12-1200

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

5. Lease Serial No.: **NMLC-028784B**

6. If Indian, Allotee or Tribe Name: **N/A**

TCS 1/15/2013

1a. Type of work: ☑ DRILL ☐ REENTER

7. If Unit or CA Agreement, Name and No.: **NMNM-88525X; Burch Keely Unit**

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

8. Lease Name and Well No.: **BURCH KEELY UNIT #635** <308067

2. Name of Operator: **COG Operating LLC** <229137>

9. API Well No.: **30-015-** 40972

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

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

10. Field and Pool, or Exploratory: **Burch Keely; Glorieta-Upper Yeso** <97918>

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

At surface: **SHL: 100' FSL & 2266' FWL, Unit N, SEC 23**

At proposed prod. zone: **BHL: 10' FNL & 2628' FWL, Unit C ; SEC 26**

11. Sec., T. R. M. or Blk. and Survey or Area: **Sec 23 & 26 T17S R29E**

14. Distance in miles and direction from nearest town or post office*: **2 miles from Loco Hills, NM**

12. County or Parish: **EDDY**

13. State: **NM**

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)	16. No. of acres in lease	17. Spacing Unit dedicated to this well
100'	1264.52	40
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.	**19. Proposed Depth**	**20. BLM/BIA Bond No. on file**
64'	TVD: 4800' MD: 4821'	NMB000740; NMB000215
21. Elevations (Show whether DF, KDB, RT, GL, etc.)	**22. Approximate date work will start***	**23. Estimated duration**
3574' GL	10/31/2012	15 days

24. Attachments

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

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

25. Signature	Name *(Printed/Typed)*	Date
	Kelly J. Holly	08/17/2012

Title: **Permitting Tech**

Approved by *(Signature)*	Name *(Printed/Typed)*	Date
/s/ James A. Amos		JAN 8 2013
Title	**Office**	
FIELD MANAGER	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

RECEIVED
JAN 11 2013
NMOCD ARTESIA

SEE ATTACHED FOR CONDITIONS OF APPROVAL

DISTRICT I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
DISTRICT II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
DISTRICT III
1000 Rio Brazos 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- 40972	97918	BURCH KEELY; GLORIETA-UPPER YESO

Property Code	Property Name	Well Number
308086	BURCH KEELY UNIT	635

OGRID No.	Operator Name	Elevation
229137	COG OPERATING, LLC	3574'

