

ooc-AA

Form 3160-3
(March 2012)

**NORTHODOX
LOCATION**

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

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

TEL
9-15-14

5. Lease Serial No.
SH:NM111946 BH:NM113927

6. If Indian, Allottee or Tribe Name
N/A

7. If Unit or CA Agreement, Name and No.
N/A

8. Lease Name and Well No.
Noose Federal Com #11H < 3087517

9. API Well No.
30-015- 42501

1a. Type of work: DRILL REENTER

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

2. Name of Operator COG Operating LLC

3a. Address One Concho Center, 600 W. Illinois Ave
Midland, TX 79701

3b. Phone No. (include area code)
432-685-4384

< 229137 >

10. Field and Pool, or Exploratory
N Seven Rivers; Glorieta Yeso < 97565 >

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

At surface SHL: 150' FSL & 1130' FEL, UL P

At proposed prod. zone BHL: 330' FNL & 1130' FEL, UL A

11. Sec., T. R. M. or Blk. and Survey or Area
Sec 35 T19S R25E

14. Distance in miles and direction from nearest town or post office*
2 miles from Loco Hills, 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) 150'

16. No. of acres in lease
SH:320 BH:320

17. Spacing Unit dedicated to this well
160

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 530'

19. Proposed Depth
TVD: 2988' MD: 7604'
EOC: 3025'TVD/3327'MD

20. BLM/BIA Bond No. on file
NMB000740; NMB000215

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
3452' GL

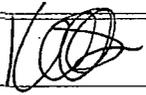
22. Approximate date work will start*
04/30/2014

23. Estimated duration
90 Days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No.1, must 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 must 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 BLM.

25. Signature  Name (Printed/Typed) Kelly J. Holly Date 01/30/2014

Title Permitting Tech

Approved by (Signature) **Steve Caffey** Name (Printed/Typed) Date JUN - 8 2014

Title FIELD MANAGER Office CARLSBAD FIELD OFFICE

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

APPROVAL FOR TWO YEARS

Title 18 U.S.C. 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)

Roswell Controlled Water Basin

NM OIL CONSERVATION
ARTESIA DISTRICT

JUL 14 2014

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

RECEIVED

Approval Subject to General Requirements
& Special Stipulations Attached

Surface Use Plan
COG Operating, LLC
Noose Federal Com 10H
SL: 170' FSL & 2550' FEL *UL O*
Section 35, T-19-S, R-25-E
BHL: 330' FNL & 2550' FEL *UL B*
Section 35, T-17-S, R-25-E
Eddy County, New Mexico

I hereby certify that I, or persons under my direct supervision, have inspected the drill site and access road proposed herein; that I am familiar with the conditions that presently 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 COG Operating, LLC, 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 10th day of January, 2014.

Signed: _____

Carl Bird

Printed Name: Carl Bird

Position: Drilling Engineer

Address: One Concho Center, 600 W. Illinois, Midland, Texas 79701

Telephone: (432) 683-7443

Field Representative (if not above signatory): Same

E-mail: cbird@concho.com

1521 N. French Dr., Hobbs, NM 88240
 Phone: (505) 324-2151 Fax: (505) 324-2752
 District II
 811 S. Park St., Azusa, NM 87410
 Phone: (505) 348-1283 Fax: (505) 348-6129
 District III
 1000 Rio Brazos Road, Azusa, NM 87410
 Phone: (505) 344-6178 Fax: (505) 344-6179
 District IV
 1220 S. St. Francis Dr., Santa Fe, NM 87505
 Phone: (505) 476-3450 Fax: (505) 476-3162

State of New Mexico
 Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
 1220 South St. Francis Dr.
 Santa Fe, NM 87505

Form C-102
 Revised August 1, 2011
 Submit one copy to appropriate
 District Office

AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

1 API Number 30-015-42501		2 Pool Code 97565		3 Pool Name N Seven Rivers; Glorieta Yeso					
4 Property Code 308751		5 Property Name NOOSE FEDERAL COM			6 Well Number 11H				
7 OGRID No. 229137		8 Operator Name COG OPERATING, LLC			9 Elevation 3452'				
10 Surface Location									
Ul. or lot no. P	Section 35	Township 19-S	Range 25-E	Lot Idn	Feet from the 150	North-South line SOUTH	Feet from the 1130	East-West line EAST	County EDDY
11 Bottom Hole Location If Different From Surface									
Ul. or lot no. A	Section 35	Township 19-S	Range 25-E	Lot Idn	Feet from the 330	North-South line NORTH	Feet from the 1130	East-West line EAST	County EDDY
12 Dedicated Acres 160		13 Joint or Infill		14 Consolidation Code		15 Order No.			

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.

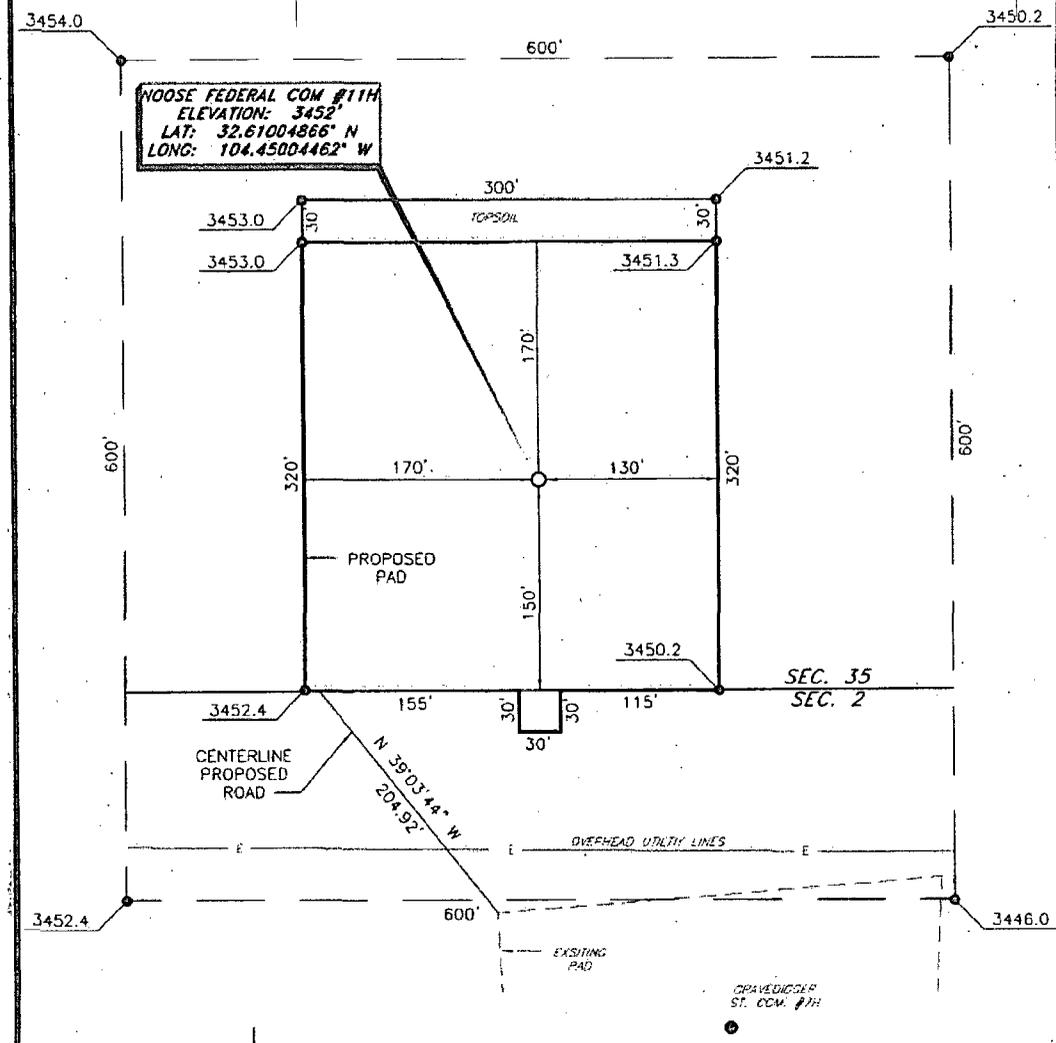
<p>16</p> <p>CORNER DATA NAD 27 GRID - NM EAST A: FOUND BRASS CAP 1947 N 565504.1 - E 459908.0 B: FOUND 1/2 RBR W/STNS N 590756.6 - E 459921.5 C: FOUND 1/2" RBR #12641 JWSC N 590502.2 - E 465207.3 D: FOUND BRASS CAP 1947 N 565520.8 - E 465190.9 E: FOUND BRASS CAP 1947 N 565511.7 - E 462548.4</p> <p>GEODETIC DATA NAD 27 GRID - NM EAST SURFACE LOCATION N 585666.9 - E 464051.7 LAT: 32.61004866° N LONG: 104.45004462° W BOTTOM LOCATION N 590465.9 - E 464076.3</p> <p style="text-align: center;">DETAIL "A"</p>	<p>17 OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that the information herein was a working interest or undivided mineral interest in the land including the proposed well location or has a right to drill the well in the location hereon and is a working well on the date of such interest or working interest in the well location proposed or a compulsory pooling agreement entered into a voluntary pooling agreement or a compulsory pooling agreement entered into by the interest.</p> <p style="text-align: right;"> 1-13-14 Date </p> <p> Kelly J. Holly Printed Name kholly@concho.com E-mail Address </p> <p>18 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 supervision, and that the same is true and correct to the best of my belief.</p> <p> 11/8/13 Date of Survey Signature and Seal of Professional Surveyor </p> <p style="text-align: center;"> 19680 Certificate Number </p> <p style="text-align: center;">REVISED: 12-17-13 B.H.</p>
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Prosperity Consultants, LLC - Firm No.: TX 10193838 NM 4655451 - Job No.: LS130467

Estimated
 Completed
 Interval:
 330 FSL +
 1130 FEL

COG OPERATING, LLC

Noose Federal Com #11H
 (150' FSL & 1130' FEL)
 Section 35, T-19-S, R-25-E,
 N. M. P. M., Eddy Co., New Mexico



DIRECTIONS TO LOCATION

From the intersection of U. S. Hwy. No. 285 and County Road No. 23 (Rock Daisy);

Go West on Co. Rd. 23 approx. 3.0 miles;

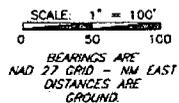
Turn left on lease road and go South approx. 0.8 mile;

Turn left and go Southeast approx 0.3 mile;

Turn right and go South approx. 0.2 mile;

Turn left and go East approx. 0.4 mile to the COG Gravedigger St. Com. #7H;

Location is approx. 415' Northwest of the existing pumping unit.



