12-177

OCD-ARTESIA

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 NOS RCVD 11/30/11	5 Lease Serial No. **NMNM-0467931**
	6 If Indian, Allotee or Tribe Name **N/A**
1b Type of Well: ☑ Oil Well ☐ Gas Well ☐ Other ☐ Single Zone ☐ Multiple Zone	7 If Unit or CA Agreement, Name and No **N/A**
2 Name of Operator **COG Operating LLC** < 229137 >	8 Lease Name and Well No. **Electra Federal #62**
3a Address **550 W. Texas, Suite 1300 Midland TX 79701**	3b Phone No. *(include area code)* **(432) 685-4384**
	9 API Well No. **30-015-** 40556
	10 Field and Pool, or Exploratory **Loco Hills; Glorieta Yeso 96718**
4 Location of Well *(Report location clearly and in accordance with any State requirements *)* At surface **SHL: 115' FNL & 1259' FEL, Unit A** At proposed prod zone **BHL: 330' FNL & 990' FEL, Unit A**	11 Sec., T R M or Blk and Survey or Area **Sec 10, T17S, R30E**
14 Distance in miles and direction from nearest town or post office* **2 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 drlg unit line, if any) **114'**	16 No of acres in lease **640**	17 Spacing Unit dedicated to this well **40**
18 Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft **440'**	19 Proposed Depth **TVD: 6150' MD: 6169'**	20 BLM/BIA Bond No on file **NMB000740; NMB000215**
21 Elevations (Show whether DF, KDB, RT, GL, etc) **3728' GL**	22 Approximate date work will start* **01/31/2012**	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	Name *(Printed Typed)* **Kelly J. Holly**	Date **12/14/2011**
Title **Permitting Tech**		
Approved by *(Signature)* /s/ W. W. Ingram	Name *(Printed Typed)*	Date **JUL 27 2012**
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

Approval Subject to General Requirements & Special Stipulations Attached

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

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 6th day of December, 2011.

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

DISTRICT I
1625 N French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax. (575) 393-0720
DISTRICT II
811 S First St., Artesia, NM 88210
Phone. (575) 748-1283 Fax: (575) 748-9720
DISTRICT III
1000 Rio Brazos Road, Aztec, NM 87410
Phone (505) 334-6178 Fax. (505) 334-6170
DISTRICT IV
1220 S St Francis Dr , Santa Fe, NM 87505
Phone (505) 476-3460 Fax. (505) 476-3462

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

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

☐AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
30-015 40556	~~97866~~ 96718	~~MAR LOCO~~ LOCO Hills - Glorieta Yeso

Property Code	Property Name	Well Number
302483	ELECTRA FEDERAL	62

OGRID No	Operator Name	Elevation
229137	COG OPERATING, LLC	3728'

Surface Location

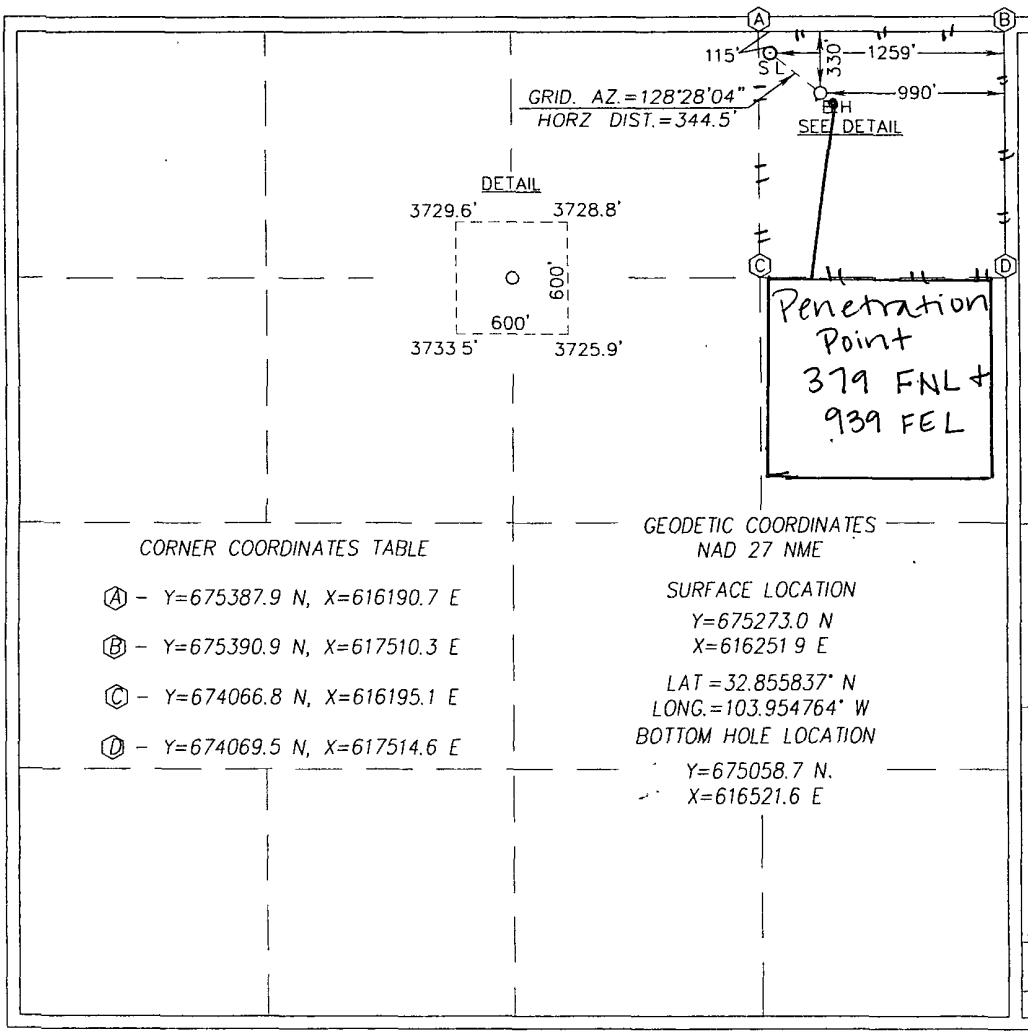
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	10	17-S	30-E		115	NORTH	1259	EAST	EDDY

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
A	10	17-S	30-E		330	NORTH	990	EAST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No
40			7/27 6169

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



CORNER COORDINATES TABLE

(A) - Y=675387.9 N, X=616190.7 E
(B) - Y=675390.9 N, X=617510.3 E
(C) - Y=674066.8 N, X=616195.1 E
(D) - Y=674069.5 N, X=617514.6 E

