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ATS-10-579
10-823

Form 3160-3
(April 2004)

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: ☑ DRILL ☐ REENTER	5 Lease Serial No. NMNM-118710 SHL BHL-Fee
1b. Type of Well: ☑ Oil Well ☐ Gas Well ☐ Other ☐ Single Zone ☐ Multiple Zone	6 If Indian, Allotee or Tribe Name: N/A
2 Name of Operator: COG Operating LLC (22913?)	7 If Unit or CA Agreement, Name and No: N/A
3a Address: 550 W. Texas, Suite 1300 Midland TX 79701	3b Phone No. (include area code): (432) 685-4385
4 Location of Well (Report location clearly and in accordance with any State requirements *) At surface: SHL: 2410' FSL & 430' FEL, UL I At proposed prod zone: BHL: 1980' FSL & 330' FWL, UL L	8 Lease Name and Well No.: High Lonesome 26 Federal Com #3 (37385)
	9 API Well No.: 30-015- 38197
	10 Field and Pool, or Exploratory: ~~Wildcat~~ Wolfcamp (96794)
	11 Sec., T R M or Blk and Survey or Area: Sec 26, T16S, R29E
14 Distance in miles and direction from nearest town or post office*: 2.5 miles north of 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): 430'	16 No of acres in lease: 1560; 17 Spacing Unit dedicated to this well: 160
18 Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft: 1100'	19 Proposed Depth: TVD 7,600'; MD 12,000'; 20 BLM/BIA Bond No on file: NMB000215
21 Elevations (Show whether DF, KDB, RT, GL, etc.): 3693' GL	22 Approximate date work will start*: 07/31/2010; 23 Estimated duration: 10 days

24. Attachments

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

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

25. Signature: Robyn Odom	Name (Printed/Typed): Robyn M. Odom	Date: 04/15/2010
Title: Regulatory Analyst		
Approved by (Signature): /s/ Don Peterson	Name (Printed/Typed):	Date: AUG 19 2010
Title: FIELD MANAGER	Office: CARLSBAD FIELD OFFICE	

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

APPROVAL FOR TWO YEARS

Title 18 U.S.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

*(Instructions on page 2)

ROSWELL CONTROLLED WATER BASIN

UNORTHODOX LOCATION

SEE ATTACHED FOR CONDITIONS OF APPROVAL

APPROVAL SUBJECT TO GENERAL REQUIREMENTS AND SPECIAL STIPULATIONS ATTACHED

DISTRICT I
1625 N French Dr., Hobbs, NM 88240
DISTRICT II
1301 W. Grand Avenue, Artesia, NM 88210
DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410
DISTRICT IV
1220 S St Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION

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

Form C-102
Revised October 15, 2009

Submit one copy to appropriate District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
30-015- 38197	96794	WILDCAT; WOLFCAMP

Property Code	Property Name	Well Number
36816	HIGH LONESOME "26" FEDERAL COM	3

OGRID No.	Operator Name	Elevation
229137	COG OPERATING, LLC	3693'

Surface Location

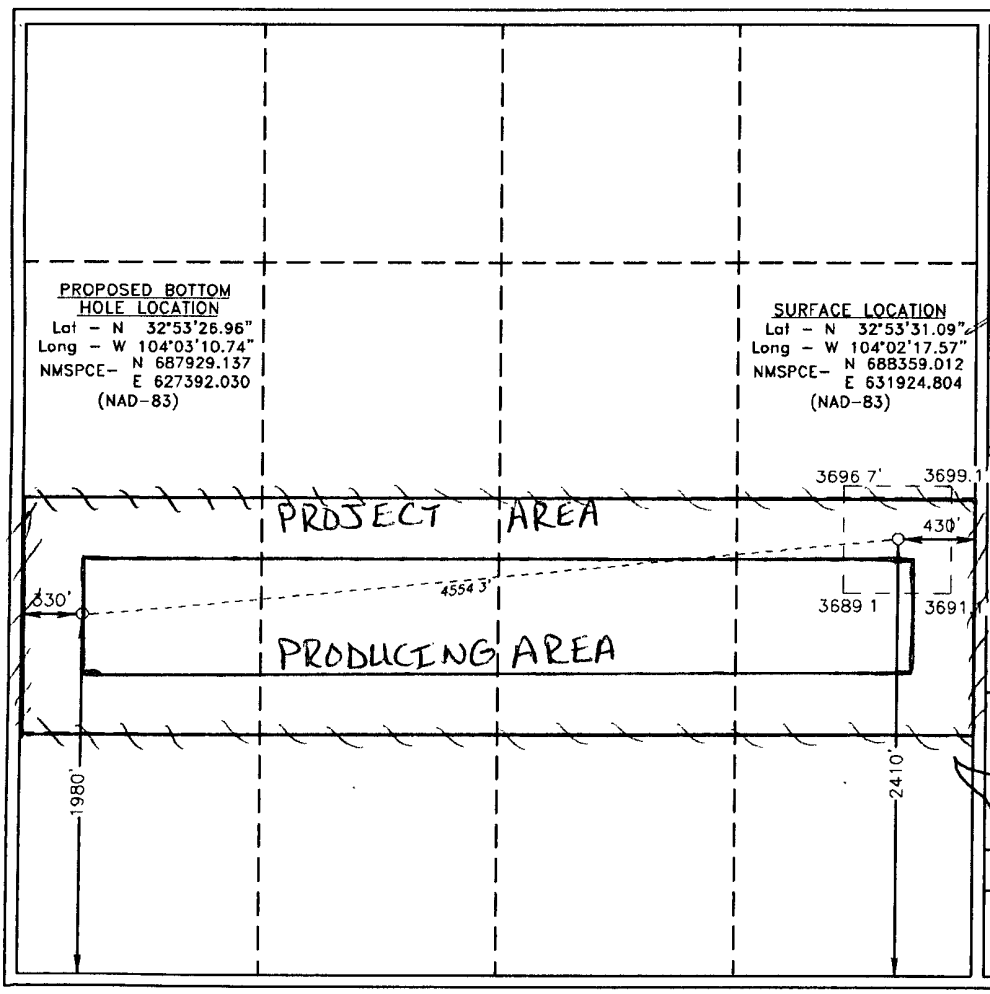
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
I	26	16 S	29 E		2410	SOUTH	430	EAST	EDDY

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
L	26	16 S	29 E		1980	SOUTH	330	WEST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
160			

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division

Signature 5/6/2010 Date

Robyn Odom

Printed Name

SURVEYOR CERTIFICATION

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

FEBRUARY 3, 2010

Date Surveyed

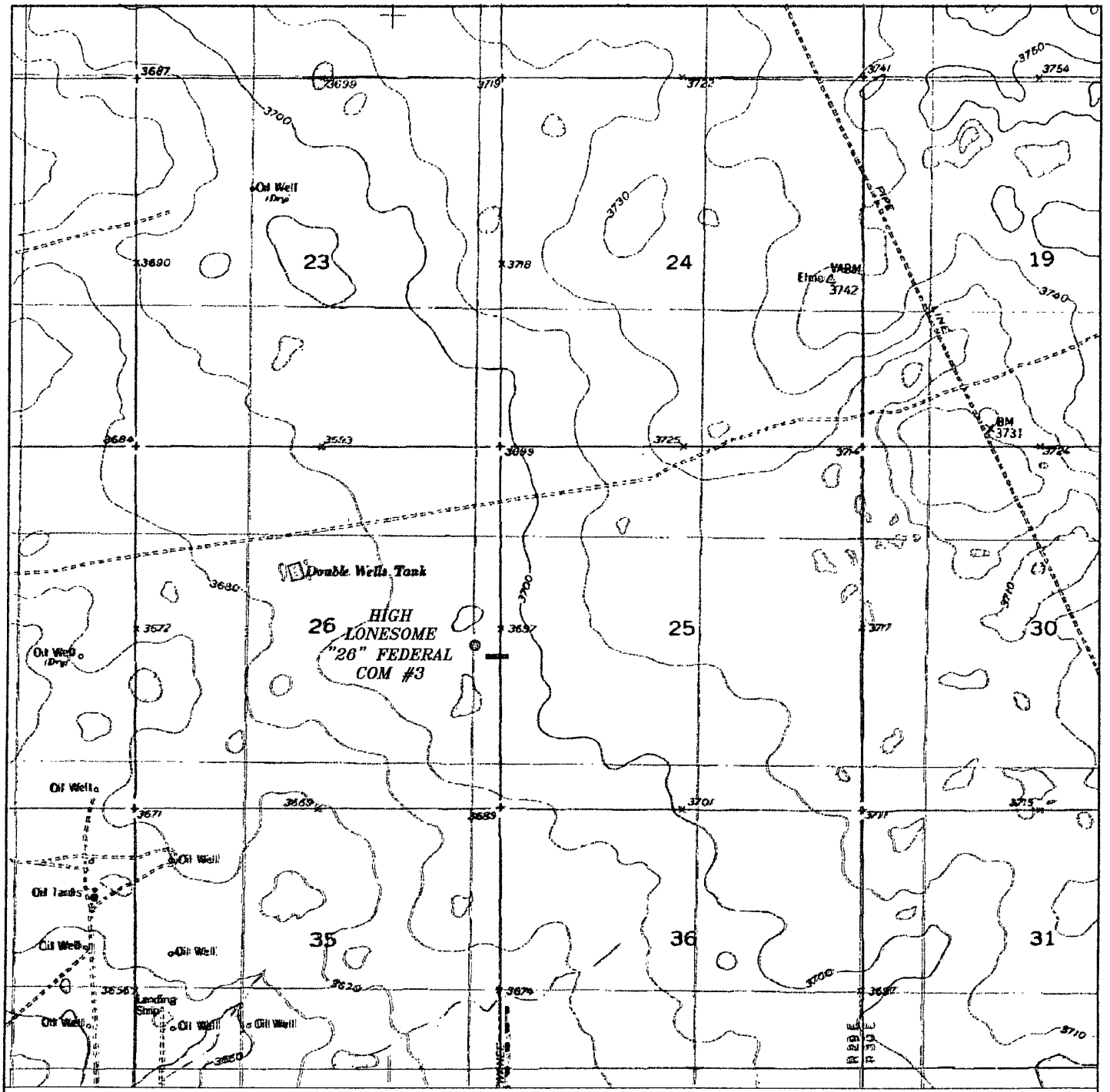
Signature & Seal of Professional Surveyor

GARY L. JONES NEW MEXICO 7977 REGISTERED PROFESSIONAL LAND SURVEYOR

NO. 28

Certificate No. Gary L. Jones 7977

BASIN SURVEYS



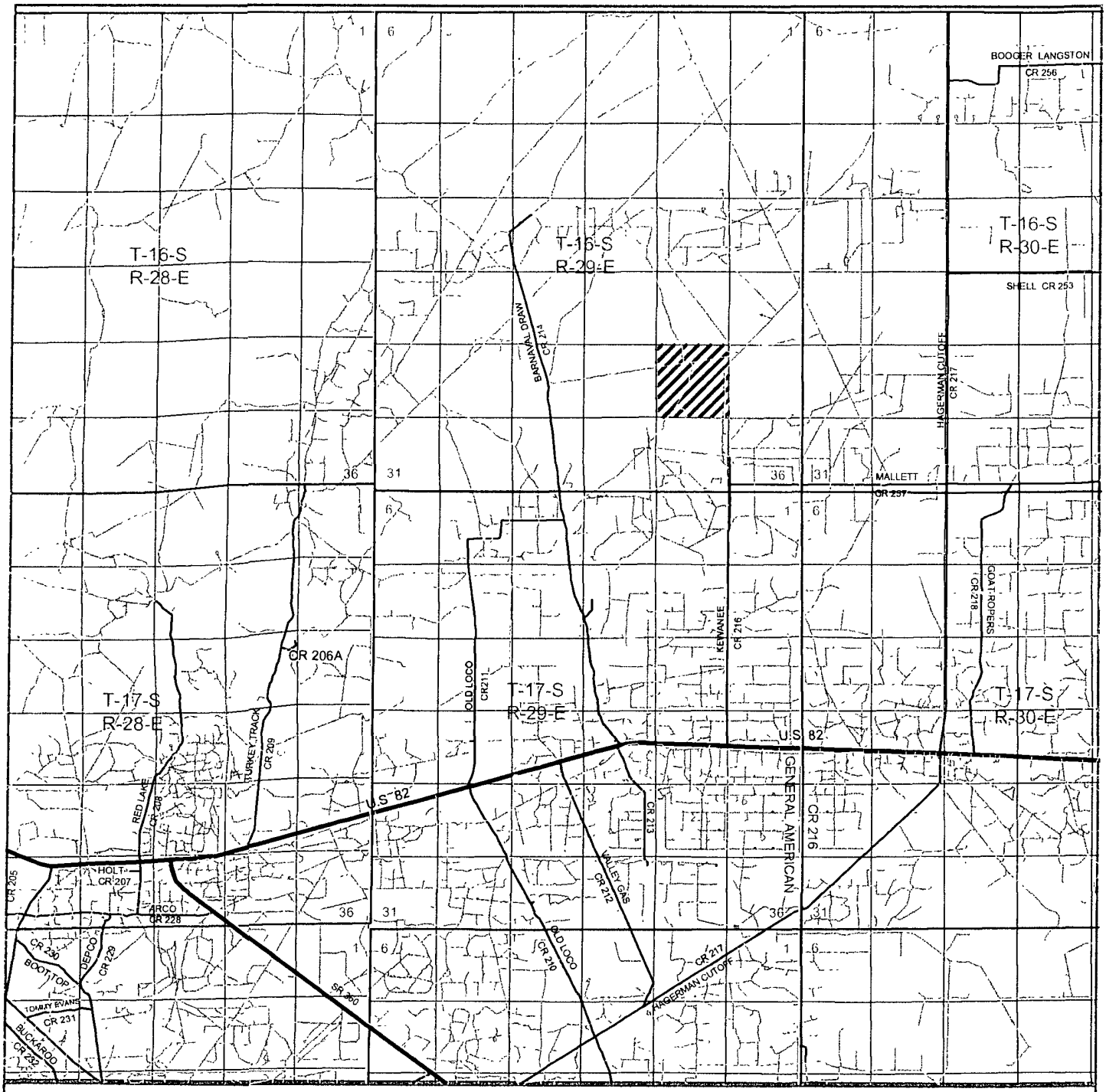
HIGH LONESOME "26" FEDERAL COM #3
Located 2410' FSL and 430' FEL
Section 26, Township 16 South, Range 29 East,
N.M.P.M., Eddy County, New Mexico.