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NO.	REVISION	DATE
JOB NO.:	LS130467	
DWG. NO.:	130467PAD	

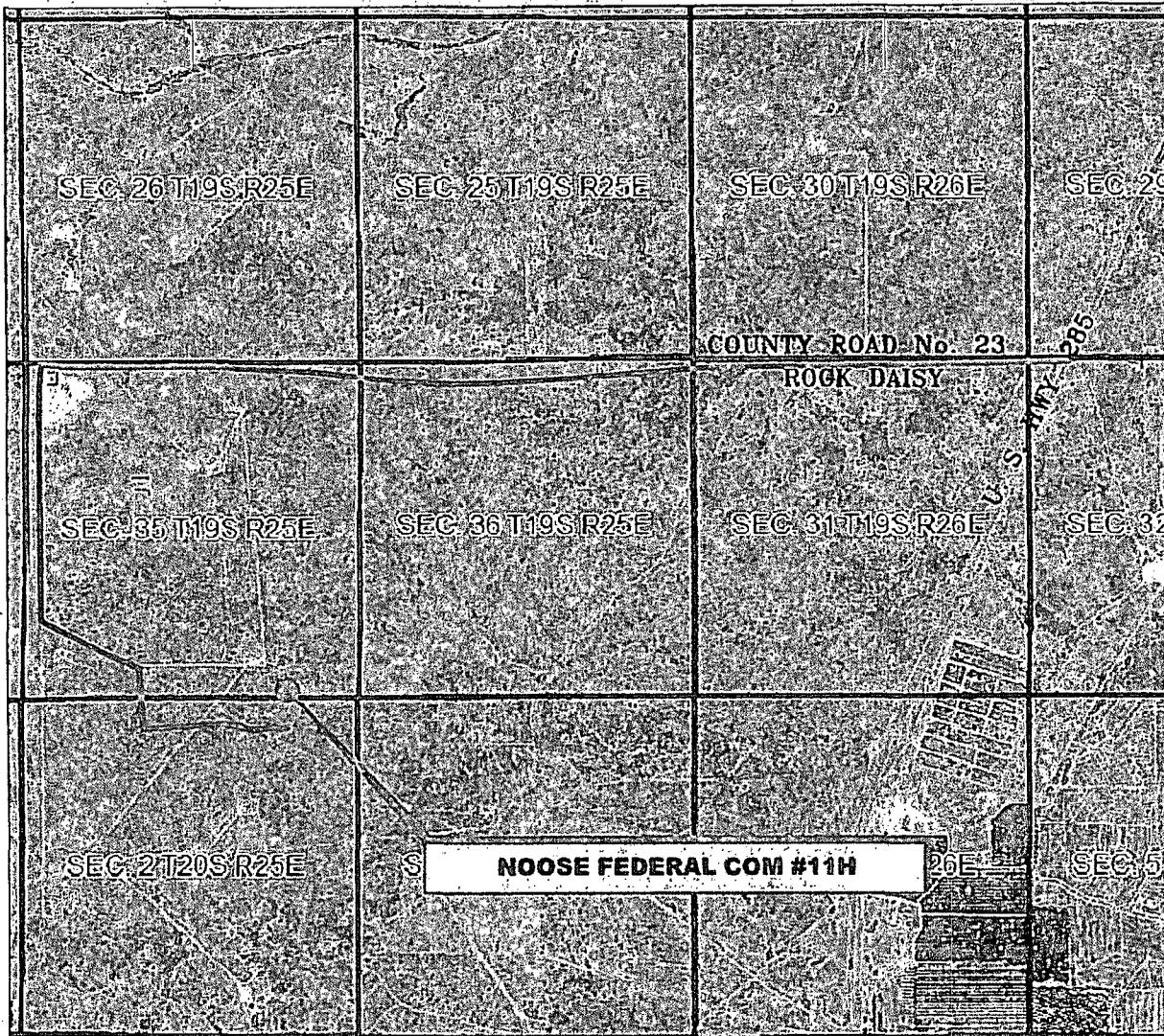
PROSPERITY CONSULTANTS, LLC



SCALE:	1" = 100'
DATE:	11-8-13
SURVEYED BY:	GB/IE
DRAWN BY:	LWB
APPROVED BY:	LWB
SHEET :	1 OF 1

VICINITY MAP

NOT TO SCALE



*SECTION 35, TWP. 19 SOUTH, RGE. 25 EAST,
N. M. P. M., EDDY COUNTY, NEW MEXICO*

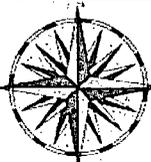
OPERATOR: COG Operating, LLC
 LEASE: Noose Federal Com
 WELL NO.: 11H

LOCATION: 150' FWL & 1130' FEL
 ELEVATION: 3452'

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NO.	REVISION	DATE
JOB NO.: LS130467		
DWG. NO.: 130467VM		

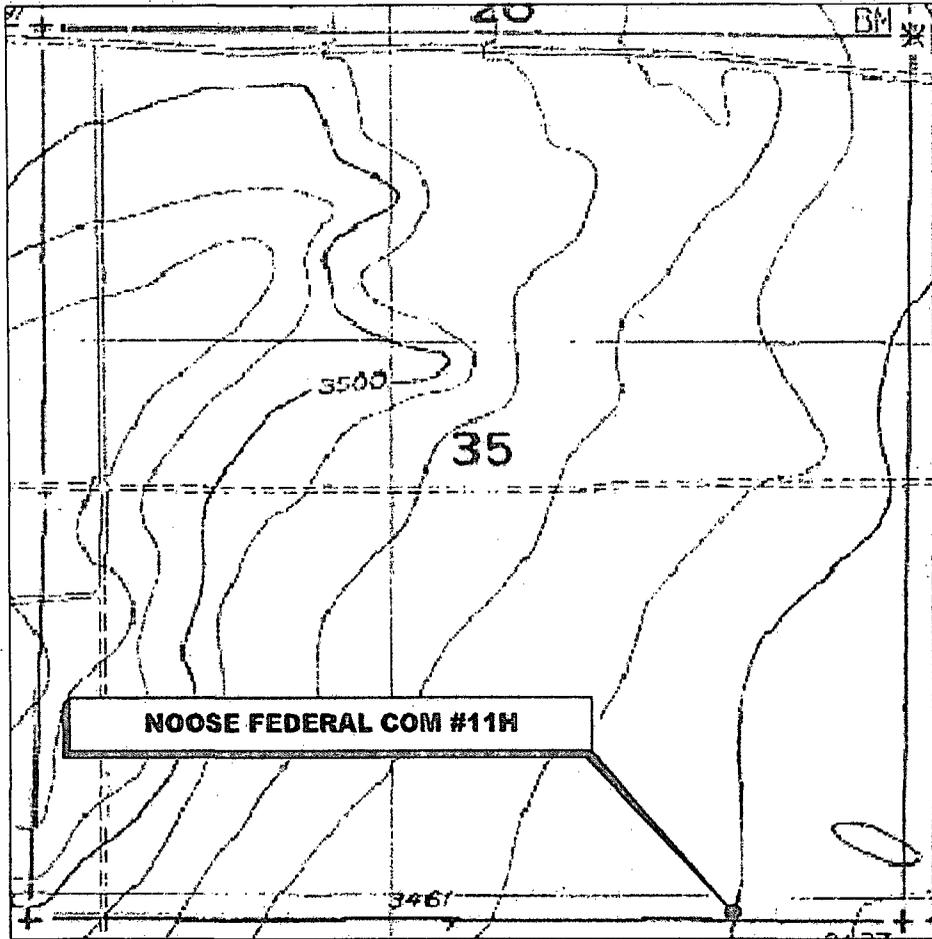
PROSPERITY CONSULTANTS, LLC



308 W. Broadway St., Hobbs, NM 88240 | Firm No. TX 10193838, NM 4655451 | (575) 964-8200

SCALE: N.T.S.
DATE: 11-8-13
SURVEYED BY: GB/IE
DRAWN BY: JF
APPROVED BY: LWB
SHEET: 1 OF 1

LOCATION VERIFICATION MAP



*SECTION 35, TWP. 19 SOUTH, RGE. 25 EAST,
N. M. P. M., EDDY COUNTY, NEW MEXICO*

OPERATOR: COG Operating, LLC
 LEASE: Noose Federal Com
 WELL NO.: 11H
 ELEVATION: 3452'

LOCATION: 150' FSL & 1130' FEL
 CONTOUR INTERVAL: 10'
 USGS TOPO. SOURCE MAP:
Seven Rivers, NM (1954)

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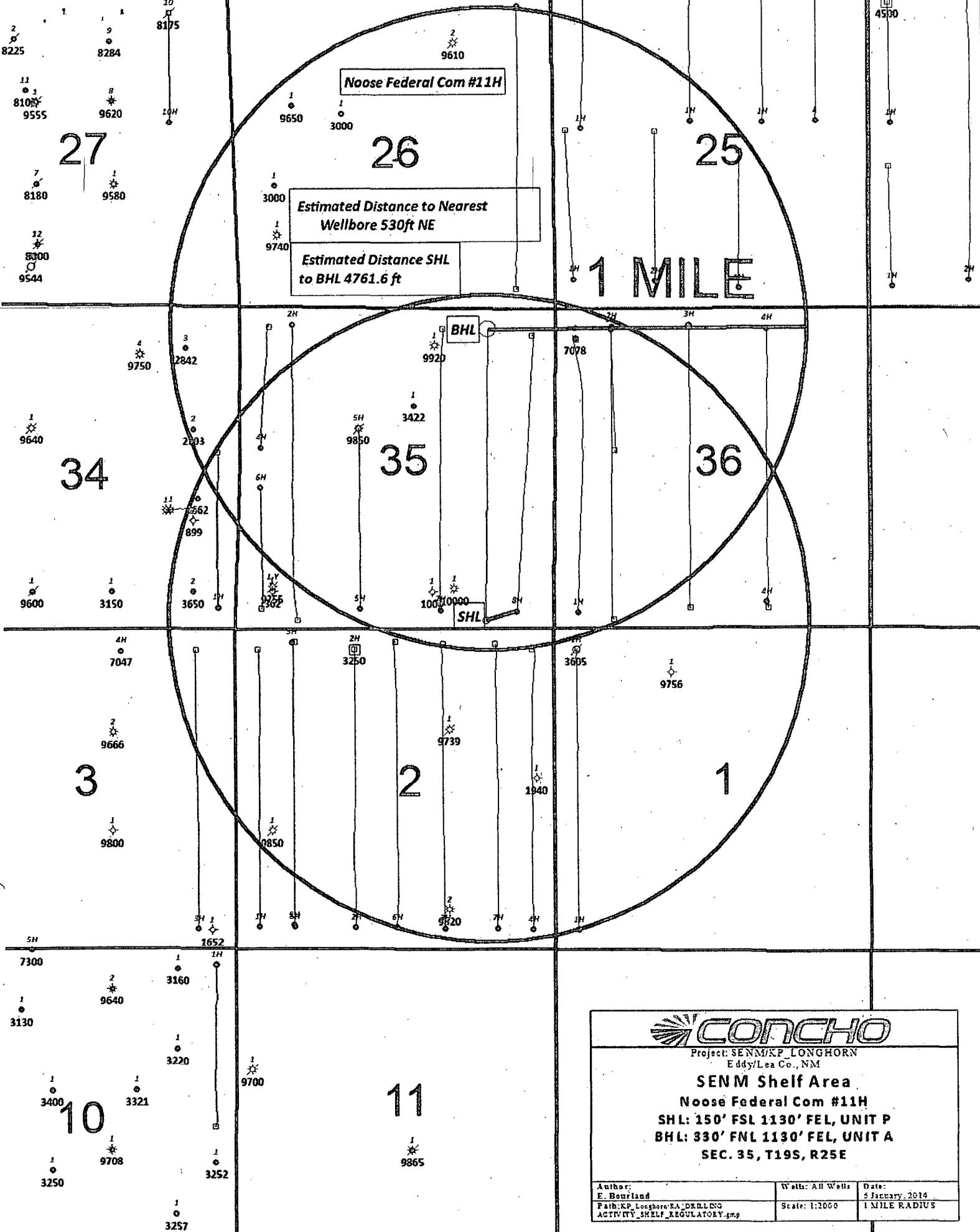
NO.	REVISION	DATE
JOB NO.: LS130467		
DWG. NO.: 130467LVM		