Surface Location

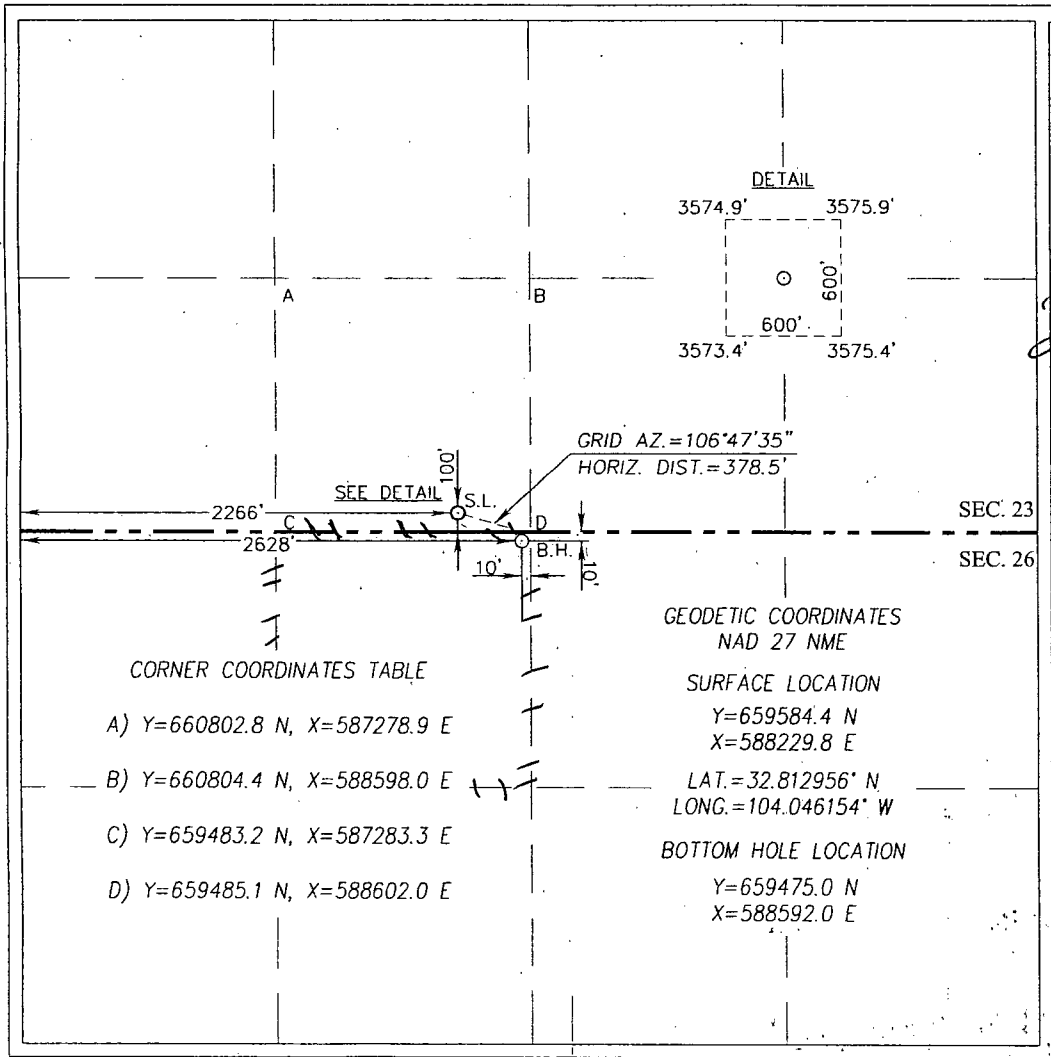
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
N	23	17-S	29-E		100	SOUTH	2266	WEST	EDDY

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
C	26	17-S	29-E		10	NORTH	2628'	WEST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
40			8 4/8/21

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 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 10/5/2012 Date

Robyn M. Odom
Printed Name

Rodom@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.

JUNE 20, 2012
Date of Survey

Signature & Seal of Professional Surveyor:

RONALD J. EIDSON NEW MEXICO 3239 REGISTERED PROFESSIONAL SURVEYOR

Ronald J. Eidson 9/25/2012

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

DSS JWSC W.O.: 12.13.1625

I hereby certify that I, or persons under my direct supervision, have inspected the drill site and access road proposed herein; that I am familiar with the conditions that presently exist; that I have full knowledge of State and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or COG Operating, LLC, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements. Executed this 6th day of June, 2012.

Signed: Carl Bird

Printed Name: Carl Bird

Position: Drilling Engineer

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

Telephone: (432) 683-7443

Field Representative (if not above signatory): Same

E-mail: cbird@concho.com

MASTER DRILLING PROGRAM

1. Geologic Name of Surface Formation

Quaternary

2. Estimated Tops of Important Geologic Markers:

Quaternary	Surface
Rustler	300'
Salt	360'
Base of Salt	780'
Yates	950'
Seven Rivers	1235'
Queen	1845'
Grayburg	2220'
San Andres	2540'
Glorieta	4000'
Paddock	4075'
Blinebry	4620'
Tubb	5520'

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

Water Sand	150'	Fresh Water
Grayburg	2150'	Oil/Gas
San Andres	2450'	Oil/Gas
Glorieta	3900'	Oil/Gas
Paddock	4075'	Oil/Gas
Blinebry	4620'	Oil/Gas
Tubb	5520'	Oil/Gas

No other formations are expected to give up oil, gas or fresh water in measurable quantities. Setting 13 3/8" casing to 325' 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 850' and circulating cement, in a single or multi-stage job and/or with an ECP See COA 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 the 5 ½" production casing from TD to a minimum tie-back of 200' above the 8 5/8" casing shoe via single or multi-stage cement jobs (cement volumes will be calculated to surface). If wellbore conditions arise that require immediate action and/or a change to this program, COG Operating LLC personnel will always react to protect the wellbore and/or environment. See COA

4. 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
0-325'	Fresh Water	8.5	28	N.C.
325'-~~850'~~ 1040	Brine	10	30	N.C.
~~850'~~-TD'	Cut Brine	8.7-9.2	30	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.