GEODETIC COORDINATES
NAD 27 NME

SURFACE LOCATION
Y=675273.0 N
X=616251.9 E
LAT.=32.855837° N
LONG.=103.954764° W

BOTTOM HOLE LOCATION
Y=675058.7 N.
X=616521.6 E

OPERATOR CERTIFICATION

I hereby certify that the information 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 mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division

Signature 12-12-11 Date

Kelly J. Holly
Printed Name

kholly@concho.com
E-mail Address

SURVEYOR CERTIFICATION

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

NOVEMBER 19, 2011
Date of Survey

Signature & Seal of Professional Surveyor

RONALD J. EIDSON
NEW MEXICO
3239
REGISTERED PROFESSIONAL SURVEYOR

12/07/2011

Certificate Number Gary G. Eidson 12641
Ronald J. Eidson 3239

AF JWSC W O 11 11 2490

COG Operating LLC
Master Drilling Plan Revised 2-08-11
East Loco Hills; Yeso
Use for Sections 3-30, T-17-S, R-30-E
Eddy County, NM

MASTER DRILLING PROGRAM

1. Geologic Name of Surface Formation

Quaternary

2. Estimated Tops of Important Geologic Markers:

Quaternary	Surface
Rustler	340'
Top of Salt	500'
Base of Salt	1000'
Yates	1280'
Seven Rivers	1570'
Queen	2190'
Grayburg	2600'
San Andres	2910'
Glorietta	4380'
Paddock	4460'
Blinebry	4930'
Tubb	5940'

3. Estimated Depths of Anticipated Fresh Water, Oil and Gas

Water Sand	150'	Fresh Water
Grayburg	2600'	Oil/Gas
San Andres	2910'	Oil/Gas
Glorietta	4380'	Oil/Gas
Paddock	4460'	Oil/Gas
Blinebry	4930'	Oil/Gas
Tubb	5940'	Oil/Gas

No other formations are expected to give up oil, gas or fresh water in measurable quantities. Setting 13 3/8" casing to ~~425'~~ and circulating cement back to the surface will protect the surface fresh water sand. The Salt Section will be protected by setting 8 5/8" casing to 1300' and circulating cement, in a single or multi-stage job and/or with an ECP, back to the surface. Any shallower zones above TD, which contain commercial quantities of oil and/or gas, will have cement circulated across them. This will be achieved by cementing, with a single or multi-stage job, the 5 1/2" production casing back 200' into the intermediate casing (but calculated to surface), to be run at TD. If wellbore conditions arise that require immediate action and/or a change to this program, COG Operating LLC personnel will always react to protect the wellbore and/or the environment.

See COA

See COA

4. Casing Program

See COA

Hole Size	Interval	OD Casing	Weight	Grade	Jt., Condition	Jt.	brst/clps/ten
17 ½"	0-~~425'~~320	13 3/8"	48#	H-40orJ-55	ST&C/New	ST&C	9.22/3.943/15.8
11"	0-1300'	8 5/8"	24or32#	J-55	ST&C/New	ST&C	3.03/2.029/7.82
7 7/8"	0-TD	5 1/2"	15.5or17#	J-55orL-80	LT&C/New	LT&C	1.88/1.731/2.42

5. Cement Program See COA

13 3/8" Surface Casing: 450 Class C w/ 2% Cacl2 + 0.25 pps CF, yield 1.32, back to surface. 101% excess

8 5/8" Intermediate Casing:

11" Hole:
Single Stage: LEAD: 300 sx 50:50:10 C:Poz:Gel w/ 5% Salt +0.25% CF, yield-2.45 + TAIL: 200 sx Class C w/2% CaCl2, yield-1.32, back to surface. 202% excess
Multi-Stage: Stage 1: 200 Class C w/2% CaCl2, yield - 1.32; 26% excess. Stage 2: 300 sx 50:50:10 C:Poz:Gel w/ 5% Salt +0.25% CF, yield - 2.45, back to surface, 509% excess; assumption for tool is lost circulation. Multi stage tool to be set at approximately, depending on hole conditions, 475' (50' below the surface casing). Cement volumes will be adjusted proportionately for depth changes of multi stage tool.

5 1/2" Production Casing:

Single Stage: LEAD 500 sx 35:65:6 C:Poz:Gel w/ 5% Salt + 5 pps LCM + 0.2% SMS + 0.3% FL-52A + 0.125 pps CF, yield-2.05; + TAIL 400 sx 50:50:2 C:Poz:Gel w/ 5% Salt + 3 pps LCM + 0.6% SMS + 1% FL-25 + 1% BA-58 + 0.3% FL-52A + 0.125 pps CF, yield-1.37, 62.4% open hole excess, cement calculated back to surface.
Multi-Stage: Stage 1: (Assumed TD of 6000') 500 sx 50:50:2 C:Poz:Gel w/ 5% Salt + 3 pps LCM + 0.6% SMS + 1% FL-25 + 1% BA-58 + 0.3% FL-52A + 0.125 pps CF, yield - 1.37, 31.8% excess; Stage 2: LEAD

short

450 sx 50:50:2 C:Poz:Gel w/ 5% Salt + 3 pps LCM + 0.6% SMS + 1% FL-25 + 1% BA-58 + 0.3% FL-52A + 0.125 pps CF, yield - 1.37, + TAIL 250 sx Class C w/ 0.3% R-3 + 1.5% CD-32, yield – 1.02 110.8% open hole excess, cement calculated back to surface. Multi stage tool to be set at approximately, depending on hole conditions, 3000'. Cement volumes will be adjusted proportionately for depth changes of multi stage tool, assumption for tool is water flow.

6. Minimum Specifications for Pressure Control

The blowout preventer equipment (BOP) shown in Exhibit #9 will consist of a double ram-type (2000 psi WP) preventer, and in some cases possibly a 2000 psi Hydril type annular preventer as provided for in Onshore Order #2. This unit will be hydraulically operated and the ram type preventer will be equipped with blind rams on top of 4 1/2" drill pipe rams on the bottom. A 13-5/8" or 11" BOP will be used, depending on the rig selected, during the drilling of the well. The BOP will be nippled up on the 13 3/8" surface casing with BOP equipment and tested to 2000 psi. When 11" BOP is used the special drilling flange will be utilized on the 13-3/8" head to allow testing the BOP with a retrievable test plug. After setting 8-5/8" the BOP will then be nippled up on the 8 5/8" intermediate casing and tested by a third party to 2000 psi and used continuously until total depth is reached. Pipe rams will be operationally checked each 24-hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment (Exhibit #10) will include a Kelly cock and floor safety valve, choke lines and a choke manifold (Exhibit #11) with a 2000 psi WP rating.