PROSPERITY CONSULTANTS, LLC



308 W. Broadway St., Hobbs, NM 88240 | Firm No. TX 10193838 NM 4655451 | (575) 964-8200

SCALE: 1" = 1000'
 DATE: 11-8-13
 SURVEYED BY: GB/IE
 DRAWN BY: JF
 APPROVED BY: LWB
 SHEET : 1 OF 1



Noose Federal Com #11H

Estimated Distance to Nearest Wellbore 530ft NE

Estimated Distance SHL to BHL 4761.6 ft

1 MILE

BHL

SHL



Project: SENM/KP_LONGHORN
Eddy/Lea Co., NM

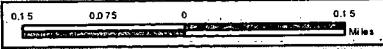
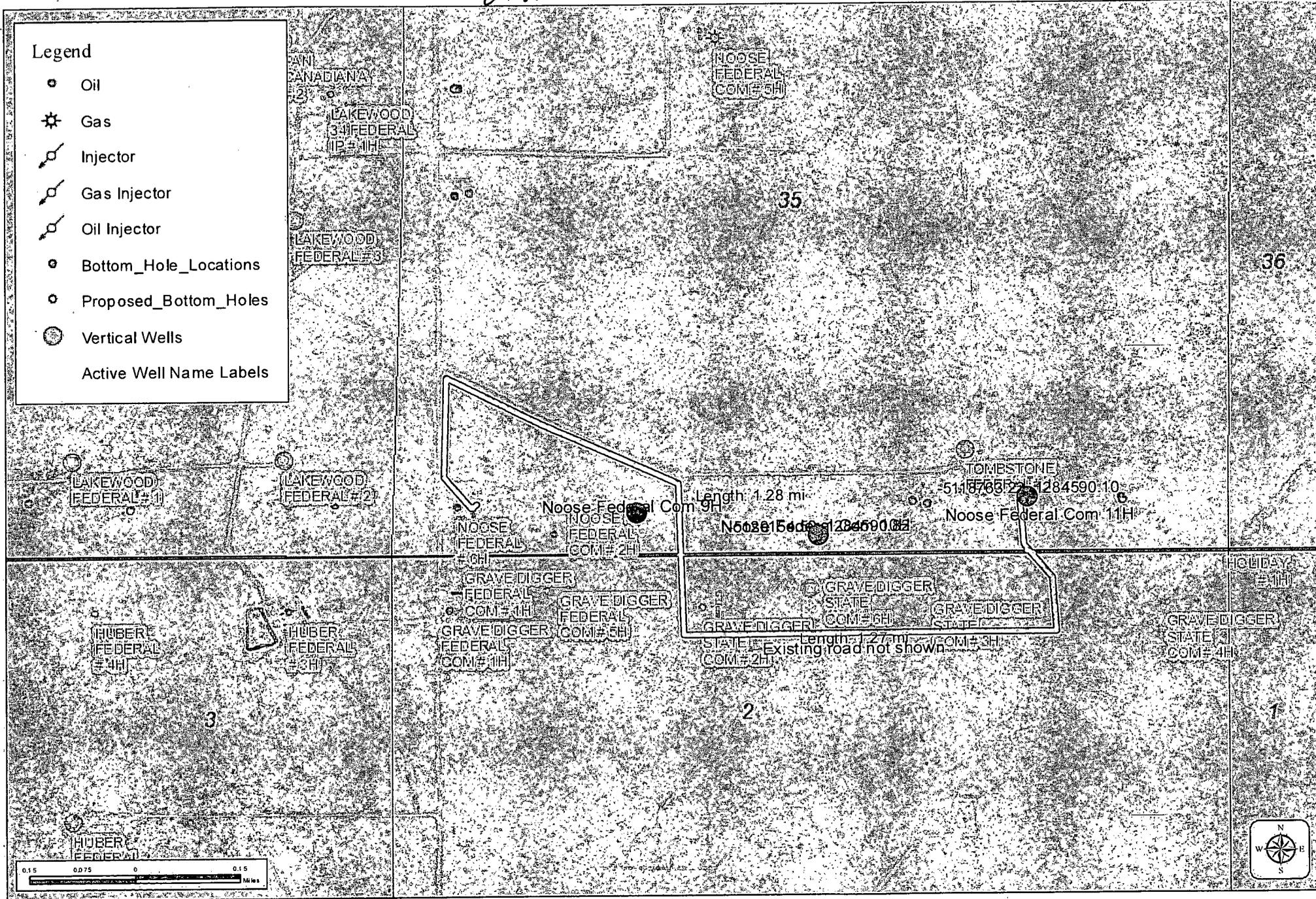
SENM Shelf Area
Noose Federal Com #11H
SHL: 150' FSL 1130' FEL, UNIT P
BHL: 330' FNL 1130' FEL, UNIT A
SEC. 35, T19S, R25E

Author: E. Bourland	Wells: All Wells	Date: 5 January, 2014
Path: KP_Longhorn_SA_DRILLING ACTIVITY_SHELF_REGULATORY.gmp	Scale: 1:2000	1 MILE RADIUS

EXBT 1

Legend

- Oil
- ⊛ Gas
- ↙ Injector
- ↘ Gas Injector
- ↖ Oil Injector
- Bottom_Hole_Locations
- Proposed_Bottom_Holes
- Vertical Wells
- Active Well Name Labels



ATTACHMENT TO FORM 3160-3
COG Operating, LLC
NOOSE FEDERAL COM #11H
SHL: 150' FSL & 1130' FEL, UNIT P
Sec 35 T19S R25E
BHL: 330' FNL & 1130' FEL, Unit A
Sec 35, T19S, R25E
Eddy County, NM

1. Proration Unit Spacing: 160 Acres
2. Ground Elevation: 3452'
3. Proposed Depths: Horizontal: **EOC (end of curve) TVD=3025' MD= 3327'**
Toe (end of lateral) TVD=2988' MD= 7604'
4. Estimated tops of geological markers:

Quaternary alluvial and eolian deposits/ Seven Rivers at surface	
Queen	88'
Fresh Water	133'
Grayburg	530'
San Andres	905'
Glorieta	2475'
Paddock	2595'
Blinebry	3215'

Possible mineral bearing formations:

San Andres	905'	Oil/Gas
Glorieta	2475'	Oil/Gas
Paddock	2595'	Oil/Gas
Blinebry	3215'	Oil/Gas

No other formations are expected to give up oil, gas or fresh water in measurable quantities. Setting 8 5/8" casing to 1200' and circulating cement back to the surface will protect the surface fresh water sand.

A 7 7/8" open hole will be drilled from 8 5/8" casing shoe to KOP and thru curve and lateral. 5 1/2" casing will be installed from surface to TD. This casing will be cemented from TD to surface in a single stage. If wellbore conditions arise that require immediate action and/or a change to this program, COG Operating LLC personnel will always react to protect the wellbore and/or environment.

6. Proposed Mud System

The well will be drilled to TD with a combination of fresh water, cut brine mud systems. The applicable depths and properties of these systems are as follows:

DEPTH (MD)	TYPE	WEIGHT	VISCOSITY	WATERLOSS
0-1200'	Fresh Water	8.3-8.8	28	N.C.
1200'-2505'	Cut Brine mud	8.7-9.2	30	N.C.
2505'-7604'	Cut Brine	8.7-9.2	30	N.C.

ATTACHMENT TO FORM 3160-3

COG Operating, LLC

Noose Federal Com #11H

Page 2 of 4

Sufficient mud materials will be kept at the well site to maintain mud properties and meet minimum lost circulation and weight increase requirements at all times.

Visual or electronic mud monitoring equipment shall be in place to detect volume changes indicating loss or gain of circulating fluid volume.

The mud program has been designed to minimize the volume of H₂S circulated to surface. Proper mud weights, safe drilling practices and the use of H₂S scavengers will minimize hazards when penetrating H₂S bearing zones.

6. Proposed Casing Program

Hole Size	Interval MD	OD Casing	Weight	Grade	Condition	Jt.	brst/clps/ten
11"	0-1200'	8 5/8" 0-1200'	32#	J55	New	LT&C	3.28/4.77/12.48
7 7/8"	1200'- 7604'	5 1/2" 0-7604'	17#	P110	New	LT&C	1.33/3.53/6.88

7. Proposed Cement Program

8 5/8" SURFACE: (Cement circulated Surface)

	<u>Description</u>	<u>Yield</u>	<u>Density</u>	<u>Water Requirements</u>
Lead: 325 sks 0'-600' Excess 273%	Class "C" w/ 4% Gel + 2% CaCl ₂ +0.25 pps CF	1.75 cf/sk	11.8 ppg	14.4 gal/sk.
Tail: 200 sks 600'-1200' Excess 59%	Class C w/2% CaCl ₂	1.32 cf/sk	14.8 ppg	6.3 gal/sk.

Combined excess 161%

5 1/2" PRODUCTION CASING:

Single Stage (Cement cal to surface):

~~(Minimum tie-back 200' into 8 5/8" casing)~~

high cave karst 2 strings to surface see COAS

		<u>Description</u>	<u>Yield</u>	<u>Density</u>	<u>Water Requirements</u>
1st Lead: 0'-1800' Excess 93%	300 sks	35:65:6 C:Poz w/0.4% CFR-3 + 5 pps KOL-SEAL+ 3 pps NaCl + 0.35% Econolite+ 0.125 pps Poly-E-Flake	2.01 cf/sk	12.5 ppg	11.4 gal/sk.
2 nd Lead: 1800'-2505' Excess 124%	200 sks	50:50:2 C:Poz 0.4% CFR-3, +0.35% Ecocolite, + 3 pps NaCl +5 LBM KOL-SEAL +0.125 pps Poly-E-Flake	1.37 cf/sk	14.0 ppg	14.4 gal/sk.

Combined Lead Excess 106%

Tail: 2505'-7604' Excess -4%	325 sks	Class "H" SOLUCEM-H w/0.7% HR-601+ 0.25% D-AIR 5000	2.62 cf/sk	15.0 ppg	11.2 gal/sk.
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Note: Top of ASC is below Glorieta

Combined Lead & Tail Excess: 31%

Note: 5 1/2" casing will be run from surface to KOP at 2505' thru curve and lateral to TD of 7604' MD. Productive intervals will be isolated by cement as described above..

8. Pressure Control Equipment:

The blowout preventer equipment (BOP) shown in Exhibit #9 will consist of a 13 5/8" double ram-type (2000 psi WP) preventer, and in some cases possibly a 13 5/8" 2000 psi Hydril type annular preventer (Exhibit #10) as provided for in Onshore Order #2. Both Units will be hydraulically operated and the ram type preventer will be equipped with blind rams on top and 4 1/2" drill pipe rams on the bottom. A 11" permanent casing head will be installed on the 8 5/8" casing. The BOP will be nipped up on the 11" permanent casing head using a 13 5/8" x 11' double stud adapter (DSA) and tested to 250 psig/300 psig low and 2000 psig by independent tester (test plug will seat in DSA) and used continuously until total depth is reached. Pipe rams will be operationally checked each 24-hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve, choke lines and a choke manifold with a 2000 psi WP rating all of which will also be tested to 250 psig/300 psig low and 2000 psig by independent tester also.

See COA

ATTACHMENT TO FORM 3160-3
COG Operating, LLC
Noose Federal Com #11H
Page 4 of 4

9. Production Hole Drilling Summary:

Drill 7 7/8" hole to 2505'. Kick off at +/- 2505', building curve at 11°/100' to 90.50° inclination, az 0.17° at 3327' MD/3025'TVD. Drill 7 7/8" lateral section in a northerly direction for +/4277' lateral to TD at +/-7604' MD, 2988' TVD. Run 5-1/2" production casing. 5 1/2" casing will be run from surface to TD and will be isolated by a single stage cement job. Cement will be calculated to surface. Minimum tie-back is 200' into 8 5/8" intermediate.

10. Auxiliary Well Control and Monitoring Equipment

- A. Kelly cock will be kept in the drill string at all times.
- B. A full opening drill pipe-stabbing valve with proper drill pipe connections will be on the rig floor at all times.

11. Logging, Testing and Coring Program:

- A. The following logs will be run in the vertical portion of the hole to KOP: SLB-PEX/HRLA,HNCS.
- B. The mud logging program will consist of lagged 10' samples from 8 5/8" casing shoe to TD.
- C. Drill Stem test is not anticipated.
- D. No conventional coring is anticipated.
- E. Further testing procedures will be determined after the 5 1/2" production casing has been cemented at TD based on drill shows and log evaluation.

12. Abnormal Conditions, Pressures, Temperatures and Potential Hazards:

No abnormal pressures or temperatures are anticipated. The estimated bottom hole temperature is 80° Fahrenheit and estimated maximum bottom hole pressure is 1269 psi. Wells in this area will penetrate formations that are known or could reasonably be expected to contain hydrogen sulfide. Therefore, a H₂S drilling operations plan is included with this APD. Hydrogen Sulfide detection equipment will be operational and breathing equipment will be on location after drilling out the 8 5/8" casing shoe and until the 5 1/2" casing is cemented. If while drilling the 7 7/8" production hole section H₂S concentrations exceed 100 ppm the well will be shut-in and a remote operated choke installed. COG will comply with Onshore Order #6. All BOPE testing companies used by COG have H₂S certified employees and will work on H₂S locations. No major loss circulation zones have been reported in offsetting wells.

13. Anticipated Starting Date

Drilling operations will commence approximately on approximately April 30, 2014 with drilling and completion operations lasting approximately 90 days.