5. Proposed Casing Program

Hole Size	Interval	OD Casing	Weight	Grade	Jt., Condition	Jt.	brst/clps/ten
17 ½"	0-325'	13 3/8"	48#	H-40/J-55 Hybrid	ST&C/New	ST&C	9.22/3.943/15.8
11"	0-~~850~~ 1040	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

See COA

6. Cement Program See COA

13 3/8" SURFACE:
Lead: 0'-325' 400 sks Class "C" w/2% CaCl2 1.32 cf/sk 14.8 ppg
Circulate to surface + 0.25 pps CF
Excess 133.9%

8 5/8" INTERMEDIATE:

Option #1: Single Stage (Circulate to Surface)
Lead: 300 sks 50:50:10 C:Poz:Gel 2.45 cf/sk 11.8 ppg
0'-500' w/ 5% Salt+ 0.25% CF
Excess 286.6%

Tail: 200 sks Class C w/2% CaCl2 1.32 cf/sk 14.8 ppg
500'-850'
Excess 212.4%

Option #2: Multi-stage w/ DV Tool @ +/-375' (Circulate to Surface)
Stage #1: 200 sks Class "C" w/2% CaCl2 1.32 cf/sk 14.8 ppg
375'-850'
Excess 95.6%

Stage #2 0'-375' Excess 365.2%	300 sks	50:50:10 C:Poz:Gel w/5% salt+ 0.25% CF	2.45 cf/sk	11.8 ppg

Note: Multi-stage tool to be set depending on hole conditions at approximately 375' (50' below the surface casing shoe). Cement volumes will be adjusted proportionately for depth changes of multi-stage tool.

5 ½" PRODUCTION CASING: Top of cement @650' (200' tie-back into 8 5/8" csg.):

Option #1: Single Stage

Lead: 650'-2000' (min.tie back 200') (into inter, csg.) Excess 338.1%	500 sks	35:65:6 C:Poz Gel w/5% salt+ 5 pps LCM+ 0.2 % SMS+ 1% FL-25+ 1% BA-58+0.3% FL-52A+ 0.125 pps CF	2.05 cf/sk	12.5 ppg
Tail: 2000'-TD Excess 22.6%	400 sks	50:50:2 C:Poz Gel w/5% salt+ 3 pps LCM+ 0.6 % SMS+ 0.3% FL-52A+ 0.125 pps CF+1% FL-25+ 1% BA-58	1.37 cf/sk	14.0 ppg

Option #2: Multi-stage w/DV Tool @ +/-2500' Top of cement @ 650' (200' tie-back into 8 5/8" csg.)

Stage #1: 2500'-TD Excess 94.6%	500 sks	50:50:2 C:Poz Gel w/5% salt+ 3 pps LCM+ 0.6 % SMS+ 0.3% FL-52A+ 0.125 pps CF+1% FL-25+ 1% BA-58	1.37 cf/sk	14.0 ppg
Stage #2: Lead: 650'-1500' (min.tie back 200') (into inter, csg.) Excess 316.9%	450 sks	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	1.37 cf/sk	14.0 ppg
Tail: 1500'-2500' Excess 47.4%	250 sks	Class "C" w/0.3% R-3+ 1.5% CD-32	1.02 cf/sk	16.8 ppg

Note: Assumption for DV tool is water flow. This cement is used to combat water flows if they are encountered. This cement recipe also has a right angle set time and is mixed a little under saturated so the water flow will be absorbed by the cement. Cement volumes will be adjusted proportionately for depth changes of multi-stage tool.