The majority of the rigs currently in use have a 13-5/8" BOP, so no special provision is needed for most wells in the area for conventionally testing the BOP with a test plug. However, due to the vagaries of rig scheduling, it might be that one of the few rigs with 11" BOP's might be called upon to drill any specific well in the area. Note that intermediate hole size is always 11". Therefore, COG Operating LLC respectfully requests a variance to the requirement of 13-5/8" BOP on 13-3/8" casing. When that circumstance is encountered the special flange will be utilized to allow testing the entire BOP with a test plug, without subjecting the casing to test pressure. The special flange also allows the return to full-open capability if desired. See con

7. Types and Characteristics of the Proposed Mud System

The well will be drilled to TD with a combination of brine, cut brine and polymer mud system. The applicable depths and properties of this system are as follows:

DEPTH	TYPE	WEIGHT	VISCOSITY	WATERLOSS
0-425' 320	Fresh Water	8.5	28	N.C.
425-1300'	Brine	10	30	N.C.
1300'-TD	Cut Brine	8.7-9.1	29	N.C.

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

8. 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.

9. 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 TD to 8 5/8" casing shoe.

B. Drill Stem test is not anticipated.

C. No conventional coring is anticipated.

D. Further testing procedures will be determined after the 5 ½" production casing has been cemented at TD, based on drill shows and log evaluation.

10. Abnormal Conditions, Pressure, Temperatures and Potential Hazards

No abnormal pressures or temperatures are anticipated. The estimated bottom hole at TD is 110 degrees and the estimated maximum bottom hold pressure is 2300 psig. Measurable gas volumes or Hydrogen Sulfide levels have not been encountered during drilling operations in this area, although a Hydrogen Sulfide Drilling Operation Plan is attached to this program. No major loss of circulation zones has been reported in offsetting wells.

11. Anticipated Starting Date and Duration of Operations

Road and location work will not begin until approval has been received from the BLM. As this is a Master Drilling plan, please refer to the Form 3160-3 for the anticipated start date. Once commenced, drilling operations should be finished in approximately 12 days. If the well is productive, an additional 30 days will be required for completion and testing before a decision is made to install permanent facilities.

CONCHO

COG Operating LLC

Eddy County, NM (NAN27 NME)
Electra Federal #62
Electra Federal #62

OH

Plan: Plan #3 8-3/4" Hole
SHL = 115' FNL & 1259' FEL
BHL = 380' FNL & 940' FEL
Top of Paddock = 163' South of Surface & 197' East of Surface @ 4400' TVD

Standard Planning Report

13 December, 2011

Scientific Drilling
Directional Drilling Operations

Database:	EDM 5000 1 Single User Db	**Local Co-ordinate Reference:**	Site Electra Federal #62
Company:	COG Operating LLC	**TVD Reference:**	GL Elev @ 3728 00usft
Project:	Eddy County, NM (NAN27 NME)	**MD Reference:**	GL Elev @ 3728 00usft
Site:	Electra Federal #62	**North Reference:**	Grid
Well:	Electra Federal #62	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #3 8-3/4" Hole		

Project Eddy County, NM (NAN27 NME)

Map System:	US State Plane 1927 (Exact solution)	**System Datum:**	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site Electra Federal #62

Site Position:		**Northing:**	675,273 00 usft	**Latitude:**	32° 51' 21 012 N
From:	Map	**Easting:**	616,251 90 usft	**Longitude:**	103° 57' 17.149 W
Position Uncertainty:	0.00 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0 21 °

Well Electra Federal #62

Well Position	**+N/-S**	0 00 usft	**Northing:**	675,273 00 usft	**Latitude:**	32° 51' 21 012 N
	+E/-W	0 00 usft	**Easting:**	616,251 90 usft	**Longitude:**	103° 57' 17.149 W
Position Uncertainty		0 00 usft	**Wellhead Elevation:**		**Ground Level:**	3,728 00 usft

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2011/12/13	7 75	60 69	48,903

Design Plan #3 8-3/4" Hole

Audit Notes:					
Version:		**Phase:**	PLAN	**Tie On Depth:**	0 00

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0 00	0 00	0 00	129 58

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	0 00	
1,450 00	0 00	0 00	1,450 00	0 00	0 00	0 00	0 00	0 00	0 00	
1,709 30	5 19	129 58	1,708 95	-7 47	9 04	2 00	2 00	49 97	129 58	
6,168 61	5 19	129 58	6,150 00	-264 30	319 70	0 00	0 00	0 00	0 00	PBHL-Electra #62