COG Operating LLC

Eddy County, NM (NAD 27 NME)

Noose Federal Com

#11H

Wellbore #1

Plan: Plan #1 01-08-14

Surface: 150' FSL, 1130' FEL, Sec 35, T19S, R25E, Unit P

PP: 330' FSL, 1130' FEL, Sec 35, T19S, R25E, Unit P

BHL: 330' FNL, 1130' FEL, Sec 35, T19S, R25E, Unit A

Standard Planning Report

08 January, 2014



PHOENIX
TECHNOLOGY SERVICES



Phoenix Technology Services
Planning Report



Database:	GCR DB	Local Co-ordinate Reference:	Well #11H
Company:	COG Operating LLC	TVD Reference:	WELL @ 3470.00usft (Original Well Elev)
Project:	Eddy County NM (NAD 27 NME)	MD Reference:	WELL @ 3470.00usft (Original Well Elev)
Site:	Noose Federal Com	North Reference:	Grid
Well:	#11H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 01-08-14		

Project:	Eddy County NM (NAD 27 NME)		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site:	Noose Federal Com				
Site Position:		Northing:	585,657.00 usft	Latitude:	32° 36' 36.04153 N
From:	Map	Easting:	460,945.50 usft	Longitude:	104° 27' 36.59241 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	-0.07 °

Well:	#11H					
Well Position	+N/-S	9.90 usft	Northing:	585,666.90 usft	Latitude:	32° 36' 36.17482 N
	+E/-W	3,116.20 usft	Easting:	464,061.70 usft	Longitude:	104° 27' 0.16061 W
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	3,452.00 usft

Wellbore:	Wellbore #1				
-----------	-------------	--	--	--	--

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010_14	01/08/14	7.70	60.33	48,494

Design:	Plan #1 01-08-14
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Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	0.17

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (%/100usft)	Build Rate (%/100usft)	Turn Rate (%/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,504.60	0.00	0.00	2,504.60	0.00	0.00	0.00	0.00	0.00	0.00	
3,327.33	90.50	0.17	3,025.45	525.42	1.60	11.00	11.00	0.02	0.17	
7,604.10	90.50	0.17	2,988.09	4,802.00	14.60	0.00	0.00	0.00	0.00	BHL Noose Federal C



Phoenix Technology Services
Planning Report



Database:	GCR/DB	Local Co-ordinate Reference:	Well #11H
Company:	COG Operating LLC	TVD Reference:	WELL @ 3470.00usft (Original Well Elev)
Project:	Eddy County, NM (NAD 27-NME)	MD Reference:	WELL @ 3470.00usft (Original Well Elev)
Site:	Noose Federal Com	North Reference:	Grid
Well:	#11H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1-01-08-14		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	N/S (usft)	E/W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2,504.60	0.00	0.00	2,504.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00
KOP: Start Build 11.00°/100'										
2,600.00	10.49	0.17	2,599.47	8.71	0.03	8.71	11.00	11.00	0.00	0.00
2,700.00	21.49	0.17	2,695.45	36.22	0.11	36.22	11.00	11.00	0.00	0.00
2,800.00	32.49	0.17	2,784.42	81.54	0.25	81.54	11.00	11.00	0.00	0.00
2,900.00	43.49	0.17	2,863.10	143.01	0.43	143.01	11.00	11.00	0.00	0.00
2,951.20	49.13	0.17	2,898.46	180.01	0.55	180.01	11.00	11.00	0.00	0.00
PP Noose Federal Com #11H										
3,000.00	54.49	0.17	2,928.62	218.35	0.66	218.36	11.00	11.00	0.00	0.00
3,100.00	65.49	0.17	2,978.55	304.82	0.93	304.82	11.00	11.00	0.00	0.00
3,200.00	76.49	0.17	3,011.07	399.22	1.21	399.22	11.00	11.00	0.00	0.00
3,300.00	87.49	0.17	3,024.97	498.09	1.51	498.10	11.00	11.00	0.00	0.00
3,321.19	89.83	0.17	3,025.47	519.28	1.58	519.28	11.00	11.00	0.00	0.00
TL: 3030' TVD @ 0' VS w/90.5° Inc										
3,327.33	90.50	0.17	3,025.45	525.42	1.60	525.42	11.00	11.00	0.00	0.00
LP: 90.5° Inc at 0.17° Azi										
3,400.00	90.50	0.17	3,024.82	598.08	1.82	598.09	0.00	0.00	0.00	0.00
3,500.00	90.50	0.17	3,023.94	698.08	2.12	698.08	0.00	0.00	0.00	0.00
3,600.00	90.50	0.17	3,023.07	798.07	2.43	798.08	0.00	0.00	0.00	0.00
3,700.00	90.50	0.17	3,022.20	898.07	2.73	898.07	0.00	0.00	0.00	0.00
3,800.00	90.50	0.17	3,021.32	998.07	3.03	998.07	0.00	0.00	0.00	0.00
3,900.00	90.50	0.17	3,020.45	1,098.06	3.34	1,098.07	0.00	0.00	0.00	0.00
4,000.00	90.50	0.17	3,019.57	1,198.06	3.64	1,198.06	0.00	0.00	0.00	0.00
4,100.00	90.50	0.17	3,018.70	1,298.05	3.95	1,298.06	0.00	0.00	0.00	0.00
4,200.00	90.50	0.17	3,017.83	1,398.05	4.25	1,398.06	0.00	0.00	0.00	0.00
4,300.00	90.50	0.17	3,016.95	1,498.04	4.55	1,498.05	0.00	0.00	0.00	0.00
4,400.00	90.50	0.17	3,016.08	1,598.04	4.86	1,598.05	0.00	0.00	0.00	0.00
4,500.00	90.50	0.17	3,015.21	1,698.04	5.16	1,698.04	0.00	0.00	0.00	0.00
4,600.00	90.50	0.17	3,014.33	1,798.03	5.47	1,798.04	0.00	0.00	0.00	0.00
4,700.00	90.50	0.17	3,013.46	1,898.03	5.77	1,898.04	0.00	0.00	0.00	0.00
4,800.00	90.50	0.17	3,012.59	1,998.02	6.07	1,998.03	0.00	0.00	0.00	0.00
4,900.00	90.50	0.17	3,011.71	2,098.02	6.38	2,098.03	0.00	0.00	0.00	0.00
5,000.00	90.50	0.17	3,010.84	2,198.01	6.68	2,198.03	0.00	0.00	0.00	0.00
5,100.00	90.50	0.17	3,009.97	2,298.01	6.99	2,298.02	0.00	0.00	0.00	0.00
5,200.00	90.50	0.17	3,009.09	2,398.01	7.29	2,398.02	0.00	0.00	0.00	0.00
5,300.00	90.50	0.17	3,008.22	2,498.00	7.59	2,498.01	0.00	0.00	0.00	0.00
5,400.00	90.50	0.17	3,007.34	2,598.00	7.90	2,598.01	0.00	0.00	0.00	0.00
5,500.00	90.50	0.17	3,006.47	2,697.99	8.20	2,698.01	0.00	0.00	0.00	0.00
5,600.00	90.50	0.17	3,005.60	2,797.99	8.51	2,798.00	0.00	0.00	0.00	0.00
5,700.00	90.50	0.17	3,004.72	2,897.98	8.81	2,898.00	0.00	0.00	0.00	0.00
5,800.00	90.50	0.17	3,003.85	2,997.98	9.12	2,997.99	0.00	0.00	0.00	0.00
5,900.00	90.50	0.17	3,002.98	3,097.98	9.42	3,097.99	0.00	0.00	0.00	0.00
6,000.00	90.50	0.17	3,002.10	3,197.97	9.72	3,197.99	0.00	0.00	0.00	0.00
6,100.00	90.50	0.17	3,001.23	3,297.97	10.03	3,297.98	0.00	0.00	0.00	0.00
6,200.00	90.50	0.17	3,000.36	3,397.96	10.33	3,397.98	0.00	0.00	0.00	0.00
6,300.00	90.50	0.17	2,999.48	3,497.96	10.64	3,497.98	0.00	0.00	0.00	0.00
6,400.00	90.50	0.17	2,998.61	3,597.96	10.94	3,597.97	0.00	0.00	0.00	0.00
6,500.00	90.50	0.17	2,997.74	3,697.95	11.24	3,697.97	0.00	0.00	0.00	0.00
6,600.00	90.50	0.17	2,996.86	3,797.95	11.55	3,797.96	0.00	0.00	0.00	0.00
6,700.00	90.50	0.17	2,995.99	3,897.94	11.85	3,897.96	0.00	0.00	0.00	0.00
6,800.00	90.50	0.17	2,995.11	3,997.94	12.16	3,997.96	0.00	0.00	0.00	0.00
6,900.00	90.50	0.17	2,994.24	4,097.93	12.46	4,097.95	0.00	0.00	0.00	0.00
7,000.00	90.50	0.17	2,993.37	4,197.93	12.76	4,197.95	0.00	0.00	0.00	0.00



Database:	GCR DB	Local Co-ordinate Reference:	Well #11H
Company:	COG Operating LLC	TVD Reference:	WELL @ 3470.00usft (Original Well Elev)
Project:	Eddy County NM (NAD 27,NME)	MD Reference:	WELL @ 3470.00usft (Original Well Elev)
Site:	Noose Federal Com	North Reference:	Grid
Well:	#11H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Plan #1 01-08-14		

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
7,100.00	90.50	0.17	2,992.49	4,297.93	13.07	4,297.94	0.00	0.00	0.00
7,200.00	90.50	0.17	2,991.62	4,397.92	13.37	4,397.94	0.00	0.00	0.00
7,300.00	90.50	0.17	2,990.75	4,497.92	13.68	4,497.94	0.00	0.00	0.00
7,400.00	90.50	0.17	2,989.87	4,597.91	13.98	4,597.93	0.00	0.00	0.00
7,500.00	90.50	0.17	2,989.00	4,697.91	14.28	4,697.93	0.00	0.00	0.00
7,600.00	90.50	0.17	2,988.13	4,797.90	14.59	4,797.93	0.00	0.00	0.00
7,604.10	90.50	0.17	2,988.09	4,802.00	14.60	4,802.02	0.00	0.00	0.00

TD at 7604.10 : BHL Noose Federal Com #11H

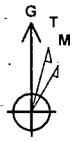
Target Name	hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PP Noose Federal Com	- plan misses target center by 0.01usft at 2951.20usft MD (2898.45 TVD, 180.01 N, 0.55 E)	0.00	0.00	2,898.45	180.02	0.55	585,846.92	464,062.25	32° 36' 37.95621 N	104° 27' 0.15652 W
BHL Noose Federal Con	- plan hits target center	0.00	0.00	2,988.09	4,802.00	14.60	590,468.90	464,076.30	32° 37' 23.69431 N	104° 27' 0.05154 W

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,321.19	3,025.47	TL: 3030' TVD @ 0' VS w/90.5° Inc		-0.50	0.17

Measured Depth (usft)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Comment
2,504.60	2,504.60	0.00	0.00	KOP: Start Build 11.00°/100'
3,327.33	3,025.45	525.42	1.60	LP: 90.5° Inc at 0.17° Azi
7,604.10	2,988.09	4,802.00	14.60	TD at 7604.10



Project: Eddy County, NM (NAD 27 NME)
 Site: Moose Federal Com
 Well: #11H
 Wellbore: Wellbore #1
 Design: Plan #1 01-08-14
 Rig: Original Well Elev



Azimuths to Grid North - True North: 0.06°
 Magnetic North: 7.77°
 Magnetic Field Strength: 48494.3snT
 Dip Angle: 60.33°
 Date: 01/08/2014
 Model: IGRF2010_14

WELL DETAILS						
+N-S	+E-W	Northing	Ground Level	3452.00	Latitude	Longitude
0.00	0.00	585668.90	464061.70		32° 38' 36.17482 N	104° 27' 0.16061 W

SECTION DETAILS											
Sec	MD	Inc	Azi	TVD	+N-S	+E-W	Dleg	TFace	Vsect	Target	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
2	2504.60	0.00	0.00	2504.60	0.00	0.00	0.00	0.00	0.00		KOP Start Build 11.00°/100'
3	3327.33	90.50	0.17	3025.45	525.42	1.60	11.00	0.17	525.42		LP: 60.5° Inc at 0.17° Azi
4	7604.10	90.50	0.17	2988.09	4802.00	14.60	0.00	0.00	4802.02	BHL Moose Federal Com #11H	TD at 7604.10