Note: FL-52A is fluid loss additive, R-3 is retarder.

7. 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 will include a Kelly cock and floor safety valve, choke lines and a choke manifold (Exhibit #10) with a 2000 psi WP rating. This equipment will also be tested to rated working pressure by independent tester.

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.

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 Surface.

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 hole pressure is 2000 psi. 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 10 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. Completion is planned in the Paddock formation.

CONCHO

COG Operating LLC

Eddy County, NM (NAN27 NME)
Burch Keely Unit #635

OH

Plan #2 7-7/8" Hole
Surface: 100' FSL, 2266' FWL, Sec 23, T17S, R29E, Unit N
Top of Paddock @ 4250' TVD: 92' S of Surface, 305' E of Surface
BHL: 10' FNL, 2628' FWL, Sec 26, T17S, R29E, Unit B

Standard Planning Report

09 November, 2012

Scientific Drilling

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well #635
Company:	COG Operating LLC	**TVD Reference:**	GL @ 3574.00usft
Project:	Eddy County, NM (NAN27 NME)	**MD Reference:**	GL @ 3574.00usft
Site:	Burch Keely Unit	**North Reference:**	Grid
Well:	#635	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2 7-7/8" 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		Using geodetic scale factor

Site Burch Keely Unit

Site Position:		**Northing:**	661,490.10 usft	**Latitude:**	32° 49' 5.462 N
From:	Map	**Easting:**	589,648.00 usft	**Longitude:**	104° 2' 29.475 W
Position Uncertainty:	0.00 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.16 °

Well #635

Well Position	**+N/-S**	-1,905.86 usft	**Northing:**	659,584.40 usft	**Latitude:**	32° 48' 46.643 N
	+E/-W	-1,418.32 usft	**Easting:**	588,229.80 usft	**Longitude:**	104° 2' 46.155 W
Position Uncertainty		0.00 usft	**Wellhead Elevation:**		**Ground Level:**	3,574.00 usft

Wellbore OH

Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	BGGM2012	11/9/2012	7.78	60.58	48,761

Design Plan #2 7-7/8" 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	106.81

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	
1,150.00	0.00	0.00	1,150.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,458.92	6.18	106.81	1,458.33	-4.81	15.93	2.00	2.00	34.57	106.81	
4,820.12	6.18	106.81	4,800.00	-109.41	362.23	0.00	0.00	0.00	0.00	PBHL