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Site Electra Federal #62
Company:	COG Operating LLC	TVD Reference:	GL Elev @ 3728 00usft
Project:	Eddy County, NM (NAN27 NME)	MD Reference:	GL Elev @ 3728 00usft
Site:	Electra Federal #62	North Reference:	Grid
Well:	Electra Federal #62	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #3 8-3/4" Hole		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0 00	0 00	0 00	0 00	0.00	0 00	0 00	0 00	0 00
North HL-Electra #62 - West HL-Electra #62									
1,350 00	0 00	0 00	1,350 00	0 00	0 00	0 00	0 00	0 00	0 00
8-5/8" Casing									
1,450 00	0 00	0 00	1,450 00	0 00	0 00	0 00	0.00	0 00	0 00
KOP Start DLS 2.00°/100'									
1,500 00	1 00	129 58	1,500.00	-0 28	0 34	0 44	2 00	2 00	0 00
1,600 00	3.00	129 58	1,599 93	-2 50	3.03	3.93	2 00	2 00	0 00
1,700.00	5.00	129 58	1,699 68	-6 95	8 40	10 90	2 00	2 00	0 00
1,709 30	5.19	129 58	1,708 95	-7 47	9 04	11 73	2 00	2 00	0 00
EOC hold 5.19°									
1,800 00	5 19	129 58	1,799 27	-12 70	15 36	19.93	0 00	0 00	0 00
1,900 00	5 19	129 58	1,898 87	-18 46	22 32	28 96	0 00	0 00	0 00
2,000 00	5 19	129 58	1,998 46	-24 21	29 29	38.00	0 00	0 00	0 00
2,100 00	5 19	129 58	2,098 05	-29 97	36 26	47 04	0 00	0.00	0 00
2,200 00	5 19	129 58	2,197 64	-35.73	43.22	56 08	0.00	0 00	0.00
2,300 00	5 19	129 58	2,297 23	-41 49	50 19	65.12	0 00	0 00	0 00
2,400.00	5.19	129 58	2,396 82	-47 25	57.16	74 16	0 00	0 00	0 00
2,500 00	5 19	129 58	2,496 41	-53 01	64 12	83 20	0 00	0 00	0 00
2,600 00	5 19	129 58	2,596 00	-58 77	71 09	92 24	0 00	0 00	0 00
2,700 00	5 19	129 58	2,695 59	-64 53	78 06	101 28	0 00	0 00	0 00
2,800 00	5 19	129.58	2,795 18	-70 29	85 02	110 32	0.00	0 00	0 00
2,900 00	5 19	129 58	2,894 77	-76 05	91 99	119 35	0.00	0 00	0 00
3,000 00	5 19	129 58	2,994 36	-81.81	98 96	128 39	0 00	0 00	0 00
3,100 00	5 19	129 58	3,093 95	-87.57	105 92	137.43	0 00	0 00	0 00
3,200 00	5 19	129 58	3,193 54	-93 33	112.89	146 47	0 00	0 00	0 00
3,300 00	5 19	129 58	3,293 13	-99 09	119 86	155 51	0.00	0 00	0 00
3,400.00	5 19	129 58	3,392.73	-104 85	126 82	164 55	0 00	0.00	0 00
3,500 00	5 19	129 58	3,492 32	-110 61	133 79	173 59	0 00	0 00	0 00
3,600.00	5 19	129 58	3,591 91	-116 36	140 76	182 63	0 00	0 00	0 00
3,700 00	5 19	129 58	3,691 50	-122 12	147 72	191 67	0 00	0 00	0 00
3,800 00	5.19	129 58	3,791 09	-127 88	154 69	200 71	0 00	0 00	0 00
3,900 00	5 19	129 58	3,890 68	-133 64	161 66	209 74	0 00	0 00	0 00
4,000 00	5 19	129 58	3,990.27	-139 40	168 62	218 78	0 00	0 00	0 00
4,100 00	5 19	129 58	4,089 86	-145.16	175.59	227.82	0 00	0 00	0 00
4,200.00	5.19	129 58	4,189 45	-150 92	182 56	236 86	0 00	0 00	0 00
4,300 00	5 19	129 58	4,289 04	-156 68	189 52	245 90	0.00	0 00	0 00
4,400 00	5 19	129 58	4,388 63	-162 44	196 49	254 94	0 00	0 00	0 00
4,411 42	5 19	129 58	4,400 00	-163 10	197 28	255 97	0 00	0 00	0 00
Top of Paddock									
4,500 00	5 19	129 58	4,488 22	-168 20	203 45	263 98	0 00	0 00	0 00
4,600 00	5 19	129 58	4,587.81	-173 96	210 42	273 02	0 00	0 00	0 00
4,700 00	5 19	129 58	4,687.40	-179 72	217 39	282 06	0 00	0 00	0 00
4,800 00	5 19	129 58	4,786 99	-185 48	224 35	291 10	0 00	0 00	0 00
4,900 00	5 19	129 58	4,886 58	-191 24	231 32	300 13	0 00	0 00	0 00
5,000 00	5 19	129 58	4,986 18	-197 00	238 29	309 17	0 00	0.00	0 00
5,100 00	5 19	129 58	5,085 77	-202 75	245 25	318 21	0 00	0 00	0 00
5,200 00	5 19	129.58	5,185 36	-208 51	252 22	327 25	0 00	0 00	0 00
5,300 00	5 19	129 58	5,284 95	-214 27	259 19	336 29	0 00	0 00	0.00
5,400 00	5 19	129 58	5,384 54	-220 03	266 15	345 33	0 00	0 00	0 00
5,500.00	5 19	129 58	5,484 13	-225 79	273 12	354.37	0 00	0 00	0 00
5,600 00	5 19	129 58	5,583 72	-231 55	280 09	363 41	0 00	0 00	0 00
5,700 00	5 19	129 58	5,683 31	-237 31	287 05	372 45	0 00	0 00	0 00
5,800 00	5 19	129 58	5,782 90	-243 07	294 02	381 49	0 00	0 00	0 00

Database:	EDM 5000 1 Single User Db	**Local Co-ordinate Reference:**	Site Electra Federal #62
Company:	COG Operating LLC	**TVD Reference:**	GL Elev @ 3728 00usft
Project:	Eddy County, NM (NAN27-NME)	**MD Reference:**	GL Elev @ 3728 00usft
Site:	Electra Federal #62	**North Reference:**	Grid
Well:	Electra Federal #62	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #3 8-3/4" Hole		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,900 00	5 19	129 58	5,882 49	-248 83	300 99	390.52	0 00	0 00	0 00
6,000 00	5 19	129 58	5,982 08	-254 59	307 95	399 56	0 00	0 00	0 00
6,100 00	5 19	129 58	6,081 67	-260 35	314 92	408.60	0 00	0 00	0 00
6,168 61	5 19	129 58	6,150 00	-264 30	319 70	414 80	0 00	0 00	0 00
PBHL-Electra #62									

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
North HL-Electra #62	0.00	0 00	0 00	-214 30	269.70	675,058 70	616,521 60	32° 51' 18 882 N	103° 57' 13 996 W
- plan misses target center by 344 47usft at 0 00usft MD (0 00 TVD, 0 00 N, 0.00 E)									
- Rectangle (sides W200 00 H0 00 D0 00)									
West HL-Electra #62	0.00	0 00	0.00	-214 30	269 70	675,058 70	616,521 60	32° 51' 18 882 N	103° 57' 13 996 W
- plan misses target center by 344 47usft at 0 00usft MD (0 00 TVD, 0 00 N, 0 00 E)									
- Rectangle (sides W0 00 H200 00 D0 00)									
PBHL-Electra #62	0 00	0 00	6,150 00	-264 30	319 70	675,008 70	616,571 60	32° 51' 18 385 N	103° 57' 13 412 W
- plan hits target center									
- Circle (radius 50.00)									

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,350 00	1,350.00	8-5/8" Casing	8-5/8	12-1/4