basin surveys
focused on excellence in the oilfield

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

W.O. Number: JMS 22428
Survey Date 03-29-2010
Scale: 1" = 2000'
Date: 03-30-2010

COG OPERATING, LLC



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(575) 392-2206 - Fax
basinsurveys.com

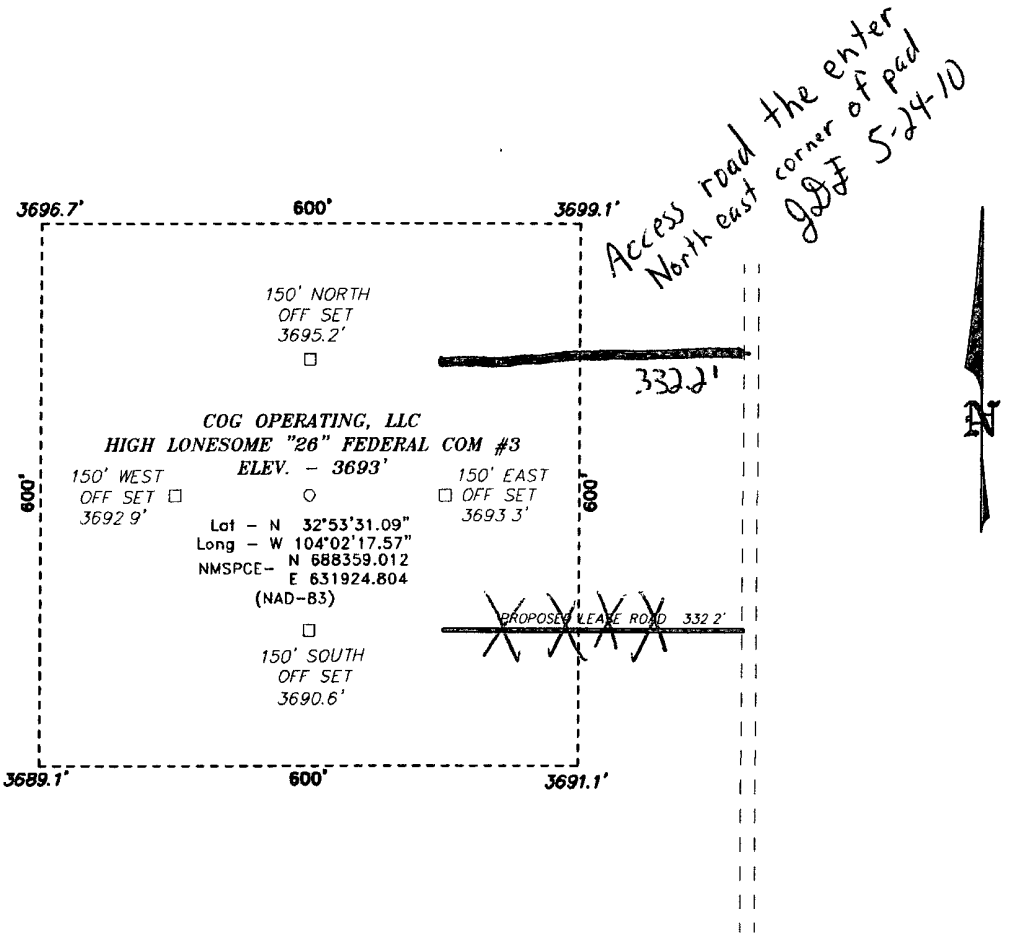
W.O.' Number. JMS 22428
Survey Date: 03-29-2010
Scale: 1" = 2 Miles
Date. 03-30-2010

N

COG OPERATING, LLC

SECTION 26, TOWNSHIP 16 SOUTH, RANGE 29 EAST, N.M.P.M.,

EDDY COUNTY, **NEW MEXICO.**



200 0 200 400 FEET

SCALE: 1" = 200'

Directions to Location:

FROM THE JUNCTION OF HWY 82 AND KEWANEE, GO NORTH ON KEWANEE TURNING INTO A LEASE ROAD FOR 4.9 MILES TO PROPOSED LEASE ROAD.

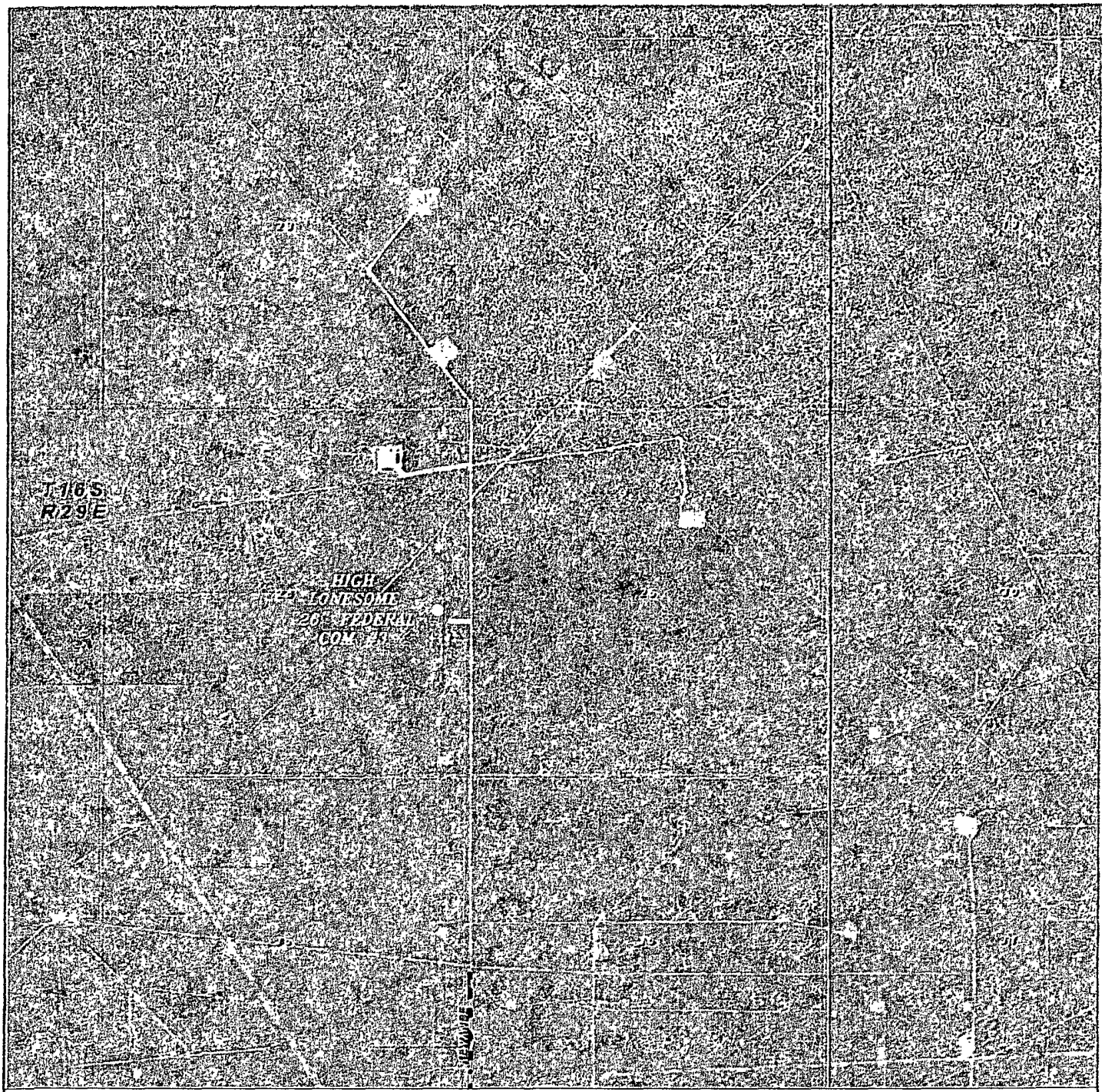
COG OPERATING, LLC

REF: HIGH LONESOME "26" FEDERAL COM #3 / WELL PAD TOPO

THE HIGH LONESOME "26" FEDERAL COM #3 LOCATED 2410' FROM THE SOUTH LINE AND 430' FROM THE EAST LINE OF SECTION 26, TOWNSHIP 16 SOUTH, RANGE 29 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO.

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

W.O. Number 22428	Drawn By. J. SMALL		
Date 03-30-2010	Disk: JMS 22428	Survey Date 03-29-2010	Sheet 1 of 1 Sheets



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Located 2410' FSL and 430' FEL
Section 26, Township 16 South, Range 29 East,
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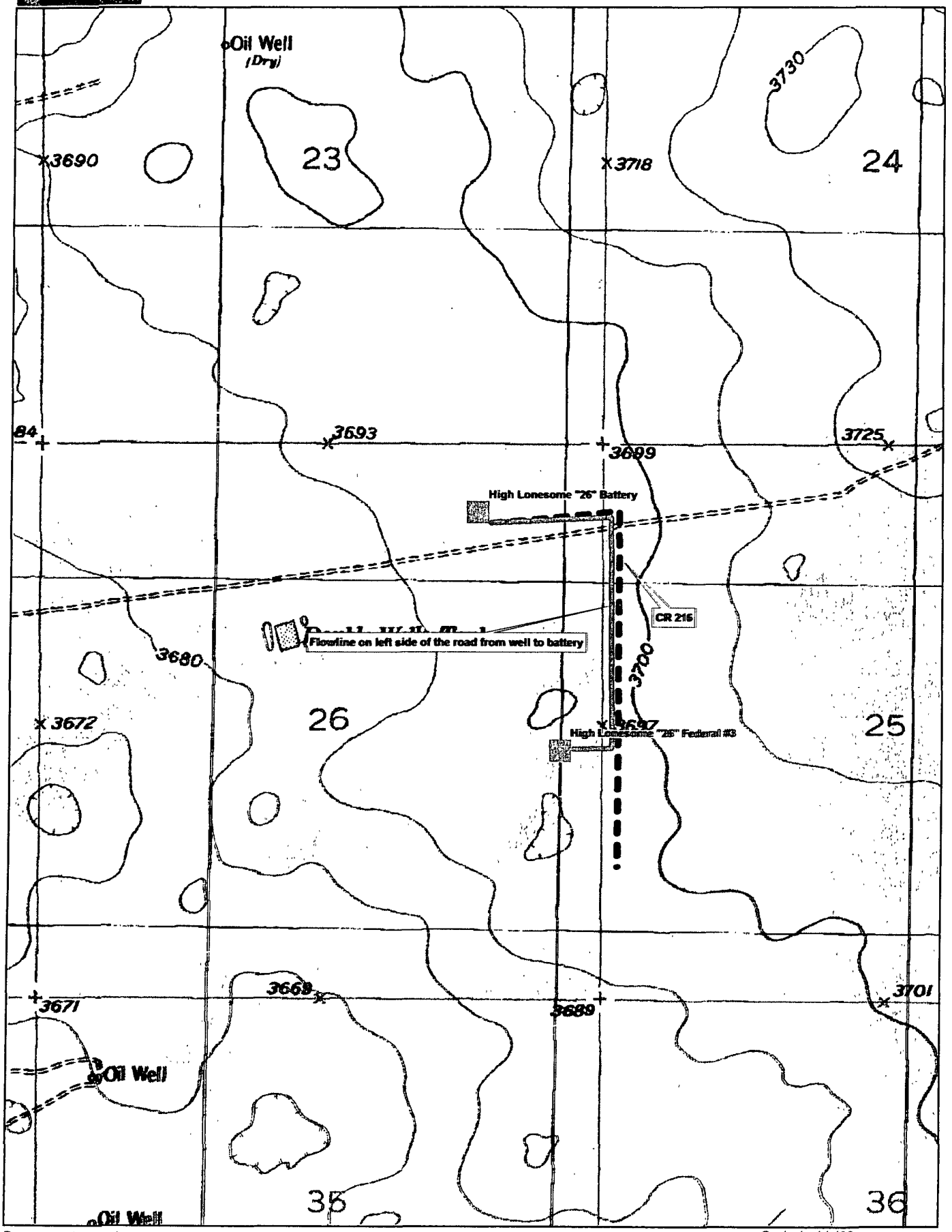
Scale: 1" = 2000'

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

N

COG OPERATING, LLC



TN
MN (8.0°E)

Scale 1 : 14,400
0 400 800 1200 1600 2000 ft
0 120 240 360 480 600 m
1" = 1,200.0 ft Data Zoom 13-7

ATTACHMENT TO FORM 3160-3
COG Operating LLC
High Lonesome 26 Federal Com # 3
SHL: 2410' FSL & 430' FEL Unit I
BHL: 1980' FSL & 330' FWL Unit L
Sec 26, T16S, R29E
Eddy County, NM

1 Proration Unit Spacing. 160 Acres

2 Ground Elevation: 3693'

3 Proposed Depths: Pilot hole TD = 7610', Horizontal TVD = 7325', Horizontal MD = 11700'

4. Estimated tops of geological markers:

Quaternary	Surface
Yates/Seven Rivers	485'
Queens	1875'
San Andres	2646'
Glorieta	3945'
Tubb	5350'
Abo	6100'
Wolfcamp	7300'

5. Possible mineral bearing formations:

Water Sand	Fresh Water	150'
San Andres	Oil / Gas	2640'
Glorieta	Oil / Gas	3945'
Tubb	Oil / Gas	5350'
Abo	Oil / Gas	6100' 7325
Wolfcamp	Oil / Gas	7300'

6. Casing Program

See COA

Hole size	Interval	OD of Casing	Weight	Cond.	Collar	Grade
17-1/2"	0' - +/-~~500~~'	13-3/8"	54.5#	New	STC	J55
Collapse sf - 2.98, Burst sf – 2.33, Tension sf – 13.42						
12-1/4"	0' - +/- 2700'	9-5/8"	40#	New	LTC	J/K-55
Collapse sf – 2.86, Burst sf – 1.42, Tension sf – 7.22						
8-3/4"	0' – 6600'MD	7"	26#	New	LTC	P110
Collapse sf - 2. 08, Burst sf – 2.35, Tension sf – 2.92						
6-1/8"	6500' – ~~11700~~'MD	4-1/2"	11.6#	New	LTC	P110
Collapse sf – 1.85, Burst sf – 2.28, Tension sf – 29.19						

11,675.5

Respectfully request permission for 100' liner overlap to set pump as deep as possible.