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well #635
Company:	COG Operating LLC	**TVD Reference:**	GL @ 3574.00usft
Project:	Eddy County, NM (NAN27 NME)	**MD Reference:**	GL @ 3574.00usft
Site:	Burch Keely Unit	**North Reference:**	Grid
Well:	#635	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2 7-7/8" 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
1,050.00	0.00	0.00	1,050.00	0.00	0.00	0.00	0.00	0.00	0.00
8-5/8" Casing									
1,150.00	0.00	0.00	1,150.00	0.00	0.00	0.00	0.00	0.00	0.00
KOP Start DLS 2.00 TFO 106.81									
1,200.00	1.00	106.81	1,200.00	-0.13	0.42	0.44	2.00	2.00	0.00
1,300.00	3.00	106.81	1,299.93	-1.14	3.76	3.93	2.00	2.00	0.00
1,400.00	5.00	106.81	1,399.68	-3.15	10.44	10.90	2.00	2.00	0.00
1,458.92	6.18	106.81	1,458.33	-4.81	15.93	16.64	2.00	2.00	0.00
Start 3361.20 hold at 1458.92 MD									
1,500.00	6.18	106.81	1,499.16	-6.09	20.16	21.06	0.00	0.00	0.00
1,600.00	6.18	106.81	1,598.58	-9.20	30.46	31.82	0.00	0.00	0.00
1,700.00	6.18	106.81	1,698.00	-12.31	40.77	42.59	0.00	0.00	0.00
1,800.00	6.18	106.81	1,797.42	-15.43	51.07	53.35	0.00	0.00	0.00
1,900.00	6.18	106.81	1,896.84	-18.54	61.37	64.11	0.00	0.00	0.00
2,000.00	6.18	106.81	1,996.26	-21.65	71.68	74.87	0.00	0.00	0.00
2,100.00	6.18	106.81	2,095.68	-24.76	81.98	85.64	0.00	0.00	0.00
2,200.00	6.18	106.81	2,195.10	-27.87	92.28	96.40	0.00	0.00	0.00
2,300.00	6.18	106.81	2,294.52	-30.98	102.58	107.16	0.00	0.00	0.00
2,400.00	6.18	106.81	2,393.94	-34.10	112.89	117.92	0.00	0.00	0.00
2,500.00	6.18	106.81	2,493.35	-37.21	123.19	128.69	0.00	0.00	0.00
2,600.00	6.18	106.81	2,592.77	-40.32	133.49	139.45	0.00	0.00	0.00
2,700.00	6.18	106.81	2,692.19	-43.43	143.80	150.21	0.00	0.00	0.00
2,800.00	6.18	106.81	2,791.61	-46.54	154.10	160.97	0.00	0.00	0.00
2,900.00	6.18	106.81	2,891.03	-49.66	164.40	171.74	0.00	0.00	0.00
3,000.00	6.18	106.81	2,990.45	-52.77	174.70	182.50	0.00	0.00	0.00
3,100.00	6.18	106.81	3,089.87	-55.88	185.01	193.26	0.00	0.00	0.00
3,200.00	6.18	106.81	3,189.29	-58.99	195.31	204.03	0.00	0.00	0.00
3,300.00	6.18	106.81	3,288.71	-62.10	205.61	214.79	0.00	0.00	0.00
3,400.00	6.18	106.81	3,388.13	-65.22	215.92	225.55	0.00	0.00	0.00
3,500.00	6.18	106.81	3,487.55	-68.33	226.22	236.31	0.00	0.00	0.00
3,600.00	6.18	106.81	3,586.97	-71.44	236.52	247.08	0.00	0.00	0.00
3,700.00	6.18	106.81	3,686.38	-74.55	246.82	257.84	0.00	0.00	0.00
3,800.00	6.18	106.81	3,785.80	-77.66	257.13	268.60	0.00	0.00	0.00
3,900.00	6.18	106.81	3,885.22	-80.78	267.43	279.36	0.00	0.00	0.00
4,000.00	6.18	106.81	3,984.64	-83.89	277.73	290.13	0.00	0.00	0.00
4,100.00	6.18	106.81	4,084.06	-87.00	288.04	300.89	0.00	0.00	0.00
4,200.00	6.18	106.81	4,183.48	-90.11	298.34	311.65	0.00	0.00	0.00
4,266.91	6.18	106.81	4,250.00	-92.19	305.23	318.85	0.00	0.00	0.00
Top of Paddock									
4,300.00	6.18	106.81	4,282.90	-93.22	308.64	322.41	0.00	0.00	0.00
4,400.00	6.18	106.81	4,382.32	-96.34	318.95	333.18	0.00	0.00	0.00
4,500.00	6.18	106.81	4,481.74	-99.45	329.25	343.94	0.00	0.00	0.00
4,600.00	6.18	106.81	4,581.16	-102.56	339.55	354.70	0.00	0.00	0.00
4,700.00	6.18	106.81	4,680.58	-105.67	349.85	365.46	0.00	0.00	0.00
4,800.00	6.18	106.81	4,779.99	-108.78	360.16	376.23	0.00	0.00	0.00
4,820.12	6.18	106.81	4,800.00	-109.41	362.23	378.39	0.00	0.00	0.00
PBHL									

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well #635
Company:	COG Operating LLC	**TVD Reference:**	GL @ 3574.00usft
Project:	Eddy County, NM (NAN27 NME)	**MD Reference:**	GL @ 3574.00usft
Site:	Burch Keely Unit	**North Reference:**	Grid
Well:	#635	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2 7-7/8" Hole		

