

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

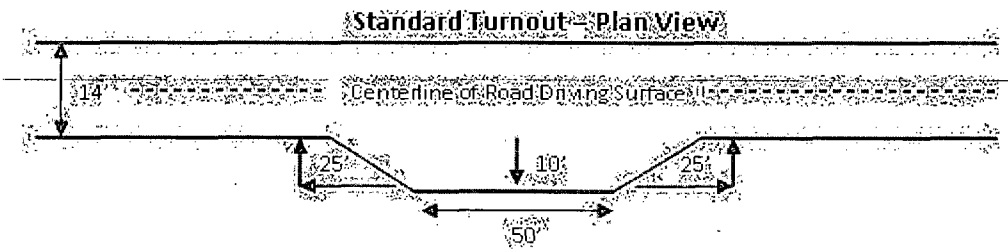
The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing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

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

Ditching

Ditching shall be required on both sides of the road.

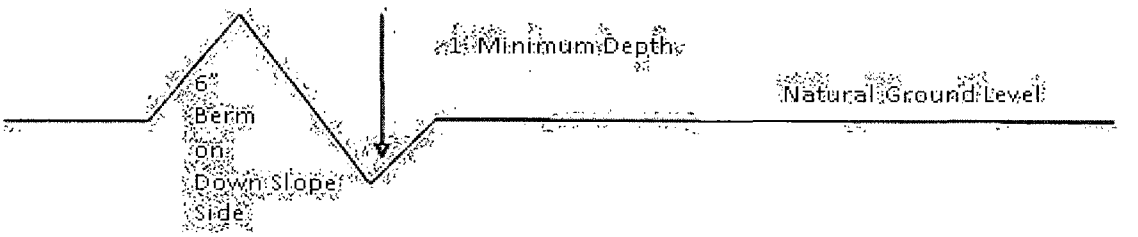
Turnouts
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall be constructed on all blind curves. Turnouts shall conform to the following diagram:



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

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

Cross Section of a Typical Lead-off Ditch



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

Formula for Spacing Interval of Lead-off Ditches

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

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

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

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

Any existing cattleguard(s) on the access road shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattleguard(s) that are in place and are utilized during lease operations.

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

Fence Requirement

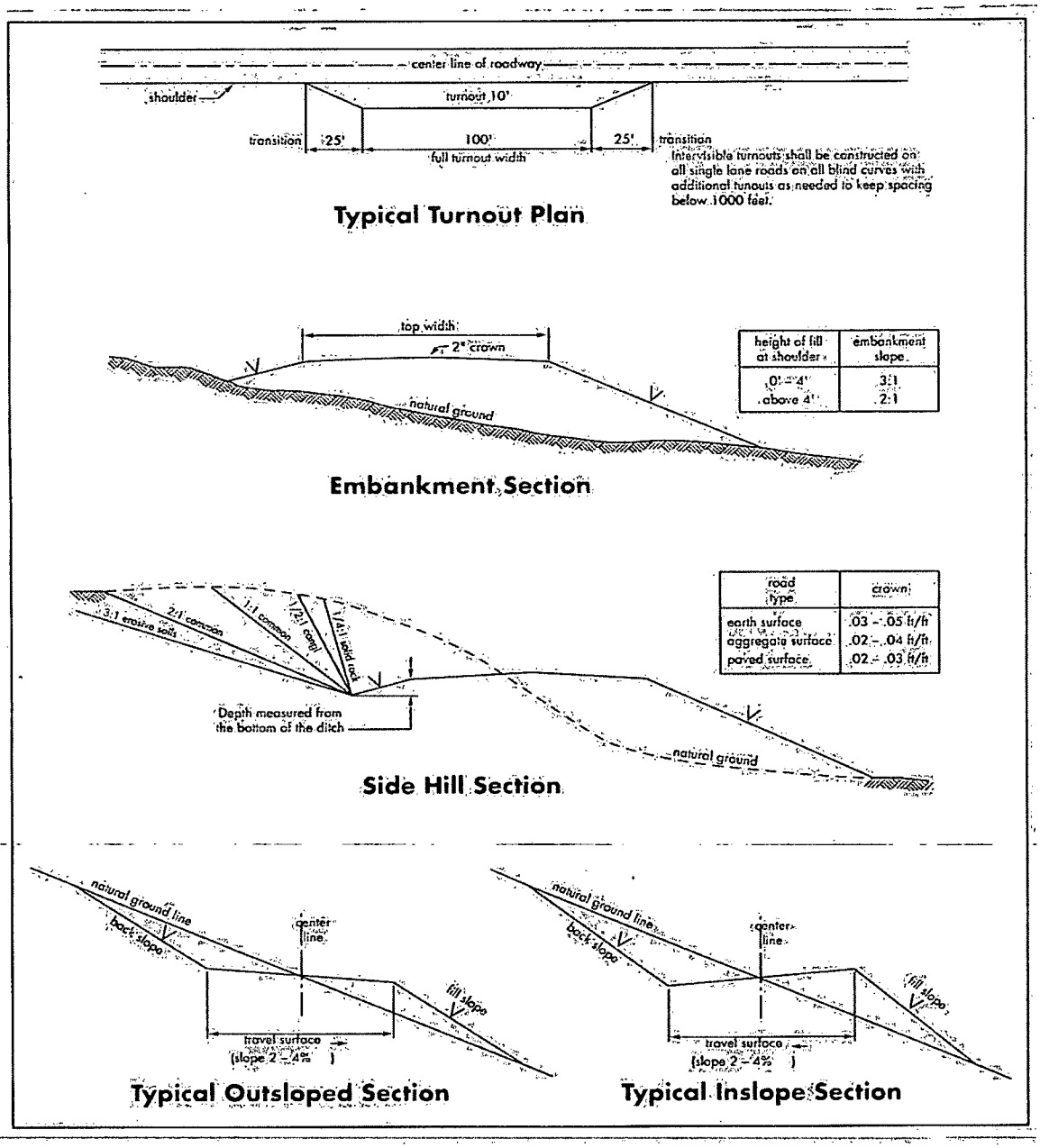
Where entry is required across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting.

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

Public Access

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

Figure 1 – Cross Sections and Plans For Typical Road Sections



VII. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

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

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

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

1. **A Hydrogen Sulfide (H2S) Drilling Plan shall be activated prior to drilling out the surface shoe. As a result, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, provide measured values 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. 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.

R-111-P potash
High Cave/Karst
Possibility of water and brine flows in the Salado and Castile Groups.
Possibility of lost circulation in the Delaware and Bone Springs.

1. The **13-3/8** inch surface casing shall be set at approximately **350** feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface. **Excess calculates to 11% - Additional cement may be required. 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.

Intermediate casing shall be kept fluid filled while running into hole to meet minimum collapse requirements.

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 and potash.**

Formation below the 9-5/8" shoe to be tested according to Onshore Order 2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe (not the mud weight required to prevent dissolving the salt formation) and the mud weight for the bottom of the hole. Report results to BLM office.

Centralizers required on horizontal leg, are approved as written.

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

   ☒ Cement to surface. If cement does not circulate, contact the appropriate BLM office. **Excess calculates to 13% - 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.

5. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

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**. 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.

    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 **5000 (5M)** psi. **5M system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.**

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

    a. In potash areas, 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. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time.

    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.

JAM 040113

VIII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

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

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

Painting Requirement
All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color
Shale Green, Munsell Soil Color Chart # 5Y 4/2

B. PIPELINES
Apply by Right-of-Way

C. ELECTRIC LINES
Apply by Right-of-Way

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