Formations

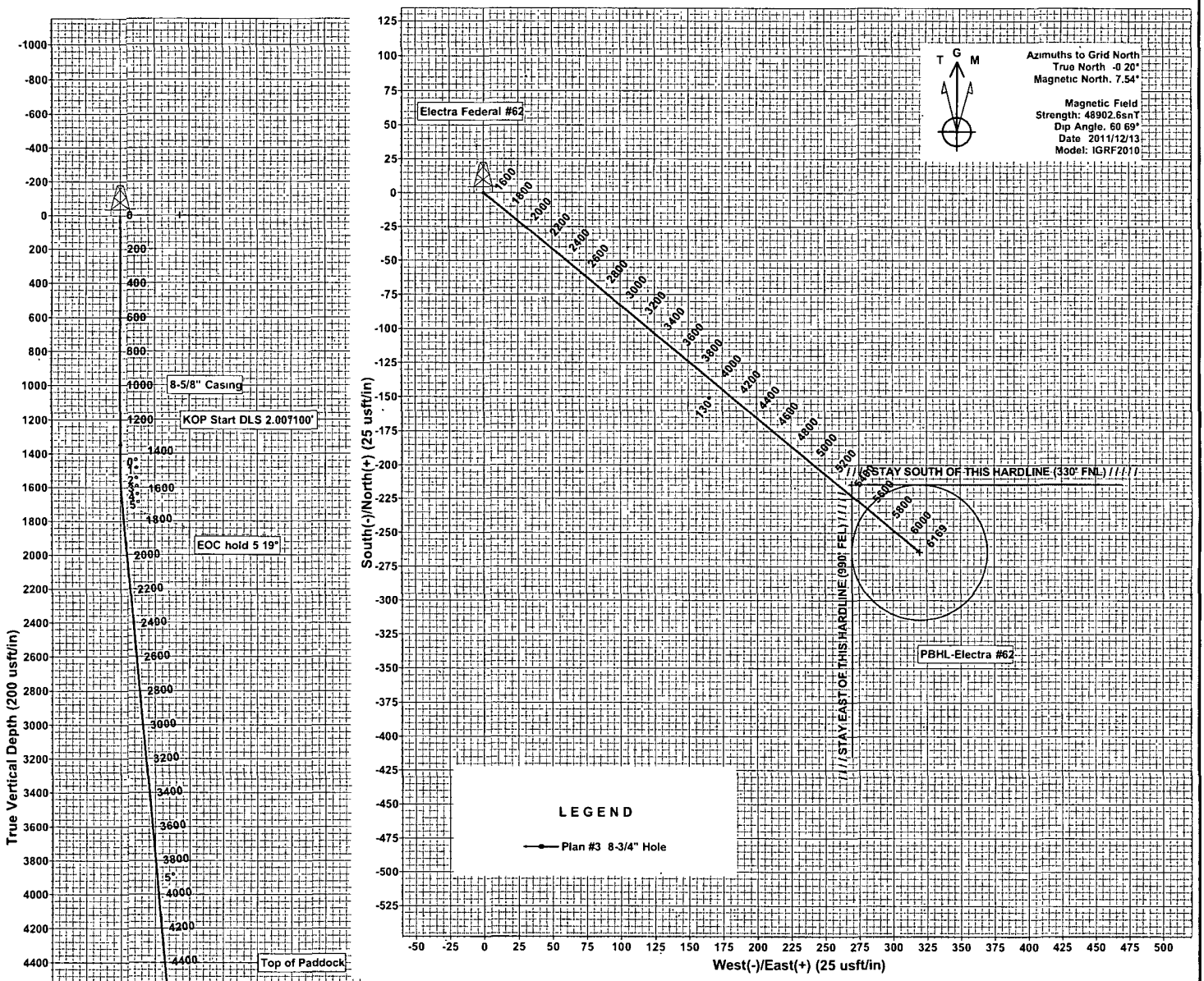
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,411 42	4,400 00	Top of Paddock		0.00	

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
1,450 00	1,450.00	0 00	0 00	KOP Start DLS 2 00°/100'
1,709 30	1,708 95	-7 47	9 04	EOC hold 5 19°

Scientific Drilling for COG Operating LLC
Site: Eddy County, NM (NAN27 NME)
Well: Electra Federal #62
Wellbore: OH
Design: Plan #3 8-3/4" Hole

Scientific Drilling
Directional Drilling Operations



WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
North HL-Electra #62	0.00	-214.30	269.70	675058.70	616521.60	32° 51' 18.882 N	103° 57' 13.996 W	Rectangle (Sides: L0.00 W200.00)
West HL-Electra #62	0.00	-214.30	269.70	675058.70	616521.60	32° 51' 18.882 N	103° 57' 13.996 W	Rectangle (Sides: L200.00 W0.00)
PBHL-Electra #62	6150.00	-264.30	319.70	675008.70	616571.60	32° 51' 18.385 N	103° 57' 13.412 W	Circle (Radius: 50.00)

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	1450.00	0.00	0.00	1450.00	0.00	0.00	0.00	0.00	0.00	
3	1709.30	5.19	129.58	1708.95	-7.47	9.04	2.00	129.58	11.73	
4	6168.61	5.19	129.58	6150.00	-264.30	319.70	0.00	0.00	414.80	PBHL-Electra #62

WELL DETAILS: Electra Federal #62

Ground Level: 3728.00

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	675273.00	616251.90	32° 51' 21.012 N	103° 57' 17.149 W	

PROJECT DETAILS: Eddy County, NM (NAN27 NME)

Plan: Plan #3 8-3/4" Hole (Electra Federal #62/OH)

Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico East 3001
System Datum: Mean Sea Level

Created By: Julio Pina Date: 13-Dec-11
Checked: _____ Date: _____
Reviewed _____ Date: _____
Approved. _____ Date: _____

COG OPERATING LLC
550 West Texas, Suite 1300
Midland, TX 79701

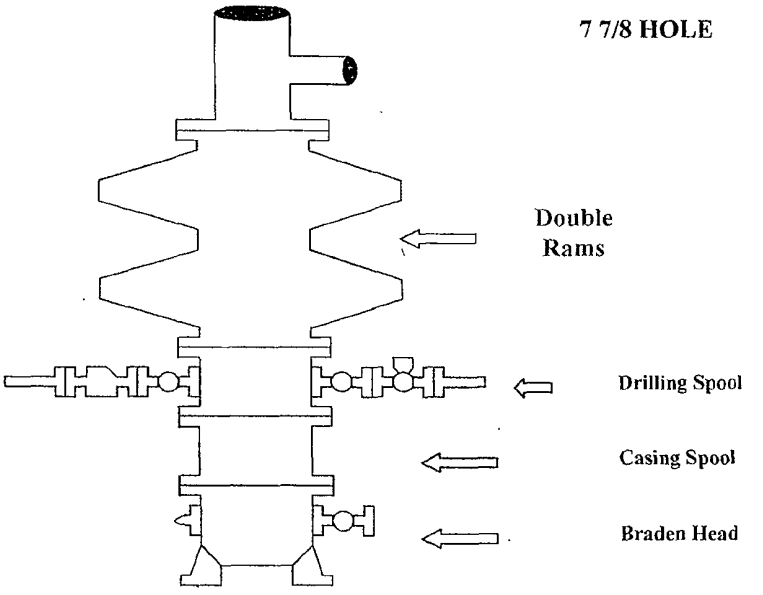
DIRECTIONAL PLAN VARIANCE REQUEST

ELECTRA FEDERAL #62
EDDY, NM

SHL	115 FNL, 1259 FEL	Sec 10, T17S, R30E, Unit A
BHL	330 FNL, 990 FEL	Sec 10, T17S, R30E, Unit A