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
PBHL - plan hits target center - Circle (radius 10.00)	0.00	0.01	4,800.00	-109.41	362.23	659,475.00	588,592.00	32° 48' 45.551 N	104° 2' 41.914 W

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,050.00	1,050.00	8-5/8" Casing	8-5/8	12-1/4

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
4,266.91	4,250.00	Top of Paddock		0.00	

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
1,150.00	1,150.00	0.00	0.00	KOP Start DLS 2.00 TFO 106.81
1,458.92	1,458.33	-4.81	15.93	Start 3361.20 hold at 1458.92 MD

CONCHO

Scientific Drilling

T M

Azimuths to Grid North
True North: -0.16°
Magnetic North: 7.63°

Magnetic Field
Strength: 48760.9snT
Dip Angle: 60.58°
Date: 11/9/2012
Model: BGGM2012

To convert a Magnetic Direction to a Grid Direction, Add 7.63°
To convert a True Direction to a Grid Direction, Subtract 0.16°

Burch Keely Unit #635
Eddy County, NM (NAN27 NME)
Northing: 659584.40
Easting: 588229.80
Plan #2 7-7/8" Hole

WELL DETAILS:

Ground Level: 3574.00

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	659584.40	588229.80	32° 48' 46.643 N	104° 2' 46.155 W

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1150.00	0.00	0.00	1150.00	0.00	0.00	0.00	0.00	0.00	
1458.92	6.18	106.81	1458.33	-4.81	15.93	2.00	106.81	16.64	
4820.12	6.18	106.81	4800.00	-109.41	362.23	0.00	0.00	378.39	PBHL

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting
PBHL	4800.00	-109.41	362.23	659475.00	588592.00

SITE DETAILS: Burch Keely Unit
Site Centre Northing: 661490.10
Easting: 589648.00

Positional Uncertainty: 0.00
Convergence: 0.16
Local North: Grid

PROJECT DETAILS: Eddy County, NM (NAN27 NME)
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

CASING DETAILS

TVD	MD	Name	Size
1050.00	1050.00	8-5/8" Casing	8-5/8

Map System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone Name: New Mexico East 3001

Local Origin: Well #635, Grid North

Latitude: 32° 48' 46.643 N
Longitude: 104° 2' 46.155 W

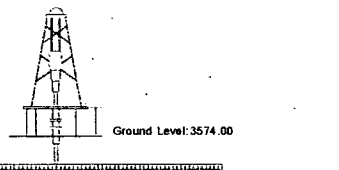
Grid East: 588229.80
Grid North: 659584.40
Scale Factor: 1.000

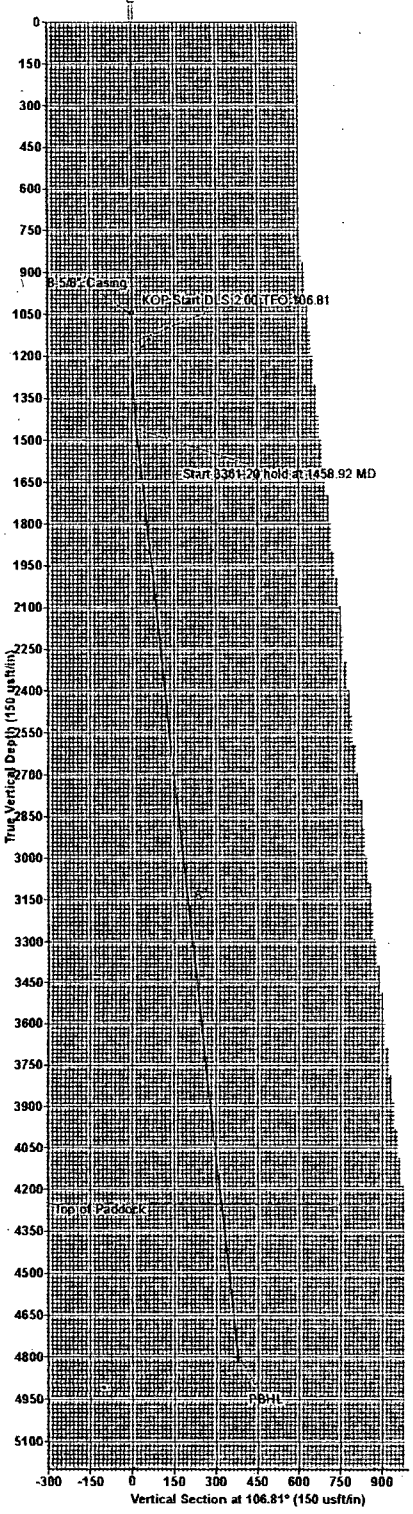
Geomagnetic Model: BGGM2012
Sample Date: 09-Nov-12
Magnetic Declination: 7.78°
Dip Angle from Horizontal: 60.58°
Magnetic Field Strength: 48761