7. Cement Program — see COA

13 3/8" Surface Casing set at +/- 500', Circ to Surf with +/- 200 sx Class "C" w/ 2% CaCl2, 4% gel 13.5 ppg, 1.74 cf/sk, 1.35 yd. & +/- 300 sx Class "C" w/ 2% CaCl2 14.8 ppg, 1.35 cf/sk, 1.35 yd

9 5/8" Intermediate Casing set at +/- 2700', Circ. to Surf with +/- 500 sx Class "C" w/ 4% gel 13.5 ppg, 1 75 cf/sk, 2.45 yd. & 200 sx Class "C" w/ 0.35% R-3 14.8 ppg, 1.21 cf/sk, 1.35 yd

7" Production Casing set at +/- 5900' → 6600', Circ to Surf with +/- 900 sx Class "C" w/ 4% gel 13.5 ppg, 1.72 cf/sk, 2.45 yd. & 200 sx Class "C" w/ 0.35% R-3 14.8 ppg, 1.33 cf/sk, 1.35 yd.

4 ½" Production Liner set at +/- 10856' → 11,675' MD, 6680' TVD, Uncemented, with packers for isolation, and requesting permission for only 100' liner overlap.

8. Pressure Control Equipment:

After setting 13 3/8" casing and installing 3000 psi casing head, NU 13 5/8" 3000 psi annular BOP. Test annular BOP, casing ~~and manifold with clear fluid to 1000 psi w/ rig pump.~~ → See COA

See COA

The BOP will then be nipped up on the 9 5/8" intermediate casing and tested by a third party to 2000 psi and used continuously until total depth is reached.

After setting 7" casing and installing 3000 psi casing spool, NU 3000 psi double ram BOP and 3000 psi annular BOP. Test double ram BOP and manifold to 3000# with clear fluid and annular to 1500 psi using an independent tester, this equipment will be used continuously until TD is reached. Blind rams will be operationally checked on each trip out of hole. Pipe rams will be operationally checked each 24 hour period. These checks will be noted on daily tour sheets. Other accessories to the BOP equipment include a Kelly cock and floor safety valves, choke lines and choke manifold with 3000 psi WP rating.

9. Proposed Mud Circulating System

Interval		Mud Wt.	Visc.	FL	Type Mud System
0' - 500'	13 3/8	8.5	28	NC	Fresh water native mud w/ paper for seepage and sweeps. Lime for PH.
500'– 2700'	9 5/8	10	30	NC	Brine water
2700'- 6600'		9.1	29	NC	Drill section with fresh water/cut brine circulating the reserve utilizing periodic sweeps of paper as needed for seepage control and solids removal.
6600' - 11700'	4 1/2	9 5	36	10	Drill horizontal section with XCD polymer / cut brine / starch

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

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. Production Hole Drilling Summary:

    Set 7" production casing at 6600'. Drill 6-1/8" pilot hole thru Lower Abo/Wolfcamp to +/-7610', run open hole logs. Spot +/-250 sx. "C" Kick off plug from +/- 6500' to +/-7610'. Kick off 6-1/8" hole at +/- 6848' MD, building curve over +/- 475' to horizontal at +/-7325' TVD. Drill horizontal section in a Westerly direction for +/-4600' lateral to TD @ +/-11700' MD, 7200' TVD. Run 4-1/2" production liner in open hole lateral and set isolation packers and liner top packer @ +/-6500' MD.

12. Logging, Testing and Coring Program:

    See COA

    A. The electric logging program will consist of GR-Dual Laterolog, Spectral Density, Dual Spaced Neutron, CSNG Log and will be run from T.D. in vertical pilot hole inside 7" csng shoe

    B. The mud logging program will consist of lagged 10' samples from intermediate casing point to T.D. in vertical pilot hole and from Kick off point to TD in Horizontal hole.

    C. Drill Stem test is not anticipated.

    D. No conventional coring is anticipated.

    E. Further testing procedures will be determined after the 4 ½" production casing has been run to TD based on drill shows and log evaluation.

13. Abnormal Conditions, Pressures, Temperatures and Potential Hazards.

    No abnormal pressures or temperatures are anticipated. The estimated bottom hole at TD is 120 degrees and estimated maximum bottom hole pressure is 3160 psig. Low levels of Hydrogen sulfide have been monitored in producing wells in the area, so H2S may be present while drilling of the well An H2S plan is attached to the Drilling Program. No major loss of circulation zones has been reported in offsetting wells.

14. Anticipated Starting Date

    Drilling operations will commence approximately on July 1, 2010 with drilling and completion operations lasting approximately 45 days.

CONCHO

COG Operating LLC

Eddy County
High Lonesome 26 Fed
#3H
OH

Plan: Plan #1

Pathfinder X & Y Planning Report

19 May, 2010

PATHFINDER

Company:	COG Operating LLC	**Local Co-ordinate Reference:**	Well #3H
Project:	Eddy County	**TVD Reference:**	WELL @ 3708.00ft (Original Well Elev)
Site:	High Lonesome 26 Fed	**MD Reference:**	WELL @ 3708.00ft (Original Well Elev)
Well:	#3H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #1	**Database:**	Midland Database

Project Eddy County

Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site High Lonesome 26 Fed

Site Position:		**Northing:**	690,573.540 ft	**Latitude:**	32° 53' 53.021 N
From:	Map	**Easting:**	631,197.810 ft	**Longitude:**	104° 2' 26.020 W
Position Uncertainty:	0.00 ft	**Slot Radius:**	"	**Grid Convergence:**	0.16 °

Well #3H

Well Position	**+N/-S**	0.00 ft	**Northing:**	688,359.012 ft	**Latitude:**	32° 53' 31.088 N
	+E/-W	0.00 ft	**Easting:**	631,924.804 ft	**Longitude:**	104° 2' 17.566 W
Position Uncertainty		0.00 ft	**Wellhead Elevation:**	ft	**Ground Level:**	3 693 00 ft

Wellbore OH

Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF200510	05/19/2010	7.97	60.77	49,104

Design Plan #1

Audit Notes:

Version:	**Phase:**	PLAN	**Tie On Depth:**	0.00

Vertical Section:	**Depth From (TVD) (ft)**	**+N/-S (ft)**	**+E/-W (ft)**	**Direction (°)**
	0.00	0.00	0.00	264.58

Survey Tool Program **Date** 05/19/2010

From (ft)	**To (ft)**	**Survey (Wellbore)**	**Tool Name**	**Description**
0.00	11,675.19	Plan #1 (OH)		

Company:	COG Operating LLC	**Local Co-ordinate Reference:**	Well #3H
Project:	Eddy County	**TVD Reference:**	WELL @ 3708.00ft (Original Well Elev)
Site:	High Lonesome 26 Fed	**MD Reference:**	WELL @ 3708.00ft (Original Well Elev)
Well:	#3H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #1	**Database:**	Midland Database

Planned Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
0.00	0.00	0.00	0.00	-3,708.00	0.00	0.00	0.00	0.00	688,359 01	631 924.80
100.00	0.00	0.00	100.00	-3,608.00	0.00	0.00	0.00	0.00	688,359.01	631,924.80
200.00	0.00	0.00	200.00	-3,508.00	0.00	0.00	0.00	0.00	688,359 01	631,924.80
300.00	0.00	0.00	300.00	-3,408.00	0.00	0.00	0.00	0.00	688,359.01	631,924.80
400.00	0.00	0.00	400.00	-3,308.00	0.00	0.00	0.00	0.00	688,359 01	631,924.80
500.00	0.00	0.00	500.00	-3,208.00	0.00	0.00	0.00	0.00	688,359.01	631,924.80
600.00	0.00	0.00	600.00	-3,108.00	0.00	0.00	0.00	0 00	688,359 01	631,924.80
700.00	0.00	0.00	700.00	-3,008.00	0.00	0.00	0.00	0.00	688,359.01	631,924 80
800.00	0.00	0.00	800.00	-2,908.00	0.00	0.00	0.00	0.00	688,359.01	631,924 80
900.00	0.00	0.00	900.00	-2,808.00	0.00	0.00	0.00	0.00	688,359.01	631,924.80
1,000.00	0.00	0.00	1,000.00	-2,708.00	0.00	0.00	0 00	0.00	688,359.01	631,924.80
1,100.00	0.00	0.00	1,100.00	-2,608.00	0.00	0.00	0.00	0.00	688,359.01	631,924.80
1,200.00	0.00	0.00	1,200.00	-2,508.00	0.00	0.00	0.00	0 00	688,359.01	631,924.80
1,300 00	0.00	0.00	1,300.00	-2,408.00	0.00	0 00	0.00	0 00	688,359.01	631,924.80
1,400.00	0.00	0.00	1,400.00	-2,308.00	0.00	0.00	0.00	0.00	688,359.01	631 924.80
1,500.00	0.00	0.00	1,500.00	-2,208.00	0.00	0.00	0.00	0.00	688,359.01	631,924.80
1,600.00	0.00	0.00	1,600.00	-2,108.00	0.00	0.00	0.00	0 00	688,359.01	631,924.80
1,700.00	0.00	0.00	1,700.00	-2,008.00	0.00	0.00	0.00	0.00	688,359.01	631,924.80
1,800.00	0.00	0.00	1,800.00	-1,908.00	0.00	0 00	0.00	0 00	688,359.01	631,924.80
1,900.00	0.00	0.00	1,900.00	-1,808.00	0.00	0.00	0.00	0.00	688,359.01	631,924.80
2,000.00	0.00	0.00	2,000.00	-1,708.00	0.00	0.00	0.00	0.00	688,359.01	631,924.80
2,100.00	0.00	0.00	2,100.00	-1,608.00	0.00	0.00	0.00	0.00	688,359 01	631,924.80
2,200.00	0.00	0.00	2,200.00	-1,508.00	0.00	0.00	0.00	0.00	688,359.01	631,924.80
2,300.00	0.00	0.00	2,300.00	-1,408.00	0.00	0.00	0.00	0.00	688 359.01	631,924.80
2,400.00	0.00	0.00	2,400.00	-1,308.00	0.00	0.00	0.00	0.00	688,359 01	631,924.80
2,500.00	0.00	0.00	2,500.00	-1,208.00	0.00	0.00	0.00	0 00	688,359.01	631,924.80
2,600.00	0.00	0.00	2,600.00	-1,108.00	0.00	0.00	0.00	0.00	688,359.01	631,924.80

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2,700.00	0.00	0.00	2,700.00	-1,008.00	0.00	0.00	0.00	0.00	688,359.01	631,924.80
2,800.00	0.00	0.00	2,800.00	-908.00	0.00	0.00	0.00	0.00	688,359.01	631,924.80
2,900.00	0.00	0.00	2,900.00	-808.00	0.00	0.00	0.00	0.00	688,359.01	631,924.80
3,000.00	0.00	0.00	3,000.00	-708.00	0.00	0.00	0.00	0.00	688,359.01	631,924.80
3,100.00	0.00	0.00	3,100.00	-608.00	0.00	0.00	0.00	0.00	688,359.01	631,924.80
3,200.00	0.00	0.00	3,200.00	-508.00	0.00	0.00	0.00	0.00	688,359.01	631,924.80
3,300.00	0.00	0.00	3,300.00	-408.00	0.00	0.00	0.00	0.00	688,359.01	631,924.80
3,400.00	0.00	0.00	3,400.00	-308.00	0.00	0.00	0.00	0.00	688,359.01	631,924.80
3,500.00	0.00	0.00	3,500.00	-208.00	0.00	0.00	0.00	0.00	688,359.01	631,924.80
3,600.00	0.00	0.00	3,600.00	-108.00	0.00	0.00	0.00	0.00	688,359.01	631,924.80
3,700.00	0.00	0.00	3,700.00	-8.00	0.00	0.00	0.00	0.00	688,359.01	631,924.80
3,800.00	0.00	0.00	3,800.00	92.00	0.00	0.00	0.00	0.00	688,359.01	631,924.80
3,900.00	0.00	0.00	3,900.00	192.00	0.00	0.00	0.00	0.00	688,359.01	631,924.80
4,000.00	0.00	0.00	4,000.00	292.00	0.00	0.00	0.00	0.00	688,359.01	631,924.80
4,100.00	0.00	0.00	4,100.00	392.00	0.00	0.00	0.00	0.00	688,359.01	631,924.80
4,200.00	0.00	0.00	4,200.00	492.00	0.00	0.00	0.00	0.00	688,359.01	631,924.80
4,300.00	0.00	0.00	4,300.00	592.00	0.00	0.00	0.00	0.00	688,359.01	631,924.80
4,400.00	0.00	0.00	4,400.00	692.00	0.00	0.00	0.00	0.00	688,359.01	631,924.80
4,500.00	0.00	0.00	4,500.00	792.00	0.00	0.00	0.00	0.00	688,359.01	631,924.80
4,600.00	0.00	0.00	4,600.00	892.00	0.00	0.00	0.00	0.00	688,359.01	631,924.80
4,700.00	0.00	0.00	4,700.00	992.00	0.00	0.00	0.00	0.00	688,359.01	631,924.80
4,800.00	0.00	0.00	4,800.00	1,092.00	0.00	0.00	0.00	0.00	688,359.01	631,924.80
4,900.00	0.00	0.00	4,900.00	1,192.00	0.00	0.00	0.00	0.00	688,359.01	631,924.80
5,000.00	0.00	0.00	5,000.00	1,292.00	0.00	0.00	0.00	0.00	688,359.01	631,924.80
5,100.00	0.00	0.00	5,100.00	1,392.00	0.00	0.00	0.00	0.00	688,359.01	631,924.80
5,200.00	0.00	0.00	5,200.00	1,492.00	0.00	0.00	0.00	0.00	688,359.01	631,924.80
5,300.00	0.00	0.00	5,300.00	1,592.00	0.00	0.00	0.00	0.00	688,359.01	631,924.80