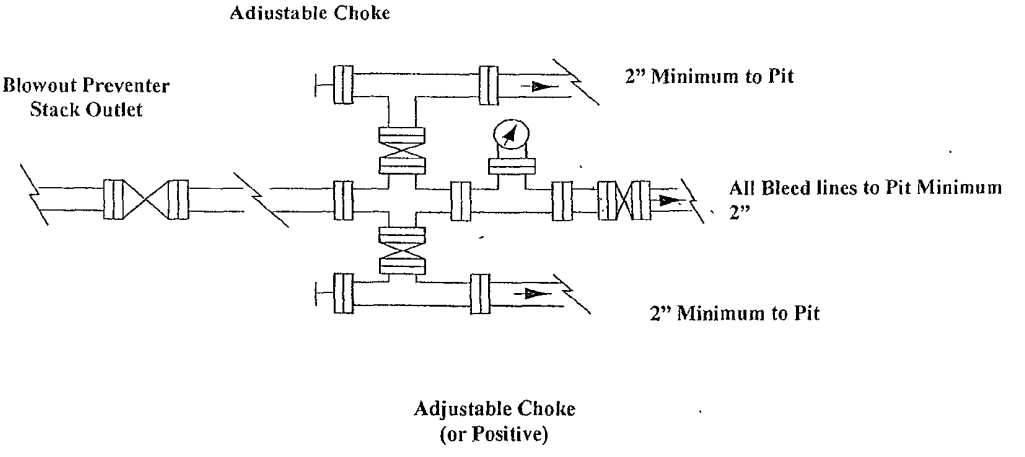
COG Operating LLC, as Operator, desires that the APD reflect the footages as stated on the surveyor's plat. However, Operator also desires to avoid inadvertently drilling the well to a non-standard location. Therefore, due to the proximity of the plat bottom hole location to the pro-ration unit hard line(s), the attached directional plan is designed to avoid the hard lines by as much as fifty feet; said fifty feet being in either (or both) the north-south and/or east-west directions as applicable.

COG Operating LLC
Exhibit #9
BOPE and Choke Schematic



Minimum 4" Nominal choke and kill lines

Choke Manifold Requirement (2000 psi WP)
No Annular Required

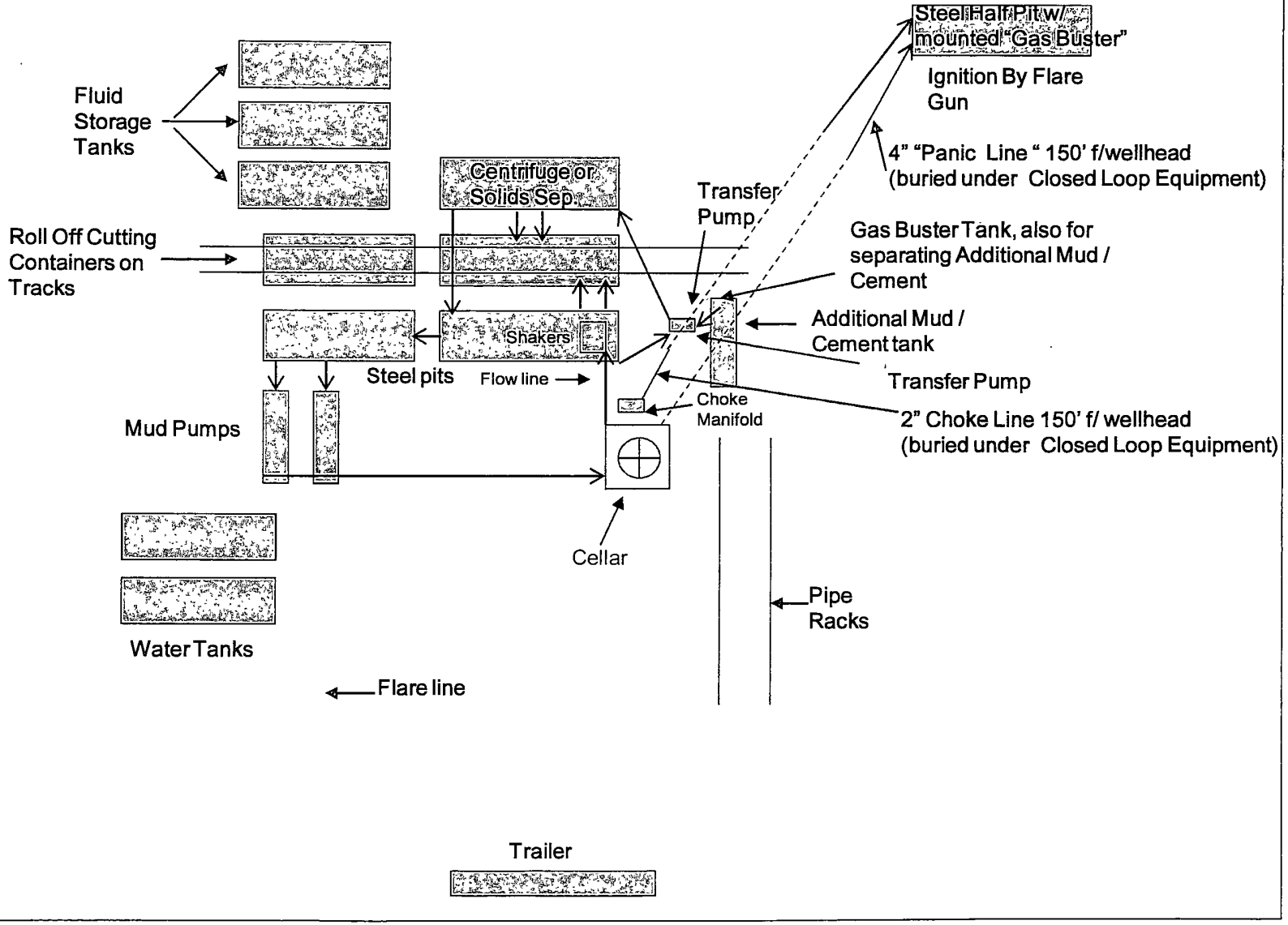


NOTES REGARDING THE BLOWOUT PREVENTERS
Master Drilling Plan
Eddy County, New Mexico

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

COG Operating LLC

Closed Loop Equipment Diagram



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

Hydrogen Sulfide Drilling Operation Plan

I. HYDROGEN SULFIDE TRAINING

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

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

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

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

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

II. H2S SAFETY EQUIPMENT AND SYSTEMS

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

1. **Well Control Equipment:**

   A. Flare line.

   B. Choke manifold.

   C. Blind rams and pipe rams to accommodate all pipe sizes with properly sized closing unit.

   D. Auxiliary equipment may include if applicable: annular preventer & rotating head.

2. **Protective equipment for essential personnel:**

   A. Mark II Survive air 30-minute units located in the doghouse and at briefing areas, as indicated on well site diagram.

3. **H2S detection and monitoring equipment:**

   A. 1 portable H2S monitors positioned on location for best coverage and response. These units have warning lights and audible sirens when H2S levels of 20 PPM are reached.