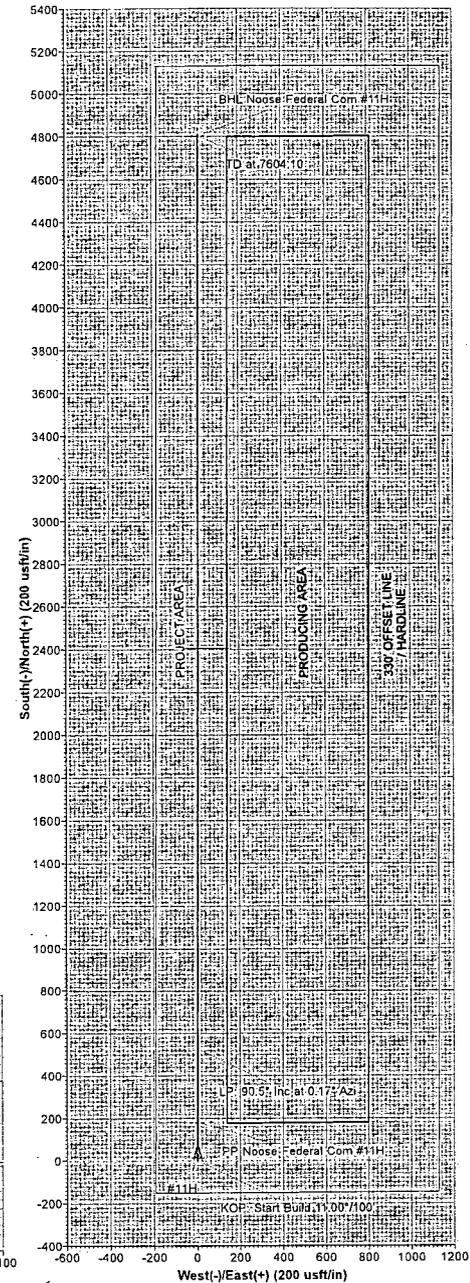
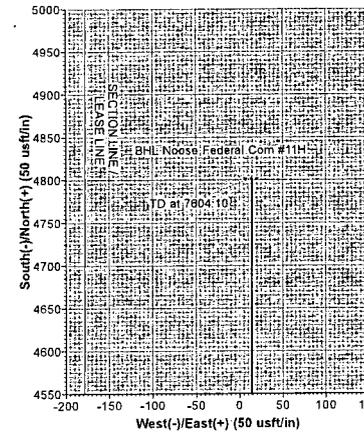
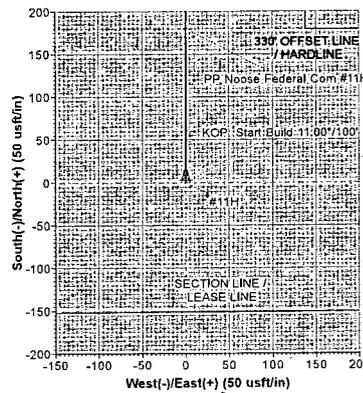
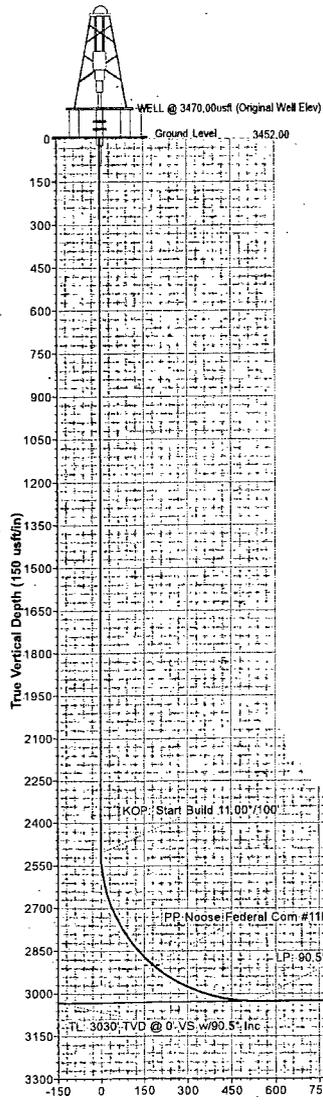
DESIGN TARGET DETAILS										
Name	TVD	+N-S	+E-W	Northing	Easting	Latitude	Longitude	Shape		
PP Moose Federal Com #11H	2898.45	180.01	0.55	585846.92	464062.25	32° 38' 37.95621 N	104° 27' 0.15652 W	Point	- plan misses target center by 0.01usft at 2951.20usft MD (2898.45 TVD, 180.01 N, 0.55 E)	
BHL Moose Federal Com #11H	2988.09	4802.00	14.60	590468.90	464076.30	32° 37' 23.69431 N	104° 27' 0.05154 W	Point	- plan hits target center	

Map System: US State Plane 1927 (Exact solution)
 Datum: NAD 1927 (NADCON CONUS)
 Ellipsoid: Clarke 1866
 Zone Name: New Mexico East 3001
 Local Origin: Well #11H, Grid North
 Latitude: 32° 38' 36.17482 N
 Longitude: 104° 27' 0.16061 W
 Grid East: 464061.70
 Grid North: 585668.90
 Scale Factor: 1.000
 Geomagnetic Model: IGRF2010_14
 Sample Date: 08-Jan-14
 Magnetic Declination: 7.70°
 Dip Angle from Horizontal: 60.33°
 Magnetic Field Strength: 48494
 To convert a Magnetic Direction to a Grid Direction, Add 7.77°
 To convert a Magnetic Direction to a True Direction, Add 7.70° East
 To convert a True Direction to a Grid Direction, Add 0.06°

FORMATION TOP DETAILS				
TVDPath	MDPath	Formation	DipAngle	DipDir
3025.47	3321.19	TL: 3030 TVD @ 0° VS w90.5° Inc	-0.50	0.17

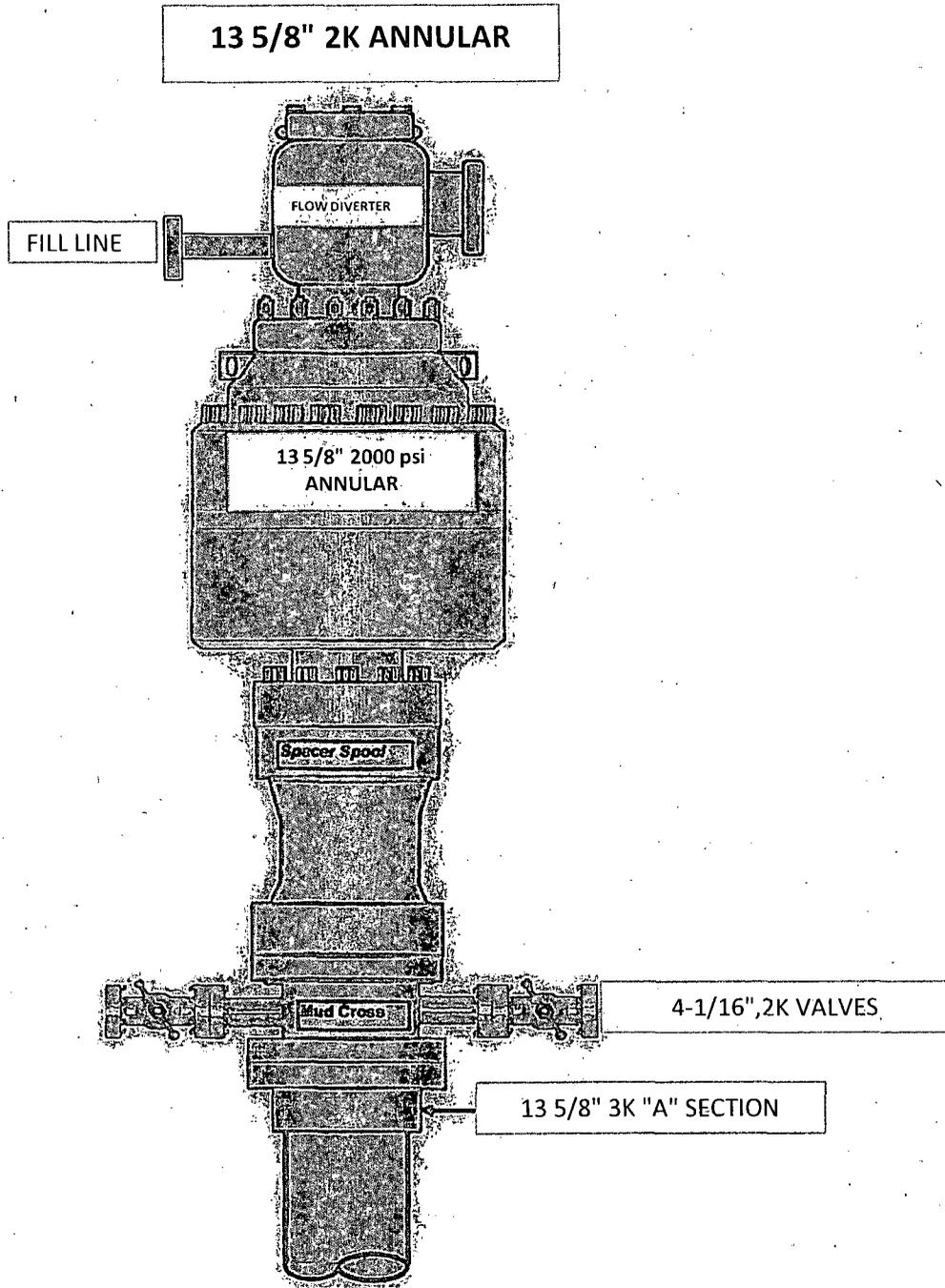
LEGEND

— Plan #1 01-08-14



Vertical Section at 0.17° (150 usft/in)

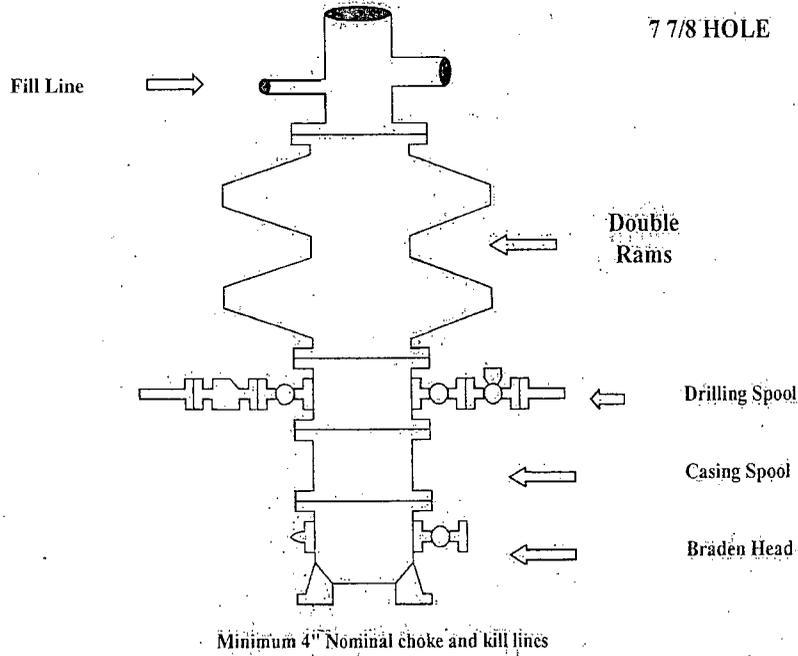
Exhibit #10



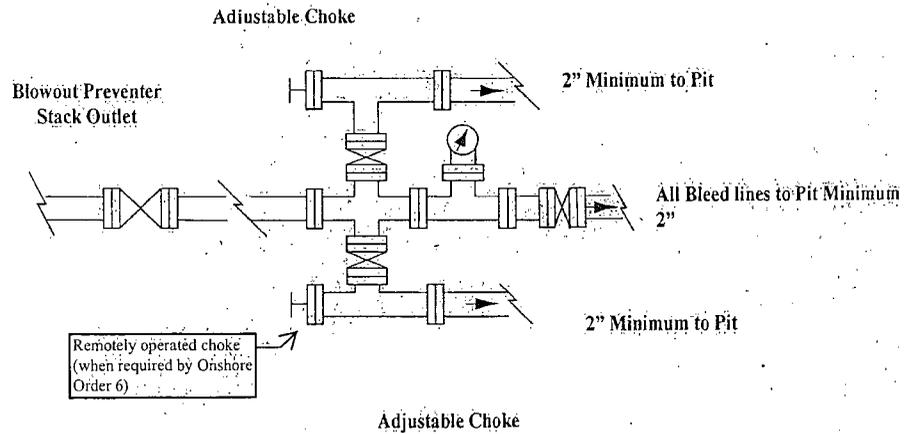
COG Operating LLC

Exhibit #9

BOPE and Choke Schematic



Choke Manifold Requirement (2000 psi WP)
No Annular Required



NOTES REGARDING THE BLOWOUT PREVENTERS

Master Drilling Plan
Eddy County, New Mexico

1. Drilling nipple to be so constructed that it can be removed without use of a welder through rotary table opening, with minimum I.D. equal to preventer bore.
2. Wear ring to be properly installed in head.
3. Blow out preventer and all fittings must be in good condition, 2000 psi WP minimum.
4. All fittings to be flanged.
5. Safety valve must be available on rig floor at all times with proper connections; valve to be full 2000 psi WP minimum.
6. All choke and fill lines to be securely anchored especially ends of choke lines.
7. Equipment through which bit must pass shall be at least as large as the diameter of the casing being drilled through.
8. Kelly cock on Kelly.
9. Extension wrenches and hands wheels to be properly installed.
10. Blow out preventer control to be located as close to driller's position as feasible.
11. Blow out preventer closing equipment to include minimum 40-gallon accumulator, two independent sources of pump power on each closing unit installation all API specifications.