Company:	COG Operating LLC	**Local Co-ordinate Reference:**	Well #3H
Project:	Eddy County	**TVD Reference:**	WELL @ 3708.00ft (Original Well Elev)
Site:	High Lonesome 26 Fed	**MD Reference:**	WELL @ 3708.00ft (Original Well Elev)
Well:	#3H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #1	**Database:**	Midland Database

Planned Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
5,400.00	0.00	0.00	5,400.00	1,692.00	0.00	0.00	0.00	0.00	688,359.01	631,924.80
5,500.00	0.00	0.00	5,500.00	1,792.00	0.00	0.00	0.00	0.00	688,359.01	631,924.80
5,600.00	0.00	0.00	5,600.00	1,892.00	0.00	0.00	0.00	0.00	688,359.01	631,924.80
5,700.00	0.00	0.00	5,700.00	1,992.00	0.00	0.00	0.00	0.00	688,359.01	631,924.80
5,800.00	0.00	0.00	5,800.00	2,092.00	0.00	0.00	0.00	0.00	688,359.01	631,924.80
5,900.00	0.00	0.00	5,900.00	2,192.00	0.00	0.00	0.00	0.00	688,359 01	631,924.80
6,000.00	0.00	0.00	6,000.00	2,292.00	0.00	0.00	0.00	0 00	688,359.01	631,924.80
6,100.00	0.00	0.00	6,100.00	2,392.00	0.00	0.00	0.00	0.00	688,359 01	631,924 80
6,200.00	0.00	0.00	6,200.00	2,492.00	0.00	0.00	0.00	0.00	688,359 01	631,924.80
6,300.00	0.00	0.00	6,300.00	2,592.00	0.00	0.00	0.00	0.00	688,359.01	631,924.80
6,400.00	0.00	0.00	6,400.00	2,692.00	0.00	0.00	0.00	0.00	688,359.01	631,924.80
6,500.00	0.00	0.00	6,500.00	2,792.00	0.00	0.00	0.00	0.00	688,359.01	631,924.80
6,600.00	0.00	0.00	6,600.00	2,892.00	0 00	0.00	0 00	0.00	688,359.01	631,924.80
6,700.00	0.00	0.00	6,700.00	2,992.00	0.00	0.00	0.00	0 00	688,359.01	631,924.80
6,800.00	0.00	0.00	6,800.00	3,092.00	0.00	0.00	0.00	0.00	688,359.01	631,924.80
6,848.00	0.00	0.00	6,848.00	3,140.00	0.00	0.00	0.00	0.00	688,359.01	631,924 80
6,850.00	0.24	264.58	6,850.00	3,142.00	0.00	0.00	0.00	12.01	688,359.01	631,924.80
6,875.00	3.24	264.58	6,874.99	3,166.99	-0.07	-0.76	0.76	12.01	688,358 94	631,924.04
6,900.00	6.24	264.58	6,899.90	3,191.90	-0.27	-2.82	2.83	12.01	688,358.74	631,921.99
6,925.00	9.24	264.58	6,924.67	3,216.67	-0.59	-6.17	6.20	12.01	688,358 43	631,918.63
6,950.00	12.25	264.58	6,949.23	3,241.23	-1.03	-10.81	10.86	12.01	688,357.99	631,913.99
6,975.00	15.25	264.58	6,973.51	3,265.51	-1.59	-16.72	16.80	12.01	688,357.43	631,908.08
7,000.00	18 25	264.58	6,997.44	3,289.44	-2.27	-23.90	24.00	12.01	688,356.74	631,900.91
7,025.00	21.25	264.58	7,020.97	3,312.97	-3.07	-32.30	32.45	12.01	688,355.95	631,892.50
7,050.00	24.25	264.58	7,044.02	3,336.02	-3.98	-41.93	42.12	12 01	688,355.03	631.882.88
7,075.00	27.25	264.58	7,066.54	3,358.54	-5.00	-52.74	52.98	12.01	688,354.01	631.872.06
7,100.00	30.26	264.58	7,088.45	3,380.45	-6.14	-64.71	65.00	12.01	688,352.87	631 860.09

Company:	COG Operating LLC	**Local Co-ordinate Reference:**	Well #3H
Project:	Eddy County	**TVD Reference:**	WELL @ 3708.00ft (Original Well Elev)
Site:	High Lonesome 26 Fed	**MD Reference:**	WELL @ 3708.00ft (Original Well Elev)
Well:	#3H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #1	**Database:**	Midland Database

Planned Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
7,125.00	33.26	264.58	7,109.71	3,401.71	-7.38	-77.81	78.16	12.01	688,351.63	631,846.99
7,150.00	36.26	264.58	7,130.24	3,422.24	-8.73	-92.00	92.41	12.01	688,350.28	631,832.81
7,175.00	39.26	264.58	7,150.01	3,442.01	-10.17	-107.24	107.72	12.01	688,348.84	631,817.57
7,200.00	42.26	264.58	7,168.94	3,460.94	-11.72	-123.48	124.04	12.01	688,347.30	631,801.32
7,225.00	45.26	264.58	7,186.99	3,478.99	-13.35	-140.70	141.33	12.01	688,345.66	631,784.11
7,250.00	48.26	264.58	7,204.12	3,496.12	-15.07	-158.82	159.54	12.01	688,343.94	631,765.98
7,275.00	51.27	264.58	7,220.26	3,512.26	-16.87	-177.82	178.62	12.01	688,342.14	631,746.98
7,300.00	54.27	264.58	7,235.39	3,527.39	-18.75	-197.64	198.52	12.01	688,340.26	631,727.17
7,325.00	57.27	264.58	7,249.45	3,541.45	-20.70	-218.21	219.19	12.01	688,338.31	631,706.59
7,350.00	60.27	264.58	7,262.41	3,554.41	-22.72	-239.49	240.56	12.01	688,336.29	631,685.31
7,375.00	63.27	264.58	7,274.23	3,566.23	-24.80	-261.41	262.59	12.01	688,334.21	631,663.39
7,400.00	66.27	264.58	7,284.89	3,576.89	-26.94	-283.93	285.20	12.01	688,332.07	631,640.88
7,425.00	69.27	264.58	7,294.34	3,586.34	-29.12	-306.96	308.34	12.01	688,329.89	631,617.84
7,450.00	72.28	264.58	7,302.57	3,594.57	-31.35	-330.46	331.94	12.01	688,327.66	631,594.34
7,475.00	75.28	264.58	7,309.56	3,601.56	-33.62	-354.36	355.95	12.01	688,325.39	631,570.45
7,500.00	78.28	264.58	7,315.27	3,607.27	-35.92	-378.58	380.28	12.01	688,323.09	631,546.22
7,525.00	81.28	264.58	7,319.71	3,611.71	-38.24	-403.07	404.88	12.01	688,320.77	631,521.73
7,550.00	84.28	264.58	7,322.85	3,614.85	-40.59	-427.76	429.68	12.01	688,318.43	631,497.04
7,575.00	87.28	264.58	7,324.69	3,616.69	-42.94	-452.58	454.61	12.01	688,316.07	631,472.23
7,600.00	90.29	264.58	7,325.22	3,617.22	-45.30	-477.46	479.60	12.01	688,313.71	631,447.35
7,612.28	91.76	264.58	7,325.00	3,617.00	-46.46	-489.68	491.88	12.01	688,312.55	631,435.12
7,700.00	91.76	264.58	7,322.31	3,614.31	-54.74	-576.97	579.56	0.00	688,304.27	631,347.84
7,800.00	91.76	264.58	7,319.23	3,611.23	-64.18	-676.47	679.51	0.00	688,294.83	631,248.33
7,900.00	91.76	264.58	7,316.16	3,608.16	-73.62	-775.98	779.46	0.00	688,285.39	631,148.83
8,000.00	91.76	264.58	7,313.09	3,605.09	-83.07	-875.48	879.42	0.00	688,275.95	631,049.32
8,100.00	91.76	264.58	7,310.02	3,602.02	-92.51	-974.99	979.37	0.00	688,266.50	630,949.81
8,200.00	91.76	264.58	7,306.95	3,598.95	-101.95	-1,074.50	1,079.32	0.00	688,257.06	630,850.31

Company:	COG Operating LLC	**Local Co-ordinate Reference:**	Well #3H
Project:	Eddy County	**TVD Reference:**	WELL @ 3708.00ft (Original Well Elev)
Site:	High Lonesome 26 Fed	**MD Reference:**	WELL @ 3708.00ft (Original Well Elev)
Well:	#3H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #1	**Database:**	Midland Database

Planned Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
8,300.00	91.76	264.58	7,303.88	3,595.88	-111.39	-1,174.00	1,179.27	0.00	688,247 62	630,750.80
8,400.00	91.76	264.58	7,300.81	3,592.81	-120.83	-1,273.51	1,279.23	0.00	688,238.18	630,651.30
8,500.00	91.76	264.58	7,297.74	3,589.74	-130.27	-1,373.01	1,379.18	0.00	688,228 74	630,551.79
8,600.00	91.76	264.58	7,294.66	3,586.66	-139.71	-1,472.52	1,479.13	0.00	688,219.30	630,452.28
8,700.00	91.76	264.58	7,291.59	3,583.59	-149.15	-1,572.03	1,579.09	0.00	688,209.86	630.352.78
8,800 00	91.76	264.58	7,288.52	3,580.52	-158.60	-1,671.53	1,679.04	0.00	688,200.42	630.253.27
8,900.00	91.76	264.58	7,285.45	3,577.45	-168.04	-1,771.04	1,778.99	0.00	688,190 98	630,153 77
9,000.00	91.76	264.58	7,282.38	3,574.38	-177.48	-1,870.54	1,878.94	0.00	688,181.53	630.054 26
9,100.00	91.76	264.58	7,279.31	3,571.31	-186.92	-1,970.05	1,978.90	0.00	688,172.09	629,954.75
9,200.00	91.76	264.58	7,276.24	3,568.24	-196.36	-2,069.56	2,078.85	0.00	688,162 65	629.855 25
9,300.00	91.76	264.58	7,273.17	3,565.17	-205.80	-2,169.06	2,178.80	0.00	688,153.21	629.755.74
9,400.00	91.76	264.58	7,270.09	3,562.09	-215.24	-2,268.57	2,278.76	0 00	688,143.77	629,656.24
9,500.00	91.76	264.58	7,267.02	3,559.02	-224.68	-2,368.07	2,378.71	0.00	688.134.33	629.556.73
9,600.00	91.76	264.58	7,263.95	3,555.95	-234.12	-2,467.58	2,478.66	0.00	688.124 89	629.457.22
9,700.00	91.76	264.58	7,260.88	3,552.88	-243.57	-2,567.09	2,578.61	0.00	688,115.45	629,357.72
9,800.00	91.76	264.58	7,257.81	3,549.81	-253.01	-2,666.59	2,678.57	0.00	688.106.01	629.258.21
9,900.00	91.76	264.58	7,254.74	3,546.74	-262.45	-2,766.10	2,778.52	0.00	688.096.56	629,158.71
10,000.00	91.76	264.58	7,251.67	3,543.67	-271.89	-2,865.60	2,878.47	0.00	688.087 12	629,059.20
10,100.00	91.76	264.58	7,248.59	3,540.59	-281.33	-2,965.11	2,978.43	0.00	688,077.68	628,959.69
10,200.00	91.76	264.58	7,245.52	3,537.52	-290.77	-3,064.62	3,078.38	0.00	688.068.24	628.860.19
10,300 00	91.76	264.58	7,242.45	3,534.45	-300.21	-3,164.12	3,178.33	0.00	688,058.80	628,760.68
10,400.00	91.76	264.58	7,239.38	3,531.38	-309.65	-3,263.63	3,278.28	0.00	688,049.36	628,661.18
10,500.00	91.76	264.58	7,236.31	3,528.31	-319.09	-3,363.13	3,378.24	0.00	688,039.92	628,561.67
10,600.00	91.76	264.58	7,233.24	3,525.24	-328.54	-3,462.64	3,478.19	0.00	688,030.48	628,462 16
10,700.00	91.76	264.58	7,230.17	3,522.17	-337.98	-3,562.15	3,578.14	0.00	688.021.04	628 362.66
10,800.00	91.76	264.58	7,227.10	3,519.10	-347.42	-3,661.65	3.678.10	0 00	688,011.59	628,263.15
10,900.00	91.76	264.58	7,224.02	3,516.02	-356.86	-3,761.16	3,778.05	0.00	688,002.15	628,163.65

Company:	COG Operating LLC	**Local Co-ordinate Reference:**	Well #3H
Project:	Eddy County	**TVD Reference:**	WELL @ 3708.00ft (Original Well Elev)
Site:	High Lonesome 26 Fed	**MD Reference:**	WELL @ 3708.00ft (Original Well Elev)
Well:	#3H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #1	**Database:**	Midland Database