4. **Visual warning systems:**

   A. Wind direction indicators as shown on well site diagram (Exhibit #8).

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

5. **Mud program:**

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

6. **Metallurgy:**

   A. All drill strings, casings, tubing, wellhead, blowout preventer, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H2S service.

   B. All elastomers used for packing and seals shall be H2S trim.

7. **Communication:**

   A. Radio communications in company vehicles including cellular telephone and 2-way radio.

   B. Land line (telephone) communication at Office.

8. **Well testing:**

   A. Drill stem testing will be performed with a minimum number of personnel in the immediate vicinity, which are necessary to safely and adequately conduct the test. The drill stem testing will be conducted during daylight hours and formation fluids will not be flowed to the surface. All drill-stem-testing operations conducted in an H2S environment will use the closed chamber method of testing.

   B. There will be no drill stem testing.

EXHIBIT #7

WARNING

YOU ARE ENTERING AN H2S

AUTHORIZED PERSONNEL ONLY

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

COG OPERATING LLC

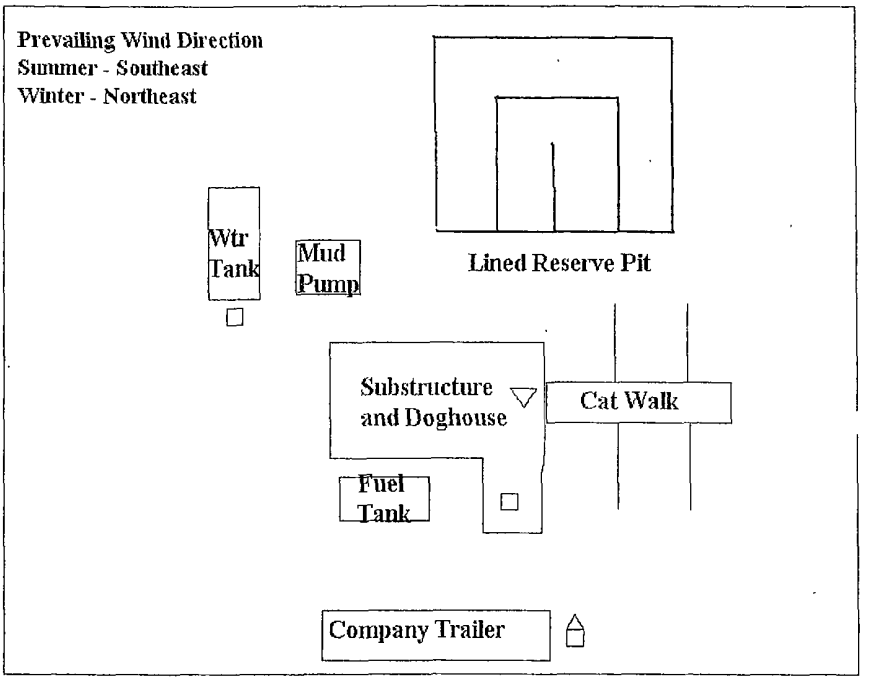
1-432-683-7443

1-575-746-2010

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

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

DRILLING LOCATION
H2S SAFETY EQUIPMENT
Exhibit # 8



▽ H2S Monitors with alarms at the bell nipple

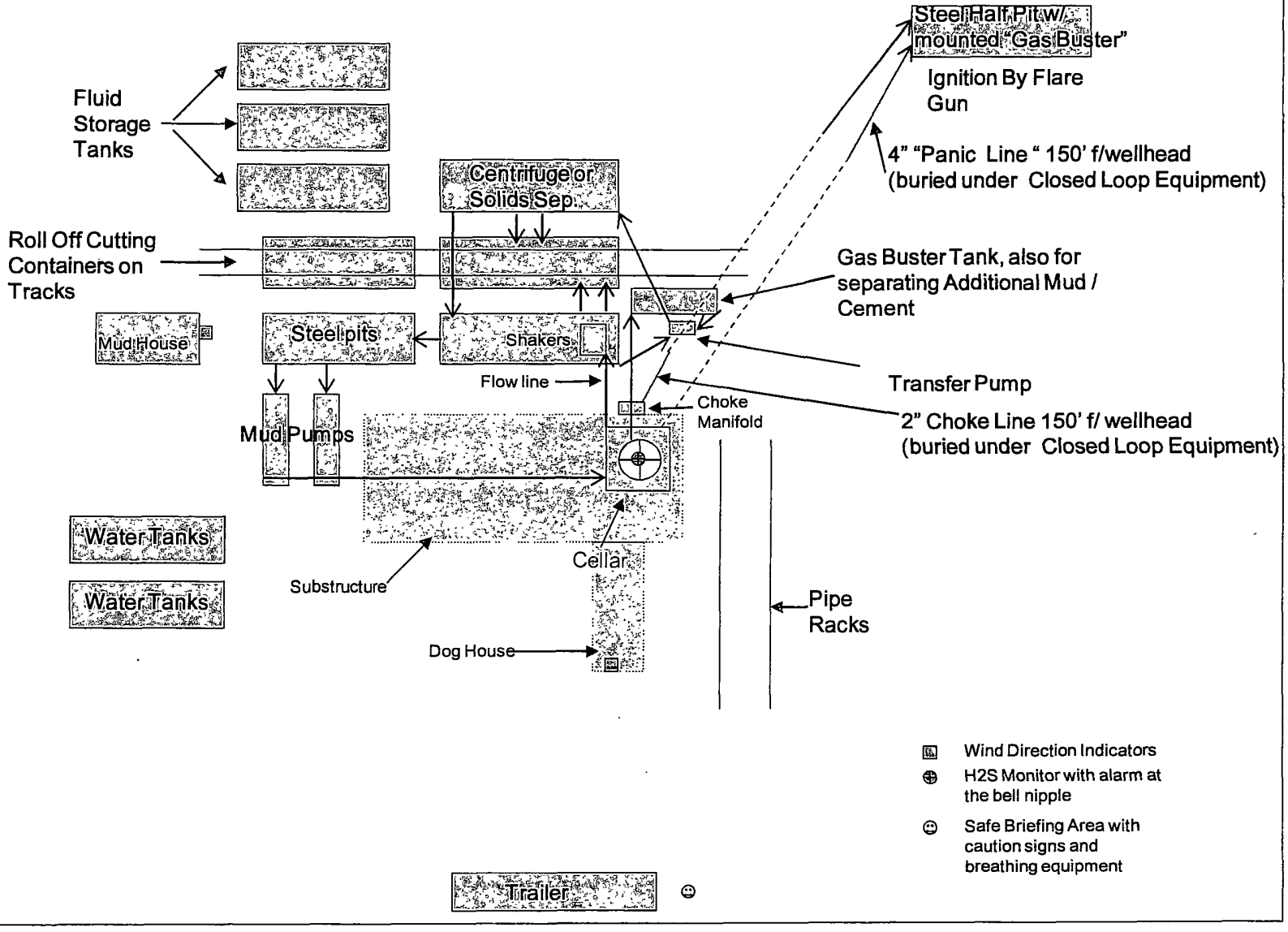