Closed Loop Operation & Maintenance Procedure

All drilling fluid circulated over shaker(s) with cuttings discharged into roll off container.

Fluid and fines below shaker(s) are circulated with transfer pump through centrifuge(s) or solids separator with cuttings and fines discharged into roll off container.

Fluid is continuously re-circulated through equipment with polymer added to aid separation of cutting fines.

Roll off containers are lined and de-watered with fluids re-circulated into system.

Additional tank is used to capture unused drilling fluid or cement returns from casing jobs.

This equipment will be maintained 24 hrs./day by solids control personnel and or rig crews that stay on location.

Cuttings will be hauled to either:

CRI (permit number R9166)

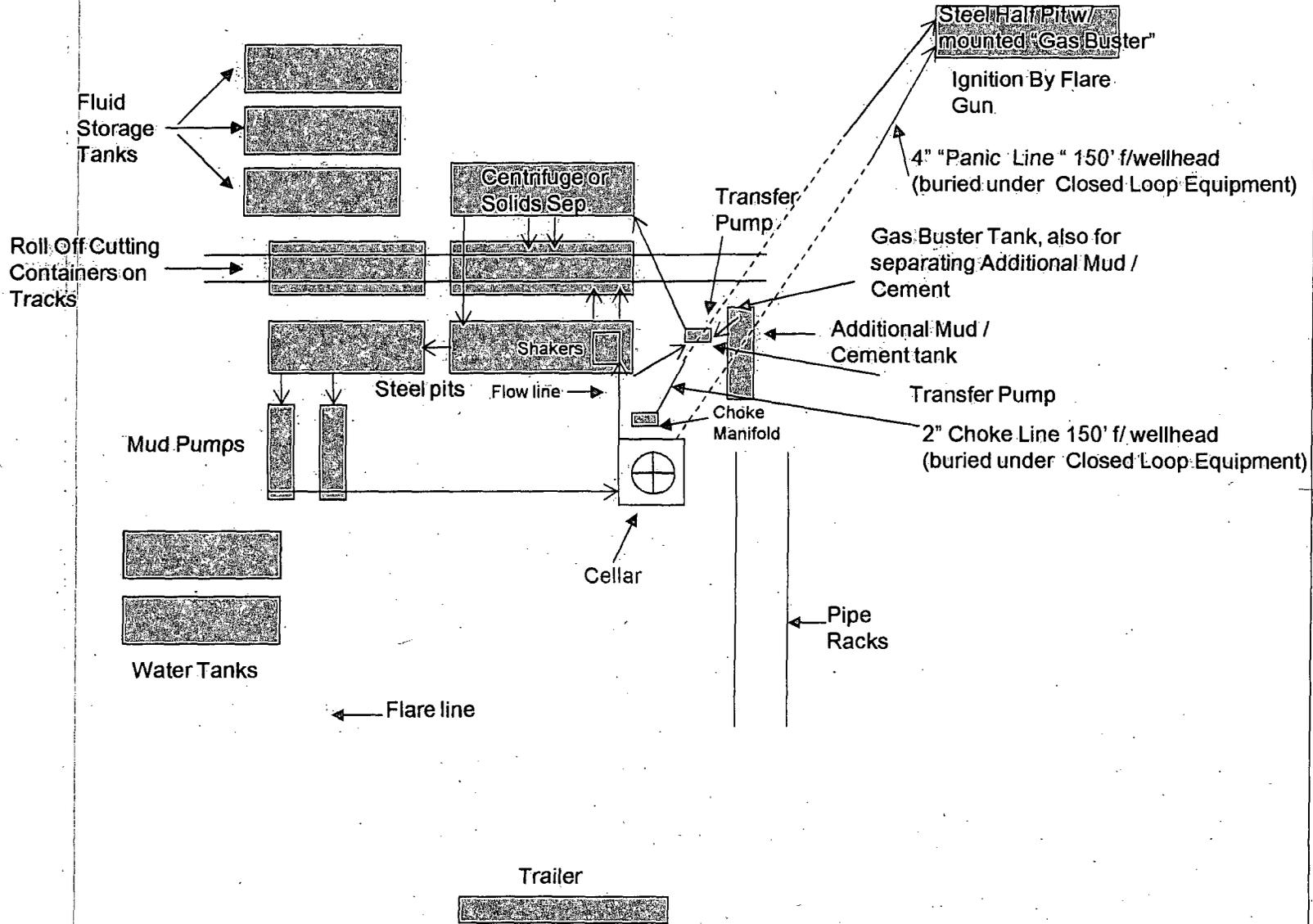
or

GMI (permit number 711-019-001)

dependent upon which rig is available to drill this well.

COG Operating LLC

Closed Loop Equipment Diagram



COG Operating LLC

Hydrogen Sulfide Drilling Operation Plan

I. HYDROGEN SULFIDE TRAINING

All personnel, whether regularly assigned, contracted, or employed on an unscheduled basis, will receive training from a qualified instructor in the following areas prior to commencing drilling operations on this well:

1. The hazards and characteristics of hydrogen sulfide (H₂S)
2. The proper use and maintenance of personal protective equipment and life support systems.
3. The proper use of H₂S detectors, alarms, warning systems, briefing areas, evacuation procedures, and prevailing winds.
4. The proper techniques for first aid and rescue procedures.

In addition, supervisory personnel will be trained in the following areas:

1. The effects of H₂S on metal components. If high tensile tubular are to be used, personnel will be trained in their special maintenance requirements.
2. Corrective action and shut-in procedures when drilling or reworking a well and blowout prevention and well control procedures.
3. The contents and requirements of the H₂S Drilling Operations Plan and Public Protection Plan.

There will be an initial training session just prior to encountering a known or probable H₂S zone (within 3 days or 500 feet) and weekly H₂S and well control drills for all personnel in each crew. The initial training session shall include a review of the site specific H₂S Drilling Operations Plan and the Public Protection Plan. **The concentrations of H₂S of wells in this area from surface to TD are low enough that a contingency plan is not required.**

II. H2S SAFETY EQUIPMENT AND SYSTEMS

Note: All H2S safety equipment and systems will be installed, tested, and operational when drilling reaches a depth of 500 feet above, or three days prior to penetrating the first zone containing or reasonable expected to contain H2S.

1. Well Control Equipment:

- A. Flare line.
- B. Choke manifold with minimum of one remotely operated choke.
- C. Closed Loop Blow Down Tank
- D. Blind rams and pipe rams to accommodate all pipe sizes with properly sized closing unit.
- E. Auxiliary equipment may include if applicable: mud-gas separator, annular preventer & rotating head.

2. Protective equipment for essential personnel:

- A. SCBA (Self contained breathing apparatus) 30-minute units located in the doghouse and at briefing areas, as indicated on well site diagram.

3. H2S detection and monitoring equipment:

- A. Portable H2S monitors positioned on location for best coverage and response. These units have warning lights and audible sirens when H2S levels of 20 PPM are reached.

4. Visual warning systems:

- A. Wind direction indicators as shown on well site diagram.
- B. Caution/Danger signs (Exhibit #7) shall be posted on roads providing direct access to location. Signs will be painted a high visibility yellow with black lettering of sufficient size to be readable at a reasonable distance from the immediate location. Bilingual signs will be used, when appropriate. See example attached.

5. Mud program:

- A. The mud program has been designed to minimize the volume of H2S circulated to surface. Proper mud weight, safe drilling practices, and the use of H2S scavengers will minimize hazards when penetrating H2S bearing zones.
-

6. Metallurgy:

- A. All drill strings, casings, tubing, wellhead, blowout preventer, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H2S service.
- B. All elastomers used for packing and seals shall be H2S trim.

7. Communication:

- A. Radio communications in company vehicles including cellular telephone and 2-way radio.
- B. Land line (telephone) communication at Office.

8. Well testing:

- A. Drill stem testing will be performed with a minimum number of personnel in the immediate vicinity, which are necessary to safely and adequately conduct the test. The drill stem testing will be conducted during daylight hours and formation fluids will not be flowed to the surface. All drill-stem-testing operations conducted in an H2S environment will use the closed chamber method of testing.
- B. There will be no drill stem testing.

EXHIBIT #7

WARNING
YOU ARE ENTERING AN H₂S
AUTHORIZED PERSONNEL ONLY

- 1. BEARDS OR CONTACT LENSES NOT ALLOWED
- 2. HARD HATS REQUIRED
- 3. SMOKING IN DESIGNATED AREAS ONLY
- 4. BE WIND CONSCIOUS AT ALL TIMES
- 5. CHECK WITH COG OPERATING FOREMAN AT

COG OPERATING LLC
1-432-683-7443
1-575-746-2010

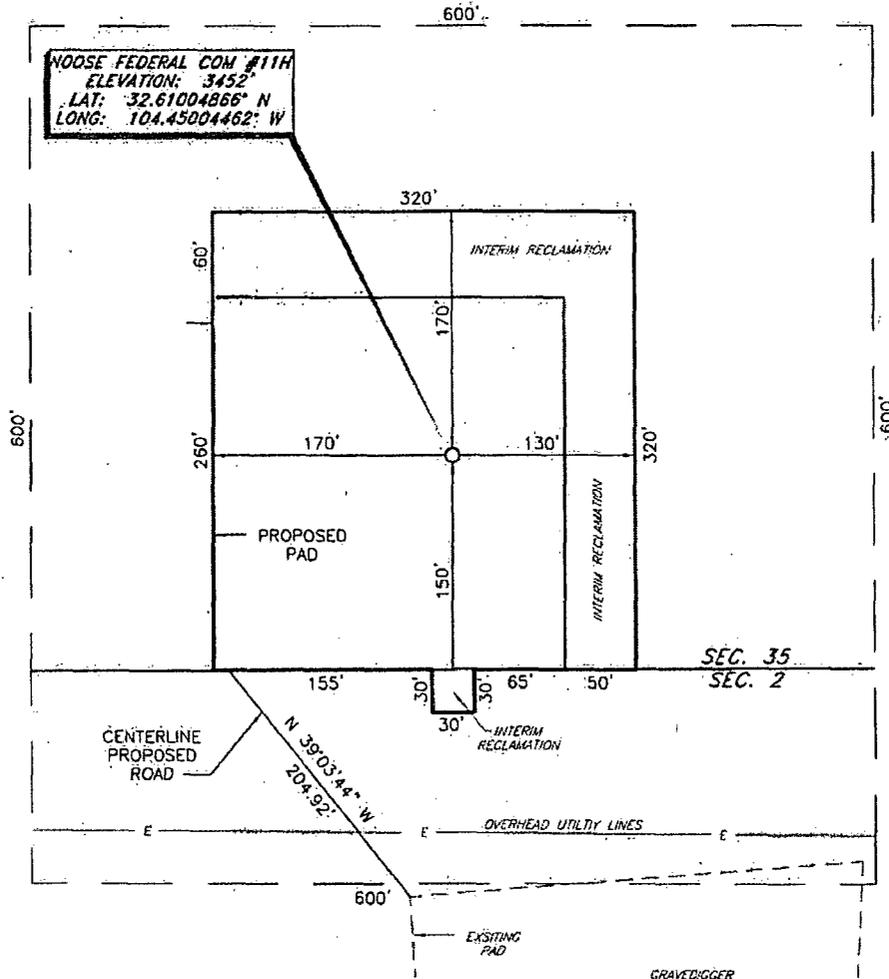
EDDY COUNTY EMERGENCY NUMBERS

ARTESIA FIRE DEPT. 575-746-5050
ARTESIA POLICE DEPT. 575-746-5000
EDDY CO. SHERIFF DEPT. 575-746-9888

LEA COUNTY EMERGENCY NUMBERS

HOBBS FIRE DEPT. 575-397-9308
HOBBS POLICE DEPT. 575-397-9285
LEA CO. SHERIFF DEPT. 575-396-1196

COG OPERATING, LLC
 Interim Reclamation
 Moose Federal Com #11H
 (150' FSL & 1130' FEL)
 Section 35, T-19-S, R-25-E,
 N. M. P. M., Eddy Co., New Mexico



DIRECTIONS TO LOCATION

From the intersection of U. S. Hwy. No. 285 and County Road No. 23 (Rock Daisy);

Go West on Co. Rd. 23 approx. 3.0 miles;

Turn left on lease road and go South approx. 0.8 mile;

Turn left and go Southeast approx. 0.3 mile;

Turn right and go South approx. 0.2 mile;

Turn left and go East approx. 0.4 mile to the COG Gravedigger St. Com. #7H;

Location is approx. 415' Northwest of the existing pumping unit.