Planned Survey

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	TVDSS (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Northing (ft)	Easting (ft)
11,000.00	91.76	264.58	7,220.95	3,512.95	-366.30	-3,860.66	3,878.00	0.00	687,992.71	628,064.14
11,100.00	91.76	264.58	7,217.88	3,509.88	-375.74	-3,960.17	3,977.95	0.00	687,983 27	627,964.64
11,200.00	91.76	264.58	7,214.81	3,506.81	-385.18	-4,059.67	4,077.91	0.00	687,973 83	627,865.13
11,300.00	91.76	264.58	7,211.74	3,503.74	-394.62	-4,159.18	4,177.86	0.00	687,964 39	627,765.62
11,400.00	91.76	264.58	7,208.67	3,500.67	-404.06	-4,258.69	4,277.81	0.00	687,954.95	627,666.12
11,500.00	91.76	264.58	7,205.60	3,497.60	-413.51	-4,358.19	4,377.77	0.00	687,945.51	627,566.61
11,600.00	91.76	264.58	7,202.53	3,494.53	-422.95	-4,457.70	4,477.72	0.00	687,936 07	627,467 11
11,675.43	91.76	264.58	7,200.21	3,492.21	-430.07	-4,532.76	4,553.11	0.00	687,928.94	627,392 05

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
PBHL(26#3) - plan hits target center - Point	0.00	0.00	7,200.00	-429.87	-4,532.77	687,929.137	627,392.030	32° 53' 26.957 N	104° 3' 10.741 W

Checked By: _____ Approved By: _____ Date _____

CONCHO

PATHFINDER

Azimuths to Grid North
True North: -0.16°
Magnetic North: 7.81°

Magnetic Field
Strength: 49103.9snT
Dip Angle: 60.77°
Date: 05/19/2010
Model: IGRF200510

Project: Eddy County
Site: High Lonesome 26 Fed
Well: #3H
Wellbore: OH
Plan: Plan #1 (#3H/OH)

PROJECT DETAILS: Eddy County
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone
System Datum: Mean Sea Level
Local North: Grid

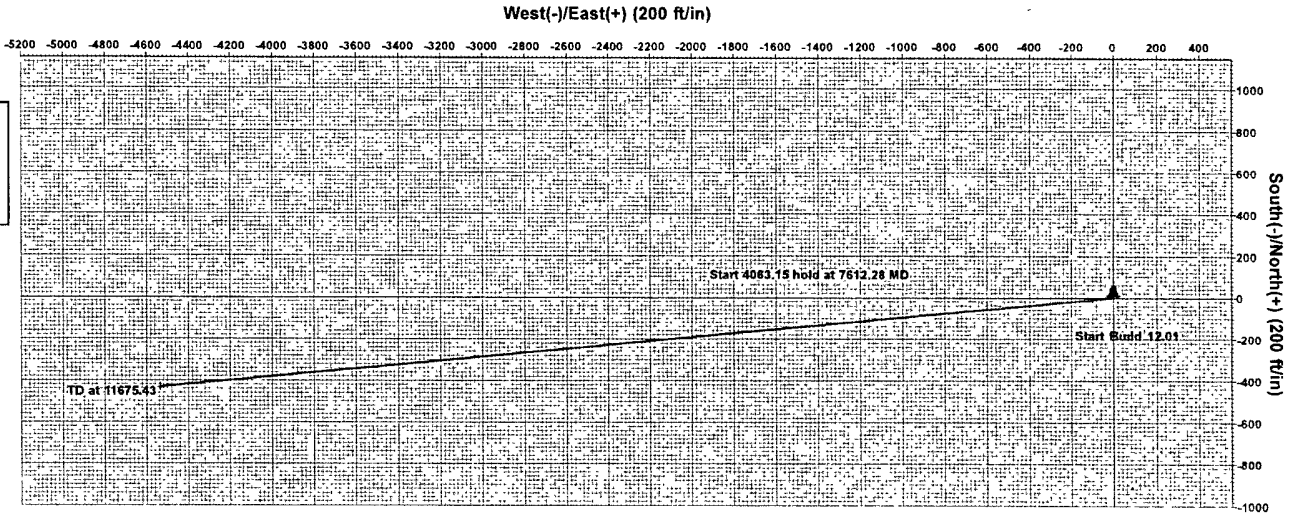
WELL DETAILS #3H

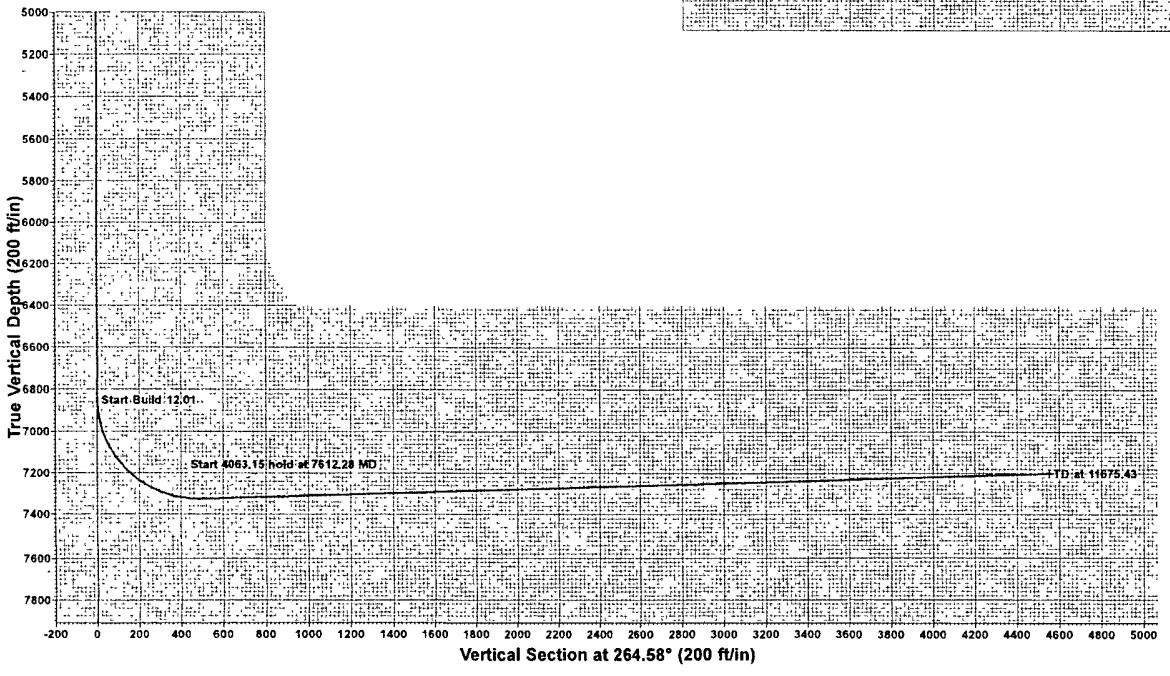
Ground Elevation: 3693.00
RKB Elevation: WELL @ 3708.00ft (Original Well Elev)
Rig Name: Original Well Elev

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	688359.012	631924.804	32° 53' 31.088 N	104° 2' 17.566 W	

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	6848.00	0.00	0.00	6848.00	0.00	0.00	0.00	0.00	0.00	
3	7612.28	91.76	264.58	7325.00	-46.46	-489.68	12.01	264.58	491.88	
4	11675.43	91.76	264.58	7200.21	-430.07	-4532.76	0.00	0.00	4553.11	PBHL(26#3)

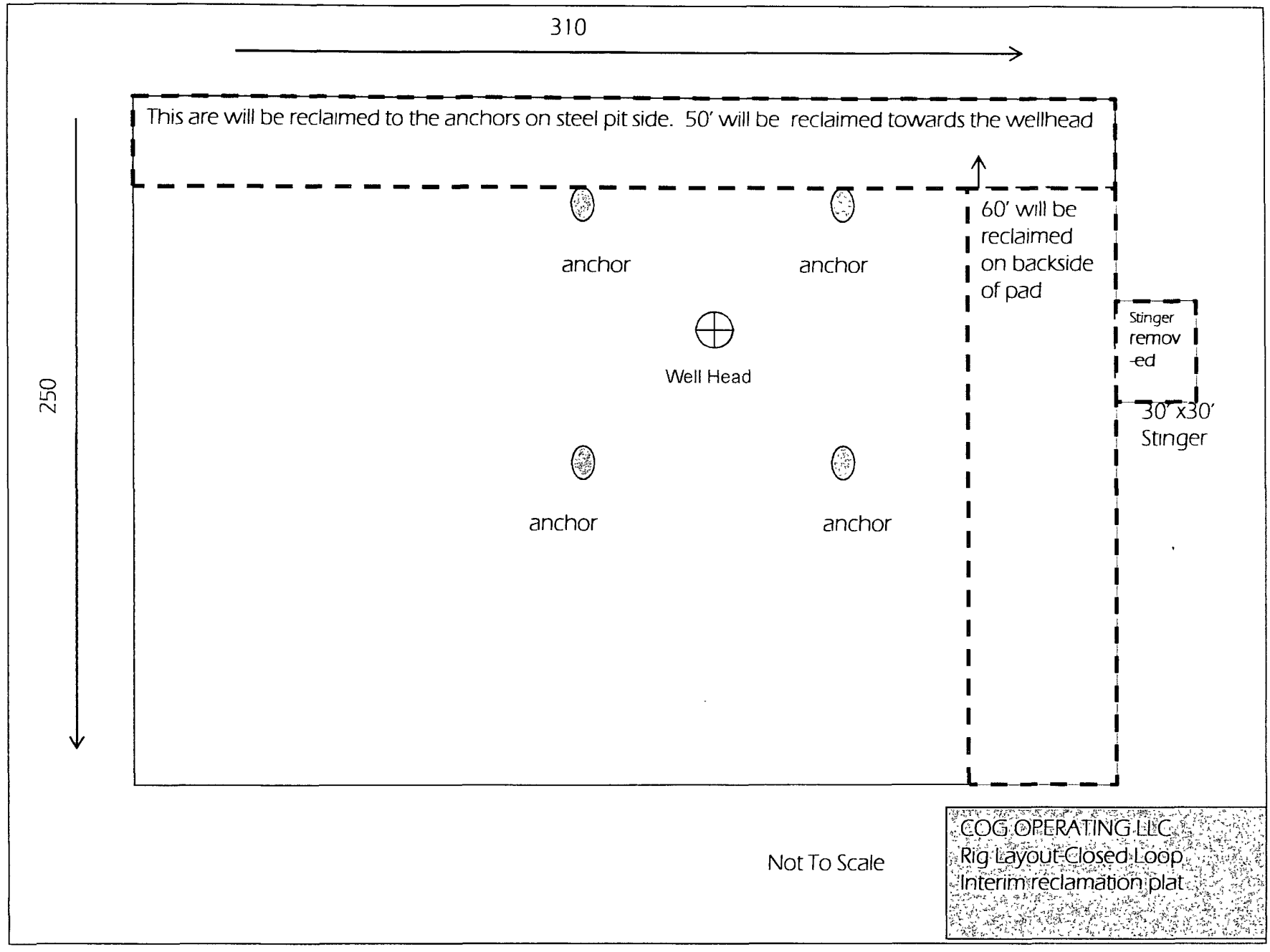


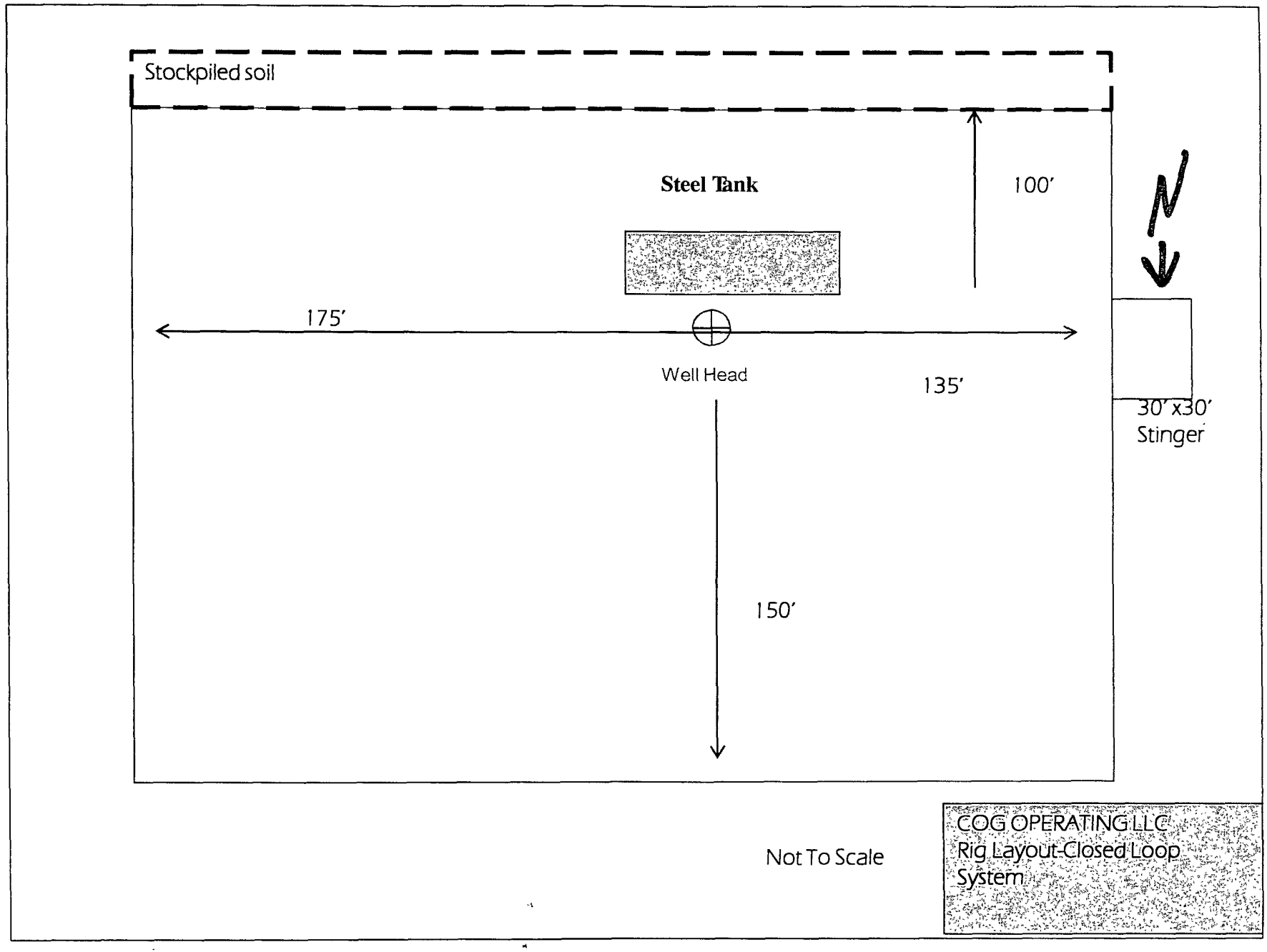


WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
PBHL(26#3)	7200.00	-429.87	-4532.77	687929.137	627392.030	Point