□ Wind Direction Indicators

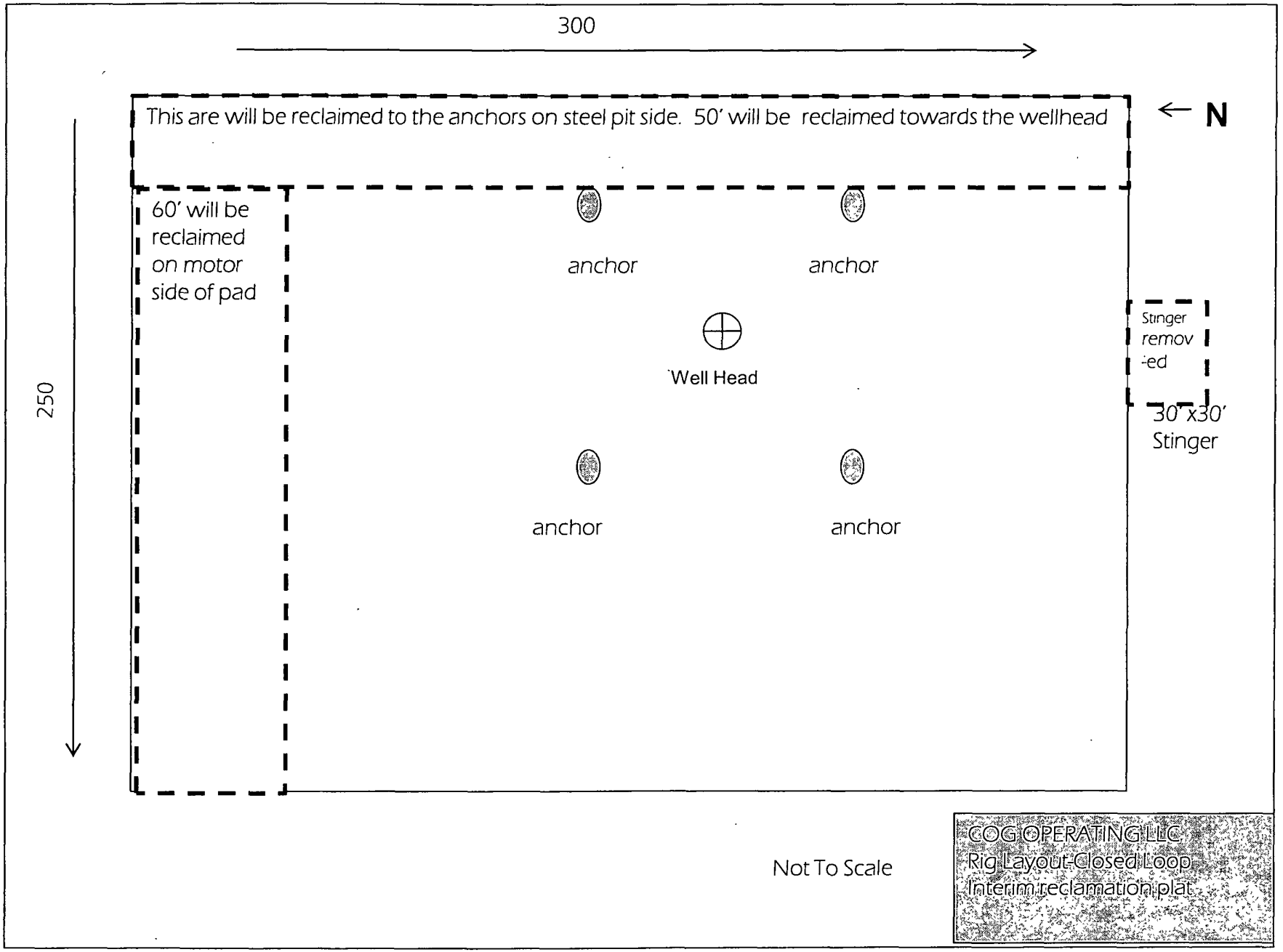
△ Safe Briefing areas with caution signs and breathing equipment min 150 feet from

COG Operating LLC

EXHIBIT 8

Drilling Location - H2S Safety Equipment Diagram




300
This are will be reclaimed to the anchors on steel pit side. 50' will be reclaimed towards the wellhead
N
60' will be reclaimed on motor side of pad
anchor
anchor
Well Head
Stinger removed
30' x30' Stinger
250
anchor
anchor
Not To Scale
COG OPERATING LLC
Rig Layout Closed Loop
Interim reclamation plat

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	COG Operating LLC
LEASE NO.:	NMNM0467931
WELL NAME & NO.:	Electra Federal 62
SURFACE HOLE FOOTAGE:	115' FNL & 1259' FEL
BOTTOM HOLE FOOTAGE	330' FNL & 990' FEL
LOCATION:	Section 10, T. 17 S., R. 30 E., NMPM
COUNTY:	Eddy County, New Mexico

TABLE OF CONTENTS

Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

☐ **General Provisions**
☐ **Permit Expiration**
☐ **Archaeology, Paleontology, and Historical Sites**
☐ **Noxious Weeds**
☒ **Special Requirements**
- Pipeline Placement
- Lesser Prairie-Chicken Timing Stipulations
- Ground-level Abandoned Well Marker

☒ **Construction**
- Notification
- Topsoil
- Closed Loop System
- Federal Mineral Material Pits
- Well Pads
- Roads

☐ **Road Section Diagram**
☒ **Drilling**
- H2S requirement
- Logging requirement
- Waste Material and Fluids

☒ **Production (Post Drilling)**
- Well Structures & Facilities
- Pipelines

☐ **Interim Reclamation**
☒ **Final Abandonment & Reclamation**