SCALE: 1" = 100'

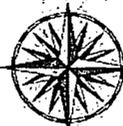
0 50 100

BEARINGS ARE
 NAD 27 GRID - 1/4\"/>

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NO.	REVISION	DATE
JOB NO.: LS130467		
DWG. NO.: 130467REC		

PROSPERITY CONSULTANTS, LLC



3011 S. Co. Rd. 1260, Midland TX 79706 | Firm No.: TX 10193838, NM 4655451 | (432) 561-5780

SCALE: 1" = 100'
DATE: 11-8-13
SURVEYED BY: GB/IE
DRAWN BY: LWB
APPROVED BY: LWB
SHEET: 1 OF 1

Surface Use Plan
COG Operating, LLC
Noose Federal Com 10H
SL: 170' FSL & 2550' FEL UL O
Section 35, T-19-S, R-25-E
BHL: 330' FNL & 2550' FEL UL B
Section 35, T-17-S, R-25-E
Eddy County, New Mexico

Surface Use & Operating Plan

Noose Federal Com 11H

- Surface Tenant: Greg or Kris Williamson, P.O. Box 498 Artesia, NM 88211
- New Road: approx. 173.4'
- Flow Line: approx. 1.0 mi
- Facilities: Noose Federal #6H Federal Tank Battery

Well Site Information

V Door: West

Topsoil: East

Interim Reclamation: South/East

Notes

-N/A

Onsite: 11/8/2013 Tanner Nygren (BLM), Caden Jameson (COG), Gary Box (P.C.)

SURFACE USE AND OPERATING PLAN

1. Existing & Proposed Access Roads

- A. The well site survey and elevation plat for the proposed well is attached with this application. It was staked by Prosperity Consultants, LLC, Midland, TX.
- B. All roads to the location are shown in the Vicinity Map. The existing lease roads are illustrated and are adequate for travel during drilling and production operations. Upgrading existing roads prior to drilling the well will be done where necessary. The road route to the well site is depicted in Vicinity Map. The road highlighted in the Vicinity Map will be used to access the well.
- C. Directions to location: See Vicinity Map.
- D. Routine grading and maintenance of existing roads will be conducted as necessary to maintain their condition as long as any operations continue on this lease. Roads will be maintained according to specifications in section 2A of this Surface Use and Operating Plan.

2. Proposed Access Road:

The Elevation Plat shows that 173.4' of new access road will be required for this location. If any road is required it will be constructed as follows:

- A. The maximum width of the running surface will be 14'. The road will be crowned, ditched and constructed of 6" rolled and compacted caliche. Ditches will be at 3:1 slope and 4 feet wide. Water will be diverted where necessary to avoid ponding, prevent erosion, maintain good drainage, and to be consistent with local drainage patterns.
- B. The average grade will be less than 1%.
- C. No turnouts are planned.
- D. No culverts, cattleguard, gates, low water crossings or fence cuts are necessary.
- E. Surfacing material will consist of native caliche. Caliche will be obtained from the actual well site if available. If not available onsite, caliche will be hauled from the nearest BLM approved caliche pit.

3. Location of Existing Well:

The 1-mile Map shows all existing wells within a one-mile radius of this well.

As shown on this plat there are numerous wells producing from the San Andres and Yeso formations.

4. Location of Existing and/or Proposed Facilities:

- A. COG Operating LLC does operate a production facility on this lease.
- B. If the well is productive, contemplated facilities will be as follows:
- 1) Production will be sent to the Noose Federal #6H Tank Battery located in Section 35 at approx. 330' FSL & 330' FWL in T19S R25E. The facility location is shown in Exhibit #1.
 - 2) The tank battery and facilities including all flow lines and piping will be installed according to API specifications.
 - 3) Any additional caliche will be obtained from the actual well site. If caliche does not exist or is not plentiful from the well site, the caliche will be hauled from a BLM approved caliche pit. Any additional construction materials will be purchased from contractors.
 - 4) Proposed flow lines, will follow an archaeologically approved route to the Noose Federal #6H Tank Battery located in Section 35 at approx. 330' FSL & 330' FWL in T19S R25E. The flowline will be SDR 7 3" poly line laid on the surface and will be approximately 1.0 mi in length. See Exhibit 1.
 - 5) It will be necessary to run electric power if this well is productive. Power will be provided by CVE and they will submit a separate plan and ROW for service to the well location.
 - 6) If the well is productive, rehabilitation plans will include the following:
 - The original topsoil from the well site will be returned to the location, and the site will be re-contoured as close as possible to the original site.

5. Location and Type of Water Supply:

The well will be drilled with combination brine and fresh water mud system as outlined in the drilling program. The water will be obtained from commercial water stations in the area and hauled to location by transport truck over the existing and proposed access roads shown in Vicinity Map. If a commercial fresh water source is nearby, fast line may be laid along existing road ROW's and fresh water pumped to the well. No water well will be drilled on the location.

6. Source of Construction Materials and Location "Turn-Over" Procedure:

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

- A. The top 6 inches of topsoil is pushed off and stockpiled along the side of the location.**
- B. An approximate 120' X 120' area is used within the proposed well site to remove caliche.**
- C. Subsoil is removed and piled alongside the 120' by 120' area within the pad site.**
- D. When caliche is found, material will be stock piled within the pad site to build the location and road.**
- E. Then subsoil is pushed back in the hole and caliche is spread accordingly across entire location and road.**
- F. Once well is drilled, the stock piled top soil will be used for interim reclamation and spread along areas where caliche is picked up and the location size is reduced. Neither caliche nor subsoil will be stock piled outside of the well pad. Topsoil will be stockpiled along the edge of the pad as depicted in attached plat.**
 - In the event that no caliche is found onsite, caliche will be hauled in from a BLM approved caliche pit.

7. Methods of Handling Water Disposal:

- A. The well will be drilled utilizing a closed loop mud system. Drill cuttings will be held in roll-off style mud boxes and taken to an NMOCD approved disposal site.
- B. Drilling fluids will be contained in steel mud pits.
- C. Water produced from the well during completion will be held temporarily in steel tanks and then taken to an NMOCD approved commercial disposal facility.
- D. Garbage and trash produced during drilling or completion operations will be collected in a trash bin and hauled to an approved landfill. No toxic waste or hazardous chemicals will be produced by this operation.
- E. Human waste and grey water will need to be properly contained and disposed of. Proper disposal and elimination of waste and grey water may include but are not limited to portable septic systems and/or portable waste-gathering systems (i.e. portable toilets).
- F. After the rig is moved out and the well is either completed or abandoned, all waste materials will be cleaned up within 30 days. In the event of a dry hole only a dry hole marker will remain.

8. Ancillary Facilities:

No airstrip, campsite or other facilities will be built as a result of the operation on this well.

9. Well Site Layout:

- A. The drill pad layout, with elevations staked by Prosperity Consultants, LLC, is shown in the Elevation Plat. Dimensions of the pad and pits are shown on the Rig Layout. V door direction is West. Topsoil, if available, will be stockpiled per BLM specifications. Because the pad is almost level no major cuts will be required.
- B. The Rig Layout Closed-Loop exhibit shows the proposed orientation of closed loop system and access road. No permanent living facilities are planned, but a temporary foreman/toolpusher's trailer will be on location during the drilling operations.

10. Plans for Restoration of the Surface:

- A. Interim Reclamation will take place after the well has been completed. The pad will be downsized by reclaiming the areas not needed for production operations. The portions of the pad that are not needed for production operations will be re-contoured to its original state as much as possible. The caliche that is removed will be reused to either build another pad site or for road repairs within the lease. The stockpiled topsoil will then be spread out reclaimed area and reseeded with a BLM approved seed mixture. In the event that the well must be worked over or maintained, it may be necessary to drive, park, and/or operate machinery on reclaimed land. This area will be repaired or reclaimed after work is complete.
- B. Final Reclamation: Upon plugging and abandoning the well all caliche for well pad and lease road will be removed and surface will be recontoured to reflect its surroundings as much as possible. Caliche will be recycled for road repair or reused for another well pad within the lease. If any topsoil remains, it will be spread out and the area will be reseeded with a BLM approved mixture and re-vegetated as per BLM orders.

11. Surface Ownership:

- A. The surface is owned by the U.S. Government and is administered by the Bureau of Land Management. The surface is multiple uses with the primary uses of the region for grazing of livestock and the production of oil and gas.
- B. The surface tenant is Greg or Kris Williamson, P.O. Box 498, Artesia, NM 88211.
- C. The proposed road routes and surface location will be restored as directed by the BLM

Surface Use Plan
COG Operating, LLC
Noose Federal Com 10H
SL: 170' FSL & 2550' FEL *UL O*
Section 35, T-19-S, R-25-E
BHL: 330' FNL & 2550' FEL *UL B*
Section 35, T-17-S, R-25-E
Eddy County, New Mexico

12. Other Information:

- A. The area around the well site is grassland and the topsoil is sandy. The vegetation is moderately sparse with native prairie grasses, some mesquite and shinnery oak. No wildlife was observed but it is likely that mule deer, rabbits, coyotes and rodents traverse the area.
- B. There is no permanent or live water in the immediate area.
- C. There are no dwellings within 2 miles of this location.
- D. If needed, a Cultural Resources Examination is being prepared by Boone Arch Services of New Mexico, LLC. Carlsbad, NM, 88220. 506 E Chapman Rd. , phone # 575.887.7667 and the results will be forwarded to your office in the near future. Otherwise, **COG will be participating in the Permian Basin MOA Program.**

13. Bond Coverage:

Bond Coverage is Nationwide Bond # 000215

14. Lessee's and Operator's Representative:

The COG Operating LLC representative responsible for assuring compliance with the surface use plan is as follows:

Jim Evans	Ray Peterson
Drilling Superintendent	Drilling Manager
COG Operating LLC	COG Operating LLC
One Concho Center	One Concho Center
600 W. Illinois	600 W. Illinois
Midland, TX 79701	Midland, TX 79701
Phone (432) 685-4304 (office)	Phone (432) 685-4304 (office)
(432) 221-0346 (business)	(432) 818-2254 (business)

PECOS DISTRICT

CONDITIONS OF APPROVAL

OPERATOR'S NAME: COG Operating LLC - Holly, Kelly
LEASE NO.: NM113927.
WELL NAME & NO.: Noose Federal - 10H
SURFACE HOLE FOOTAGE: [0170] ' F [S] L [2250] ' F [E] L
BOTTOM HOLE FOOTAGE: [0330] ' F [N] L [2550] ' F [E] L
LOCATION: Section 035, T019. S., R 025 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.