Plan: Plan #1 (#3H/OH)
Created By: Nate Bingham Date: 15:32, May 19 2010
Checked _____ Date _____


310
This are will be reclaimed to the anchors on steel pit side. 50' will be reclaimed towards the wellhead
250
anchor
anchor
60' will be reclaimed on backside of pad
Stinger remov -ed
Well Head
30' x30' Stinger
anchor
anchor
Not To Scale
COG OPERATING LLC
Rig Layout-Closed Loop
Interim reclamation plat


Stockpiled soil
Steel Tank
100'
N
175'
Well Head
135'
30' x30'
Stinger
150'
Not To Scale
COG OPERATING LLC
Rig Layout-Closed Loop
System

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.

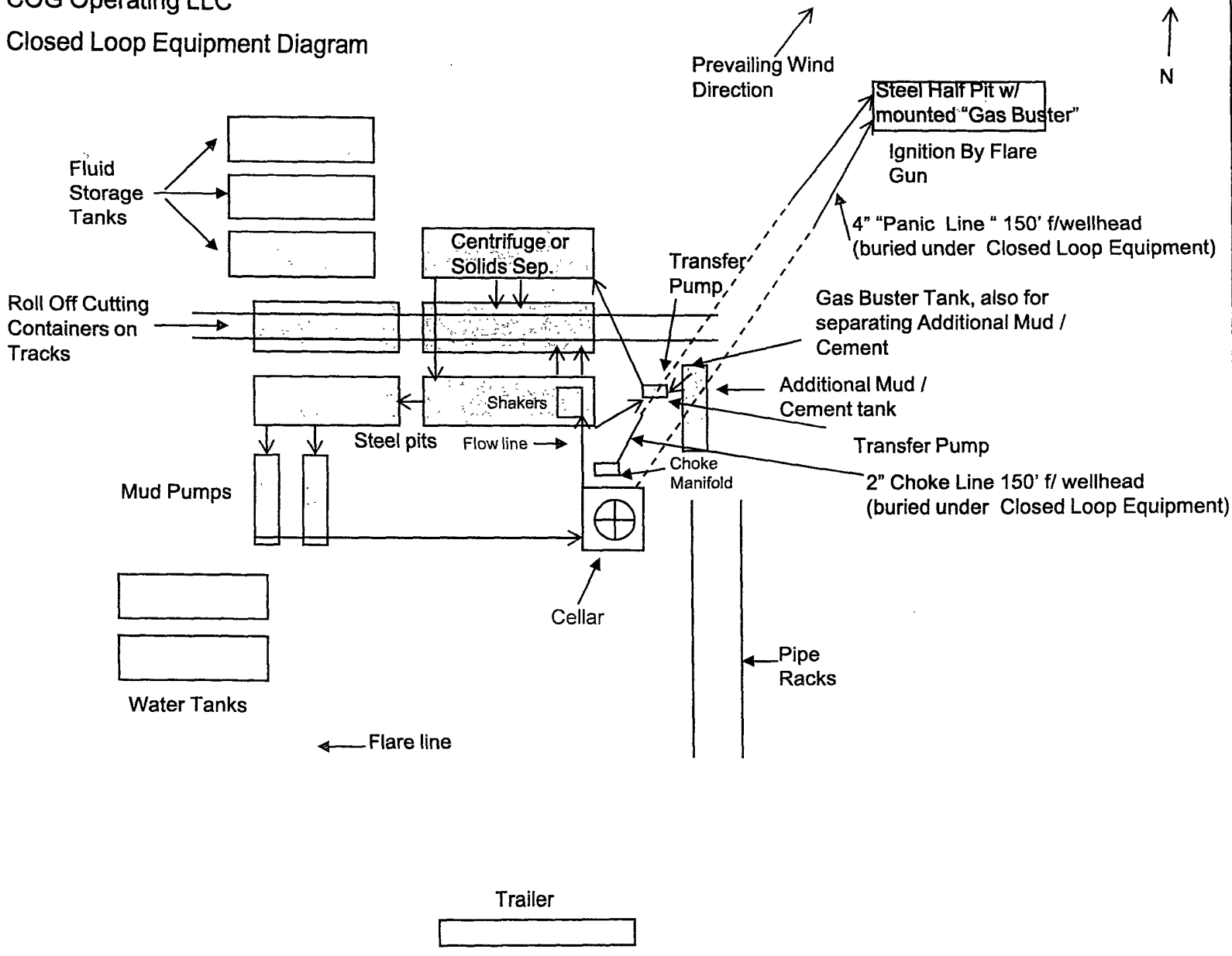
Cuttings will be hauled to either:

CRI (permit number R9166)
or
GMI (permit number 711-019-001)

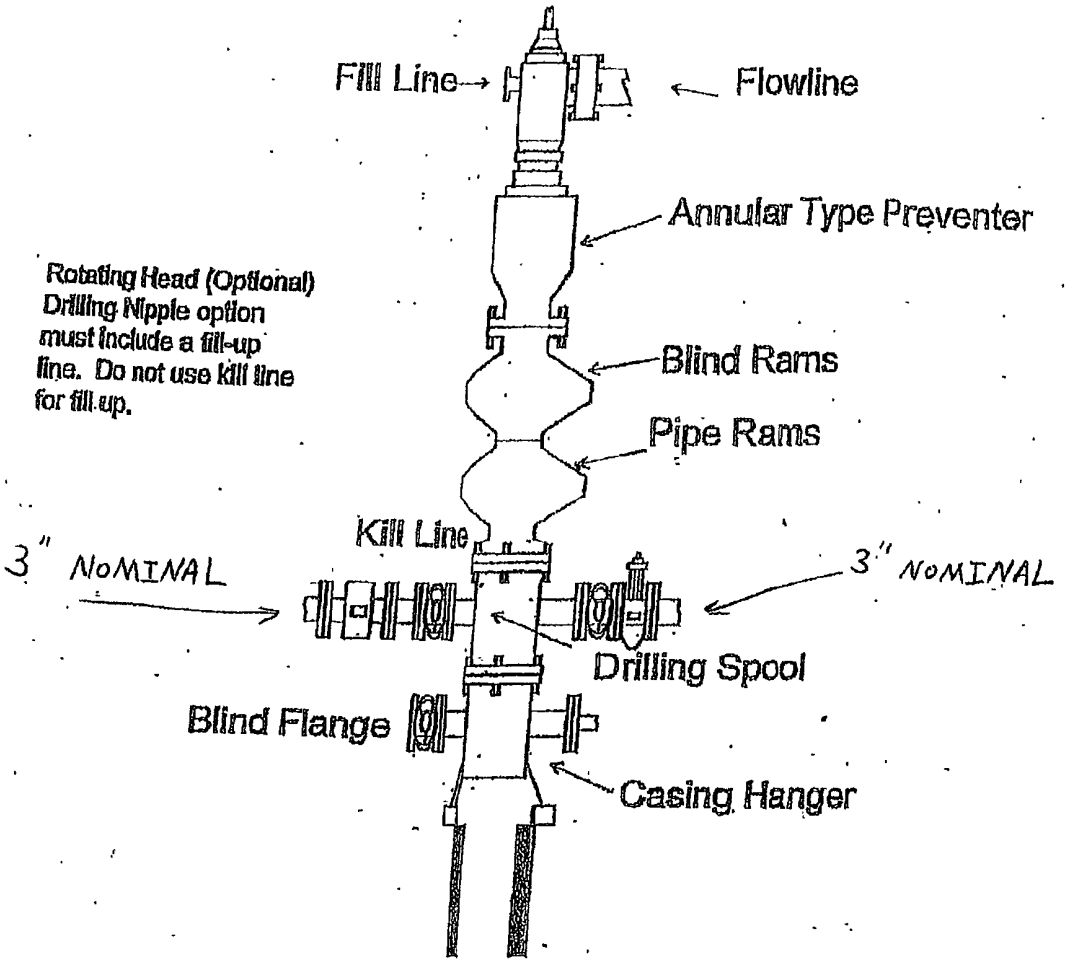
dependent upon which rig is available to drill this well.

COG Operating LLC

Closed Loop Equipment Diagram



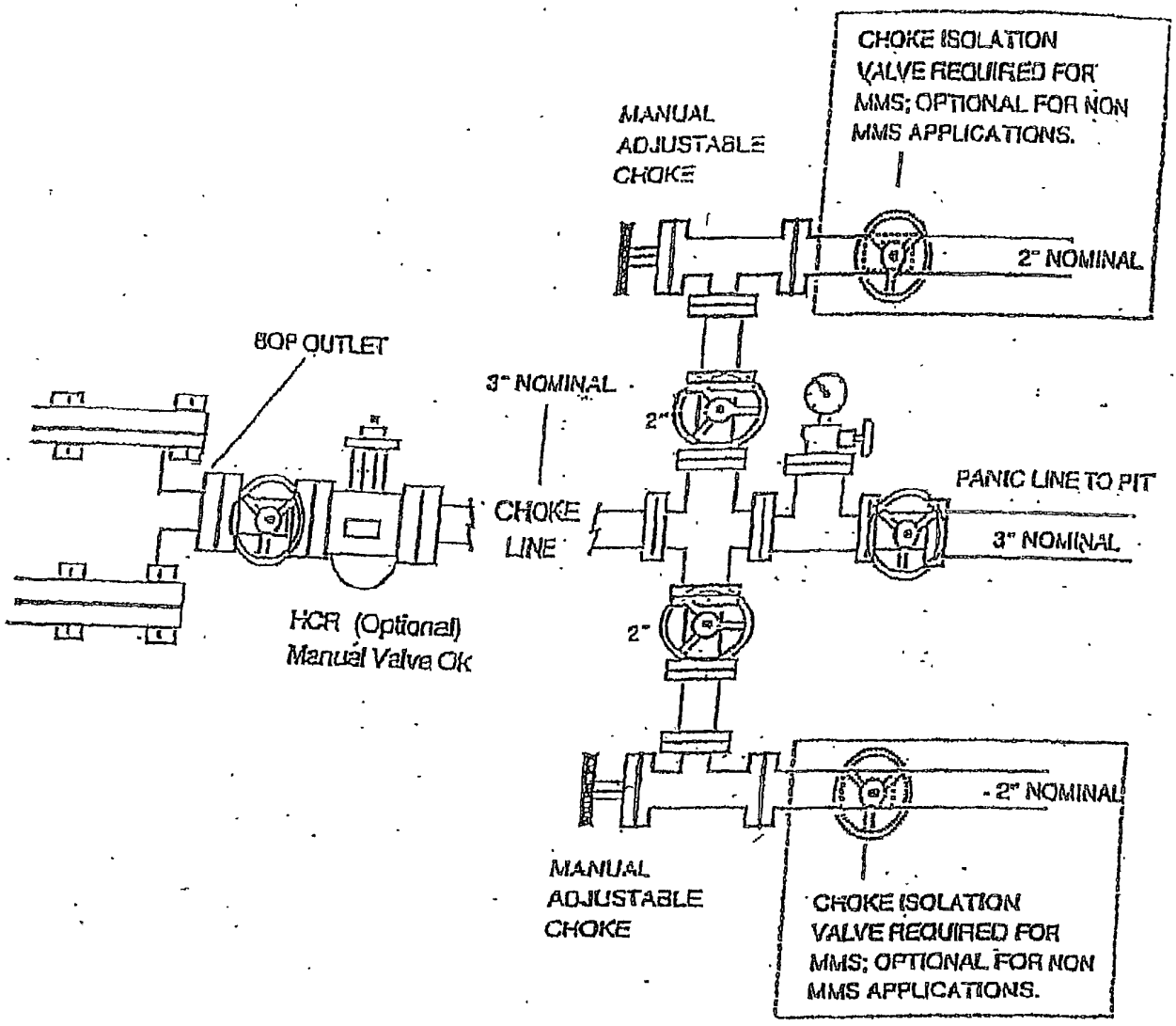
BOPE SCHEMATIC



900 SERIES

CHOKE MANIFOLD

3M SERVICE



COG OPERATING, LLC

HYDROGENSULFIDE (H2S) CONTINGENCY PLAN
FOR DRILLING / COMPLETING / WORKOVER / FACILITY
WITH THE EXPECTATION OF H2S IN EXCESS OF 100 PPM

C.O.G. Operating, LLC
NEW DRILL WELL
High Lonesome 26 Federal #3
SHL: 2410' FSL & 430' FEL, Unit I
BHL: 1980' FSL & 330' FWL, Unit L
Sec 26, T16S, R29E
Eddy County, New Mexico

This well / facility is not expected to have H2S, but the following is submitted as requested.

TABLE OF CONTENTS

GENERAL H2S EMERGENCY ACTIONS

In the event of any evidence of H2S emergency, the following plan will be initiated:

1. All personnel will immediately evacuate to an up-wind and if possible up-hill "safe area."
2. If for any reason a person must enter the hazardous area, they must wear a SCBA (self-contained breathing apparatus).
3. Always use the "buddy system."
4. Isolate the well / problem if possible.
5. Account for all personnel.
6. Display the proper colors warning all unsuspecting personnel of the danger at hand.
7. Contact the company representative as soon as possible if not at the location (use the enclosed call list as instructed).

At this point the company representative will evaluate the situation and coordinate the necessary duties to bring the situation under control, and if necessary, the notification of emergency response agencies and residents.

EMERGENCY PROCEDURES FOR AN UNCONTROLLABLE RELEASE OF H2S

1. All personnel will don the self-contained breathing apparatus.
2. Remove all personnel to the "safe area": (always use the "buddy system").
3. Contact company representative if not on location.
4. Set in motion the steps to protect and / or remove the general public to any upwind "safe area." Maintain strict security and safety procedures while dealing with the source.
5. No entry to any unauthorized personnel.
6. Notify the appropriate agencies:
   City Police – City Streets
   State Police – State Roads
   County Sheriff – County Roads
7. Call the NMOCD.

If at this time the supervising person determines the release of H2S cannot be contained to the site location and the general public is in harms way, he will immediately notify public safety personnel.

EMERGENCY CALL LIST

	Office	Cell	Home
John Coffman	432-683-7443	432-631-9762	432-699-5552
Erick Nelson	432-683-7443	432-238-7591	
Matt Corser	432-683-7443	432-413-0071	

EMERGENCY RESPONSE NUMBERS

Eddy County, New Mexico

State Police	505-748-9718
Eddy County Sheriff	505-746-2701
Emergency Medical Services (Ambulance)	911 or 505-746-2701
Eddy County Emergency Management (Harry Burgess)	505-887-9511
State Emergency Response Center (SERC)	505-476-9620
Carlsbad Police Department	505-885-2111
Carlsbad Fire Department	505-885-3125
New Mexico Oil Conservation Division	505-748-1283
Callaway Safety Equipment, Inc.	505-392-2973

PROTECTION OF THE GENERAL (ROE) RADIUS OF EXPOSURE

In the event greater than 100 ppm H2S is present, the ROE calculations will be done to determine if the following is warranted:

* 100 ppm at any public area (any place not associated with this site).
* 500 ppm at any public road (any road which the general public may travel).
* 100 ppm radius of 3000' will be assumed if there is insufficient data to do the calculations, and there is a reasonable expectation that H2S could be present in concentrations greater than 100 ppm in the gas mixture.

Calculation for the 100 ppm ROE: (H2S concentrations in decimal form)

$X = [(1.589)(concentration)(Q)] (0.6258)$

10,000 ppm + = .01
1,000 ppm + = .001
100 ppm + = .0001
10 ppm + = .00001

Calculation for the 500 ppm ROE:

$X = [(0.4546)(concentration)(Q)] (.06258)$

EXAMPLE: If a well / facility has been determined to have 150 ppm H2S in the gas mixture and the well / facility is producing at a gas rate of 200 MCFD then:

ROE for 100 ppm X=[(1.589)(.00010)(200,000)] (0.6258)
X=8.8'
ROE for 500 ppm X=[(.4546)(.00050)(200,000)] (0.6258)
X=10.9'

These calculations will be forwarded to the appropriate NMOCD district office when applicable.

PUBLIC EVACUATION PLAN

When the supervisor has determined that the general public will be involved, the following plan will be implemented.

1. Notification of the emergency response agencies of the hazardous condition and implement evacuation procedures.

2. A trained person in H2S safety shall monitor with detection equipment the H2S concentration, wind and area of exposure. This person will determine the outer perimeter of the hazardous area. The extent of the evacuation area will be determined from the data being collected. Monitoring shall continue until the situation has been resolved. All monitoring equipment shall be UL approved for use in Class I Groups A, B, C, & D, Division I hazardous locations. All monitors will have a minimum capability of measuring H2S, oxygen, and flammable values.

3. Law enforcement shall be notified to set up necessary barriers and maintain such for the duration of the situation as well as aid in the evacuation procedure.

4. The company representative shall stay in communication with all agencies throughout the duration of the situation and inform such agencies when the situation has been contained and the effected area is safe to enter.

PROCEDURE FOR IGNITING AN UNCONTROLLABLE CONDITION

The decision to ignite a well should be a last resort and one, if not both, of the following pertain:

1. Human life and / or property are endangered.

2. There is no hope of bringing the situation under control with the prevailing conditions at the site.

Instructions for Igniting the Well:

1. Two people are required. They must be equipped with positive pressure, self-contained breathing apparatus and "D"-ring style, full body, OSHA approved safety harness. Non-flammable rope will be attached.

2. One of the people will be a qualified safety person who will test the atmosphere for H2S, oxygen and LFL. The other person will be the company representative.

3. Ignite upwind from a distance no closer than necessary. Make sure that where you ignite from has the maximum escape avenue available. A 25mm flare gun with a range of approximately +/- 500 feet shall be used to ignite the gas.

4. Before igniting, check for the presence of combustible gases.

5. After igniting, continue emergency actions and procedures as before.

REQUIRED EMERGENCY EQUIPMENT

1. Breathing Apparatus

* Rescue Packs (SCBA) – 1 unit shall be placed at each breathing area, 2 shall be stored in the safety trailer.

* Work / Escape Packs – 4 packs shall be stored on the rig floor with sufficient air hose not to restrict work activity.

* Emergency Escape Packs – 4 packs shall be stored in the doghouse for emergency evacuation.

2. Signage and Flagging

* One Color Code Condition Sign will be placed at the entrance to the site reflecting the possible conditions at the site.

* A Colored Condition flag will be on display reflecting the condition at the site at that time.

3. Briefing Area

* Two perpendicular areas will be designated by signs and readily accessible.

4. Windsocks

* Two windsocks will be placed in strategic locations, visible from all angles.

5. H2S Detectors and Alarms

* The stationary detector with three (3) sensors will be placed in the upper dog house if equipped, set to visually alarm @ 10 ppm and audible alarm @ 15 ppm. Calibrate a minimum of every 30 days or as needed. The three sensors will be placed in the following places: (Gas sample tubes will be stored in the safety trailer):

* Rig Floor
* Bell Nipple
* End of flow line or where will bore fluid is being discharged

6. Auxiliary Rescue Equipment

* Stretcher
* Two OSHA full body harnesses
* 100' of 5/8" OSHA approved rope
* One 20 lb. Class ABC fire extinguisher
* Communication via cell phones on location and vehicles on location

USING SELF-CONTAINED BREATHING AIR EQUIPMENT (SCBA)

1. SCBA should be worn when any of the following are preformed:

    * Working near the top or on top of a tank.
    * Disconnecting any line where H2S can reasonably be expected.
    * Sampling air in the area to determine if toxic concentrations of H2S exist.
    * Working in areas where over 10 ppm of H2S has been detected.
    * At any time there is a doubt of the level of H2S in the area.

2. All personnel shall be trained in the use of SCBA prior to working in a potentially hazardous location.

3. Facial hair and standard eyeglasses are not allowed with SCBA.

4. Contact lenses are never allowed with SCBA.

5. When breaking out any line where H2S can reasonably be expected.

6. After each use, the SCBA unit shall be cleaned, disinfected, serviced and inspected.

7. All SCBA shall be inspected monthly.

RESCUE & FIRST AID FOR VICTIMS OF H2S POISONING

* Do not panic.

* Remain calm and think.

* Get on the breathing apparatus.

* Remove the victim to the safe breathing area as quickly as possible, upwind and uphill from source or crosswind to achieve upwind.

* Notify emergency response personnel.

* Provide artificial respiration and / or CPR as necessary.

* Remove all contaminated clothing to avoid further exposure.

* A minimum of two (2) personnel on location shall be trained in CPR and First Aid.

Toxic Effects of H2S Poisoning

Hydrogen Sulfide is extremely toxic. The acceptable ceiling concentration for eight-hour exposure is 10 PPM, which is .001% by volume. Hydrogen Sulfide is heavier than air (specific gravity – 1.192) and is colorless and transparent. Hydrogen Sulfide is almost as toxic as Hydrogen Cyanide and is 5-6 times more toxic than Carbon Monoxide. Occupational exposure limits for Hydrogen Sulfide and other gases are compared below in Table I. Toxicity table for H2S and physical effects are shown in Table II.

Table I
Permissible Exposure Limits of Various Gases

Common Name	Symbol	Sp. Gravity	TLV	STEL	IDLH
Hydrogen Cyanide	HCN	.94	4.7 ppm	C	
Hydrogen Sulfide	H2S	1.192	10 ppm	15 ppm	100ppm
Sulfide Dioxide	SO2	2.21	2 ppm	5 ppm	
Chlorine	CL	2.45	.5 ppm	1 ppm	
Carbon Monoxide	CO	.97	25 ppm	200 ppm	
Carbon Dioxide	CO2	1.52	5000 ppm	30,000 ppm	
Methane	CH4	.55	4.7% LEL	14% UEL	

Definitions

A. TVL – Threshold Limit Value is the concentration employees may be exposed to based on a TWA (time weighed average) for eight (8) hours in one day for 40 hours in one (1) week. This is set by ACGIH (American Conference of Government Hygienists) and regulated by OSHA.

B. STEL – Short Term Exposure Limit is the 15 minute average concentration an employee may be exposed to providing that the highest exposure never exceeds the OEL (Occupational Exposure Limit). The OEL for H2S is 19 PPM.

C. IDLH – Immediately Dangerous to Life and Health is the concentration that has been determined by the ACGIH to cause serious health problems or death if exposed to this level. The IDLH for H2S is 100 PPM.

D. TWA – Time Weighted Average is the average concentration of any chemical or gas for an eight (8) hour period. This is the concentration that any employee may be exposed to based on a TWA.

TABLE II

Toxicity Table of H2S

Percent %	PPM	Physical Effects
.0001	1	Can smell less than 1 ppm.
.001	10	TLV for 8 hours of exposure.
.0015	15	STEL for 15 minutes of exposure.
.01	100	Immediately Dangerous to Life & Health. Kills sense of smell in 3 to 5 minutes.
.02	200	Kills sense of smell quickly, may burn eyes and throat.
.05	500	Dizziness, cessation of breathing begins in a few minutes.
.07	700	Unconscious quickly, death will result if not rescued promptly.
.10	1000	Death will result unless rescued promptly. Artificial resuscitation may be necessary.

PHYSICAL PROPERTIES OF H2S

The properties of all gases are usually described in the context of seven major categories:

COLOR
ODOR
VAPOR DENSITY
EXPLOSIVE LIMITS
FLAMMABILITY
SOLUBILITY (IN WATER)
BOILING POINT

Hydrogen Sulfide is no exception. Information from these categories should be considered in order to provide a fairly complete picture of the properties of the gas.

COLOR – TRANSPARENT

Hydrogen Sulfide is colorless so it is invisible. This fact simply means that you can't rely on your eyes to detect its presence, a fact that makes the gas extremely dangerous to be around.

ODOR – ROTTEN EGGS

Hydrogen Sulfide has a distinctive offensive smell, similar to "rotten eggs." For this reason it earned its common name "sour gas." However, H2S, even in low concentrations, is so toxic that it attacks and quickly impairs a victim's sense of smell, so it could be fatal to rely on your nose as a detection device.

VAPOR DENSITY – SPECIFIC GRAVITY OF 1.192

Hydrogen Sulfide is heavier than air so it tends to settle in low-lying areas like pits, cellars or tanks. If you find yourself in a location where H2S is known to exist, protect yourself. Whenever possible, work in an area upwind and keep to higher ground.

EXPLOSIVE LIMITS – 4.3% TO 46%

Mixed with the right proportion of air or oxygen, H2S will ignite and burn or explode, producing another alarming element of danger besides poisoning.

FLAMMABILITY

Hydrogen Sulfide will burn readily with a distinctive clear blue flame, producing Sulfur Dioxide (SO2), another hazardous gas that irritates the eyes and lungs.

SOLUBILITY – 4 TO 1 RATIO WITH WATER

Hydrogen Sulfide can be dissolved in liquids, which means that it can be present in any container or vessel used to carry or hold well fluids including oil, water, emulsion and sludge. The solubility of H2S is dependent on temperature and pressure, but if conditions are right, simply agitating a fluid containing H2S may release the gas into the air.

BOILING POINT – (-76 degrees Fahrenheit)

Liquefied Hydrogen Sulfide boils at a very low temperature, so it is usually found as a gas.

SURFACE USE AND OPERATING PLAN

1. Existing & Proposed Access Roads

A. The well site survey and elevation plat for the proposed well is shown in Exhibit #1. It was staked by Basin Surveys in Hobbs, NM.

B. All roads to the location are shown in the topographic map Exhibit #2. 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.

C. Directions to Location From the junction US Highway 82 and Kewanee, Go North on Kewanee turning into a lease road for 4.9 miles to proposed lease road. See Vicinity Map, Exhibit #3.

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:

Exhibit #4 shows that 332.2' 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 caliche pit.

F.

3. Location of Existing Well:

Exhibit #5 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 High Lonesome 24 Federal Tank Battery located at the High Lonesome 24 Federal #2 In Sec 24, T16S, R29E, Unit L. The facility location is shown in Exhibit #5.

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 High Lonesome 26 Federal Tank Battery located at the High Lonesome 26 Federal #1 In Sec 26, T16S, R29E, Unit A. The facility location is shown in Exhibit #5. The flowline will be SDR 7 3" poly line laid on the surface and will be approximately 4440' in length.