- General Provisions**
- Permit Expiration**
- Archaeology, Paleontology, and Historical Sites**
- Noxious Weeds**
- Special Requirements**
 - Cave/Karst
 - Communitization Agreement
- Construction**
 - Notification
 - Topsoil
 - Closed Loop System
 - Federal Mineral Material Pits
 - Well Pads
 - Roads
- Road Section Diagram**
- Drilling**
 - Cement Requirements
 - High Cave/Karst
 - Logging Requirements
 - Waste Material and Fluids
- Production (Post Drilling)**
 - Well Structures & Facilities
 - Pipelines
- Interim Reclamation**
- Final Abandonment & Reclamation**

I. GENERAL PROVISIONS

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

II. PERMIT EXPIRATION

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

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

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

IV. NOXIOUS WEEDS

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

V. SPECIAL REQUIREMENT(S)

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 entire perimeter of the well pad will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad.

- The compacted berm shall be constructed at a minimum of 12 inches high with impermeable mineral material (e.g. caliche).
- No water flow from the uphill side(s) of the pad shall be allowed to enter the well pad.
- The topsoil stockpile shall be located outside the bermed well pad.
- Topsoil, either from the well pad or surrounding area, shall not be used to construct the berm.
- No storm drains, tubing or openings shall be placed in the berm.
- If fluid collects within the bermed area, the fluid must be vacuumed into a safe container and disposed of properly at a state approved facility.
- The integrity of the berm shall be maintained around the surfaced pad throughout the life of the well and around the downsized pad after interim reclamation has been completed.
- Any access road entering the well pad shall be constructed so that the integrity of the berm height surrounding the well pad is not compromised. (Any access road crossing the berm cannot be lower than the berm height.)

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, siting valves 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 valves, 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.

Drilling:

Communitization Agreement

The well sign shall include the surface and bottom hole lease numbers. If the Communitization Agreement number is known, it shall also be on the sign. If not, it shall be placed on the sign when the sign is replaced.

VI. CONSTRUCTION

A. NOTIFICATION

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

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

B. TOPSOIL

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

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

C. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

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

D. FEDERAL MINERAL MATERIALS PIT

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

E. WELL PAD SURFACING

Surfacing of the well pad is not required.

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

F. EXCLOSURE FENCING (CELLARS & PITS)

Exclosure Fencing

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

G. ON LEASE ACCESS ROADS

Road Width

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

Surfacing

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

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

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

Crowning

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

Ditching

Ditching shall be required on both sides of the road.

Turnouts

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

Drainage

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

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

Cross Section of a Typical Lead-off Ditch

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

Formula for Spacing Interval of Lead-off Ditches

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

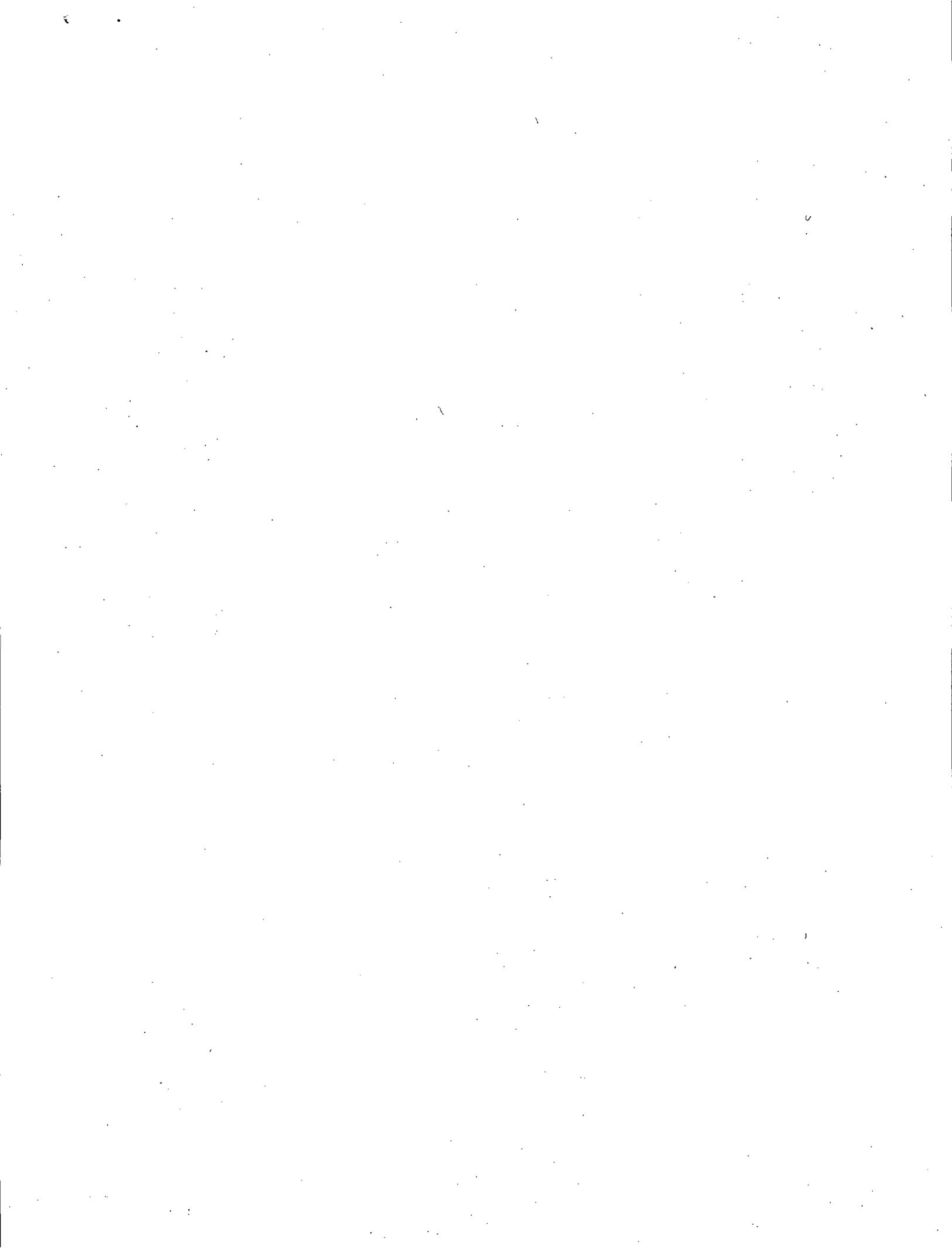
$$400 \text{ foot road with } 4\% \text{ road slope: } \frac{400'}{4\%} + 100' = 200' \text{ lead-off ditch interval}$$

Cattleguards

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

Public Access

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



I. 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. Operator has stated that they will have monitoring equipment in place prior to drilling out of the surface shoe. If Hydrogen Sulfide is encountered, report measured amounts and formations to the BLM.**
1. 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.**
2. 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.
3. **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.**

B. CASING

Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. 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.

**Possibility of water flows in the San Andres.
Possibility of lost circulation in the San Andres.**

A MINIMUM OF TWO CASING STRINGS CEMENTED TO SURFACE IS REQUIRED IN HIGH CAVE/KARST AREAS. THE CEMENT MUST BE IN A SOLID SHEATH. THEREFORE, ONE INCH OPERATIONS ARE NOT SUFFICIENT TO PROTECT CAVE KARST RESOURCES. A CASING DESIGN THAT HAS A ONE INCH JOB PERFORMED DOES NOT COUNT AS A SOLID SHEATH. CONTINGENCY CASING WILL BE REQUIRED IF LOST CIRCULATION (TOTAL LOSS) OCCURS WHILE DRILLING THE SURFACE HOLE. THE SURFACE HOLE WILL HAVE TO BE REAMED AND A LARGER CASING INSTALLED AND THE BLM IS TO BE CONTACTED PRIOR TO RUNNING THE CASING. NOTE: A DEEP CONDUCTOR WILL BE TREATED AND CEMENTED AS A CONTINGENCY CASING.

ON TWO STRING DESIGN WHERE THE SURFACE CASING HAD A SUCCESSFUL CEMENT JOB; IF LOST CIRCULATION (TOTAL LOSS) OCCURS WHILE DRILLING THE PRODUCTION 7-7/8" HOLE, THE CEMENT PROGRAM FOR THE PRODUCTION 5-1/2" CASING WILL NEED TO BE MODIFIED AND THE BLM IS TO BE CONTACTED PRIOR TO RUNNING THE CASING. A DV TOOL WILL BE REQUIRED.

1. The **8-5/8** inch surface casing shall be set at approximately **1200** feet and cemented to the surface.
 - 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.

Centralizers required on horizontal leg, must be type for horizontal service and a minimum of one every other joint.

2. 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.
3. 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. **In the case where the only BOP installed is an annular preventer, it shall be tested to a minimum of 2000 psi (which may require upgrading to 3M or 5M annular).**
3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **2000 (2M) psi**.

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**.
 - a. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.
 - b. The results of the test shall be reported to the appropriate BLM office.
 - c. 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.**
 - d. 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 070814

II. 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

STANDARD STIPULATIONS FOR SURFACE INSTALLED PIPELINES

A copy of the application (Grant, Sundry Notice, APD) and attachments, including stipulations, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. The holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.
2. The holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.
3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to activity of the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.
4. The holder shall be liable for damage or injury to the United States to the extent provided by 43 CFR Sec. 2883.1-4. The holder shall be held to a standard of strict liability for damage or injury to the United States resulting from pipe rupture, fire, or spills caused or substantially aggravated by any of the following within the right-of-way or permit area:

- a. Activities of the holder including, but not limited to construction, operation, maintenance, and termination of the facility.
- b. Activities of other parties including, but not limited to:
 - (1) Land clearing.
 - (2) Earth-disturbing and earth-moving work.
 - (3) Blasting.
 - (4) Vandalism and sabotage.
- c. Acts of God.

The maximum limitation for such strict liability damages shall not exceed one million dollars (\$1,000,000) for any one event, and any liability in excess of such amount shall be determined by the ordinary rules of negligence of the jurisdiction in which the damage or injury occurred.

This section shall not impose strict liability for damage or injury resulting primarily from an act of war or from the negligent acts or omissions of the United States.

5. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil, salt water, or other pollutant should be discharged from the pipeline system, impacting Federal lands, the control and total removal, disposal, and cleaning up of such oil, salt water, or other pollutant, wherever found, shall be the responsibility of the holder, regardless of fault. Upon failure of the holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages resulting therefrom, on the Federal lands, the Authorized Officer may take such measures as he deems necessary to control and clean up the discharge and restore the area, including, where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the holder. Such action by the Authorized Officer shall not relieve the holder of any responsibility as provided herein.

6. All construction and maintenance activity will be confined to the authorized right-of-way width of 20 feet. If the pipeline route follows an existing road or buried pipeline right-of-way, the surface pipeline must be installed no farther than 10 feet from the edge of the road or buried pipeline right-of-way. If existing surface pipelines prevent this distance, the proposed surface pipeline must be installed immediately adjacent to the outer surface pipeline. All construction and maintenance activity will be confined to existing roads or right-of-ways.

7. No blading or clearing of any vegetation will be allowed unless approved in writing by the Authorized Officer.

8. The holder shall install the pipeline on the surface in such a manner that will minimize suspension of the pipeline across low areas in the terrain. In hummocky or dune areas, the pipeline will be "snaked" around hummocks and dunes rather than suspended across these features.

9. The pipeline shall be buried with a minimum of 24 inches under all roads, "two-tracks," and trails. Burial of the pipe will continue for 20 feet on each side of each crossing. The condition of the road, upon completion of construction, shall be returned to at least its former

state with no bumps or dips remaining in the road surface.

10. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

11. In those areas where erosion control structures are required to stabilize soil conditions, the holder will install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound resource management practices.

12. Excluding the pipe, all above-ground structures not subject to safety requirement shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be a color which simulates "Standard Environmental Colors" – **Shale Green**, Munsell Soil Color No. 5Y 4/2; designated by the Rocky Mountain Five State Interagency Committee.

13. The pipeline will be identified by signs at the point of origin and completion of the right-of-way and at all road crossings. At a minimum, signs will state the holder's name, BLM serial number, and the product being transported. Signs will be maintained in a legible condition for the life of the pipeline.

14. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway.

15. Any cultural and/or paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the authorized officer. Holder 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 will be made by the authorized officer to determine appropriate cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the authorized officer after consulting with the holder.

16. 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, powerline 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:

17. Surface pipelines must be less than or equal to 4 inches and a working pressure below 125 psi.

III. INTERIM RECLAMATION

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

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

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

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

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

X. FINAL ABANDONMENT & RECLAMATION

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

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

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

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

Seed Mixture 1, for Loamy Sites

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

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

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

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

*Pounds of pure live seed:

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