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:

a) 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 Exhibit #2. 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 along side 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 or 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. 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 Basin Surveys, is shown in Exhibit #4. Dimensions of the pad and pits are shown on Exhibit #6. Topsoil, if available, will be stockpiled per BLM specifications. Because the pad is almost level no major cuts will be required.

B. Exhibit #6 also 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 recontoured 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 recountoured 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 re-seeded with a BLM approved mixture and revegitated 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 for this site is Bogle Farms, Attn: Lewis Derrick, P.O. Box 441, Artesia, NM 88210.

C. The proposed road routes and surface location will be restored as directed by the BLM

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 Southern New Mexico Archaeological Services, Inc. P.O. Box 1, Bent New Mexico, 88314, phone # 505-671-4797 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:

John Coffman,
Drilling Superintendent
COG Operating LLC
550 W. Texas, Suite 1300
Midland, TX 79701
Phone (432) 683-7443 (office)
(432) 631-9762 (cell)

Erick Nelson.
Division Operations Manager
COG Operating LLC
550 W. Texas, Suite 1300
Midland, TX 79701
Phone (505) 746-2210 (office)
(432) 238-7591 (cell)

Exhibits:

Exhibit #1	**Wellsite and Elevation Plat**
	Form C-102 Well location and acreage dedication plat
Exhibit #2	**Topographic Map (**Basin Surveys**)**
Exhibit #3	**Vicinity Map and area roads**
Exhibit #4	**Elevation Plat ()**
Exhibit #5	**Topographic extract showing wells, roads and flowlines**
Exhibit #6	**Pad Layout and orientation**
Exhibit #7	**H2S Signage**
Exhibit #8	**H2S Equipment location**
Exhibit #9	**BOP and Choke diagrams**
Exhibit #10	**Form C-144 NMOCD pit permit application**

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 make 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 16th day of April, 2010.

Signed: Carl Bird

Printed Name: Carl Bird

Position: Drilling Engineer

Address: 550 W. Texas, Suite 1300, Midland, Texas 79701

Telephone: (432) 683-7443

Field Representative (if not above signatory): Same

E-mail: cbird@conchoresources.com

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	COG Operating, LLC
LEASE NO.:	NM118710
WELL NAME & NO.:	High Lonesome 26 Federal Com # 3
SURFACE HOLE FOOTAGE:	2410' FSL & 430' FEL
BOTTOM HOLE FOOTAGE	1980' FSL & 330' FWL
LOCATION:	Section 26, T. 16 S., R 29 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.

Electric Lines
☒ **Interim Reclamation**
☒ **Final Abandonment & Reclamation**

I. GENERAL PROVISIONS

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

II. PERMIT EXPIRATION

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

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

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

IV. NOXIOUS WEEDS

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

V. SPECIAL REQUIREMENT(S)

Timing Limitation Stipulation / Condition of Approval for lesser prairie-chicken:
Oil and gas activities including 3-D geophysical exploration, and drilling will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Additionally, no new drilling will be allowed within up to 200 meters of leks known at the time of permitting. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 feet from the source of the noise.

Ground-level Abandoned Well Marker to avoid raptor perching: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well. For more installation details, contact the Carlsbad Field Office at 575-234-5972.

V-door direction: west

Access road
The access road shall connect the **northeast** corner of the well pad with the lease road to the east

Berming
The east, south, and west sides of the well pad shall be bermed.

Interim reclamation
Interim reclamation shall take place on the south and west sides of the pad with a berm approximately 1 foot high.

Surface Pipeline COAs Only:
A leak detection plan will be submitted to the BLM Carlsbad Field Office for approval prior to pipeline installation. The method could incorporate gauges to detect pressure drops, situating values and lines so they can be visually inspected periodically or installing electronic sensors to alarm when a leak is present. The leak detection plan will incorporate an automatic shut off system that will be installed for proposed pipelines to minimize the effects of an undesirable event.

Communitization Agreement
A Communitization Agreement covering the acreage dedicated to this well must be filed for approval with the BLM. The effective date of the agreement shall be prior to any sales.

VI. CONSTRUCTION

A. NOTIFICATION

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-5972 at least 3 working days prior to commencing construction of the access road and/or well pad.

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

B. V-DOOR DIRECTION: west

C. TOPSOIL

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

D. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

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

E. FEDERAL MINERAL MATERIALS PIT

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

F. WELL PAD SURFACING

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation.

The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

G. ON LEASE ACCESS ROADS

Road Width

The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed thirty (30) feet.

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

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

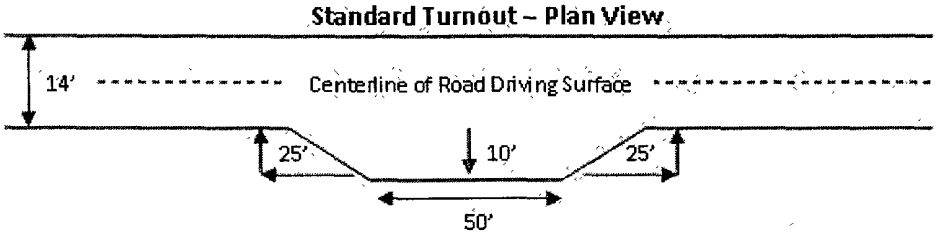
The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing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

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

Ditching

Ditching shall be required on both sides of the road.

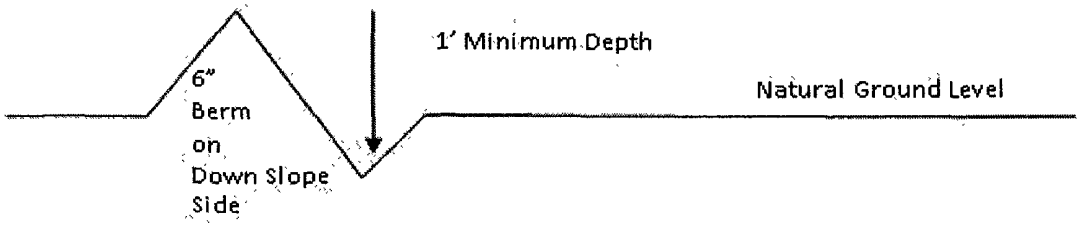
Turnouts
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall be constructed on all blind curves. Turnouts shall conform to the following diagram:



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

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

Cross Section of a Typical Lead-off Ditch



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

Formula for Spacing Interval of Lead-off Ditches

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

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

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

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

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

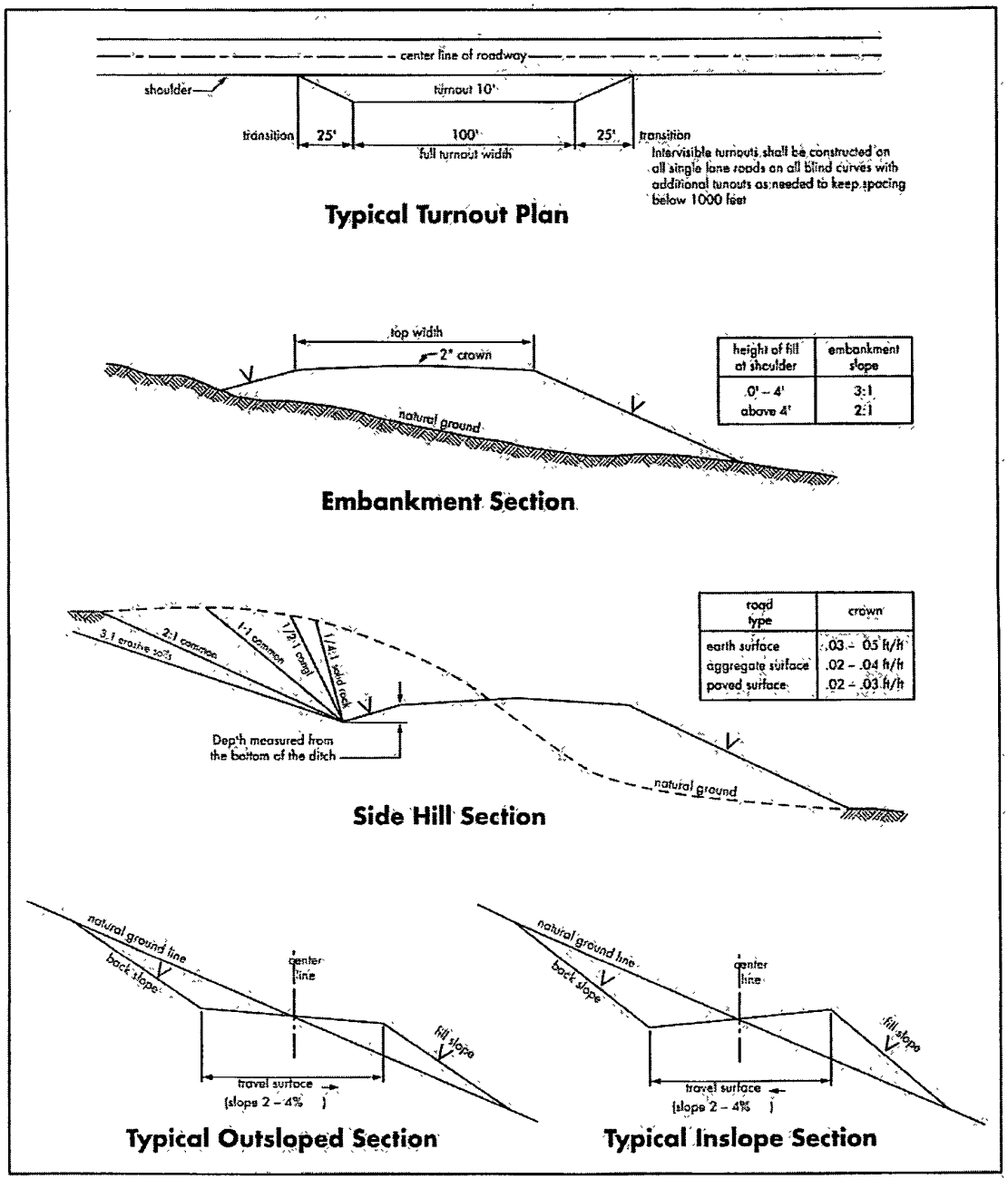
A gate shall be constructed and fastened securely to H-braces.

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

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

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

Figure 1 – Cross Sections and Plans For Typical Road Sections



VII. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

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

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

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

1. **Although Hydrogen Sulfide has not been reported in this section, it is always a possible hazard. If Hydrogen Sulfide is encountered, please report measured amounts and formations to the BLM.**

2. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval. **If the drilling rig is removed without approval – an Incident of Non-Compliance will be written and will be a "Major" violation.**

3. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.

4. **The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) will be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.**

B. CASING

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

Centralizers required on surface casing per Onshore Order 2.III.B.1.f.

Wait on cement (WOC) time prior to drilling out for a primary cement job will be a minimum 18 hours for a water basin, 24 hours in the potash area, or 500 pounds compressive strength, whichever is greater for all casing strings. DURING THIS WOC TIME, NO DRILL PIPE, ETC. SHALL BE RUN IN THE HOLE. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. See individual casing strings for details regarding lead cement slurry requirements.

No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.

Possible lost circulation in the Grayburg and San Andres formations

1. The **13-3/8** inch surface casing shall be set at approximately **450** feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface. If salt is encountered at a shallower depth, the casing is to be set 25 feet above the salt.

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

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

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

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

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

    ☒ Cement to surface. If cement does not circulate see B.1.a, c-d above.

3. The minimum required fill of cement behind the **7** inch intermediate casing is:

    ☒ Cement to surface. If cement does not circulate see B.1.a, c-d above.

Pilot hole to be plugged from bottom to kickoff point as described in APD.

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

4. The minimum required fill of cement behind the **4-1/2** inch production liner is:

   ☒ Not required as operator is using Isolation packers System. Production liner tie-back of 100 feet is approved.

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

C. PRESSURE CONTROL

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

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

   a. **For surface casing only:** If the BOP/BOPE is to be tested against casing, the wait on cement (WOC) time for that casing is to be met (see WOC statement at start of casing section). Independent service company required.

3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **7** inch production casing shoe shall be **3000 (3M)** 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 or where the float does not hold, the minimum wait time before cut-off is eight hours after bumping the plug or when the cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. BOP/BOPE testing can begin after the above conditions are satisfied.

b. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (18 hours) or potash (24 hours) prior to initiating the test.

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

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

e. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug.

f. **Effective November 1, 2008, no variances will be granted on reduced pressure tests on the surface casing and BOP/BOPE. Onshore Order 2 requirements will be in effect.**

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.

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VIII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

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

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

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

B. PIPELINES

STANDARD STIPULATIONS FOR SURFACE INSTALLED PIPELINES

A copy of the grant 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 **25** feet.

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 of duney areas, the pipeline will be "snaked" around hummocks and dunes rather then 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.

C. ELECTRIC LINES (not applied for in APD)

IX. INTERIM RECLAMATION

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

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

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

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

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

X. FINAL ABANDONMENT & RECLAMATION

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

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

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

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

In order to improve the probability of maintaining a stable lesser prairie-chicken population low profile plugged and abandoned well markers will be installed. The well marker will be approximately 2 inches above ground level and contain the following information: operator name, lease name, and well number and location, including unit letter, section, township, and range. The previous listed information will be welded, stamped, or otherwise permanently engraved into the metal of the marker.

Seed Mixture for LPC Sand/Shinnery Sites

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

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

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

Species	lb/acre
Plains Bristlegrass	5lbs/A
Sand Bluestem	5lbs/A
Little Bluestem	3lbs/A
Big Bluestem	6lbs/A
Plains Coreopsis	2lbs/A
Sand Dropseed	1lbs/A
**Four-winged Saltbush	5lbs/A

* This can be used around well pads and other areas where caliche cannot be removed.

*Pounds of pure live seed:

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