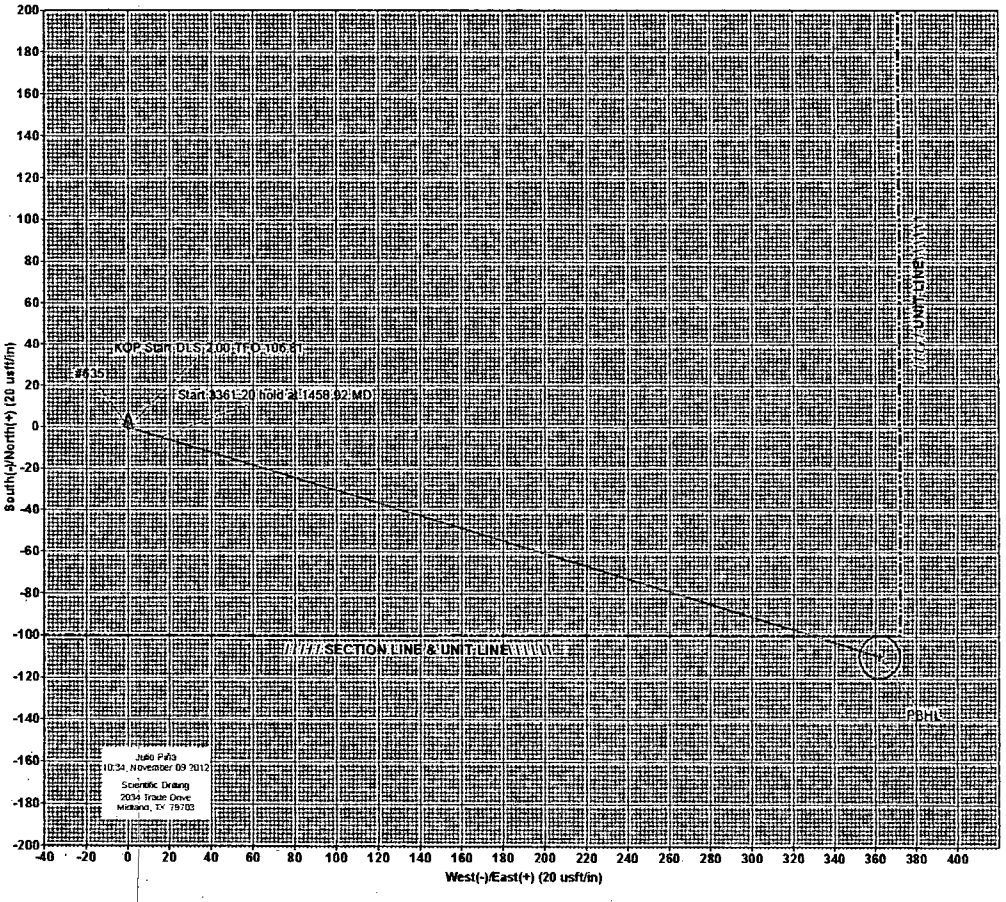
To convert a Magnetic Direction to a Grid Direction, Add 7.63°
To convert a Magnetic Direction to a True Direction, Add 7.78° East
To convert a True Direction to a Grid Direction, Subtract 0.16°

FORMATION TOP DETAILS

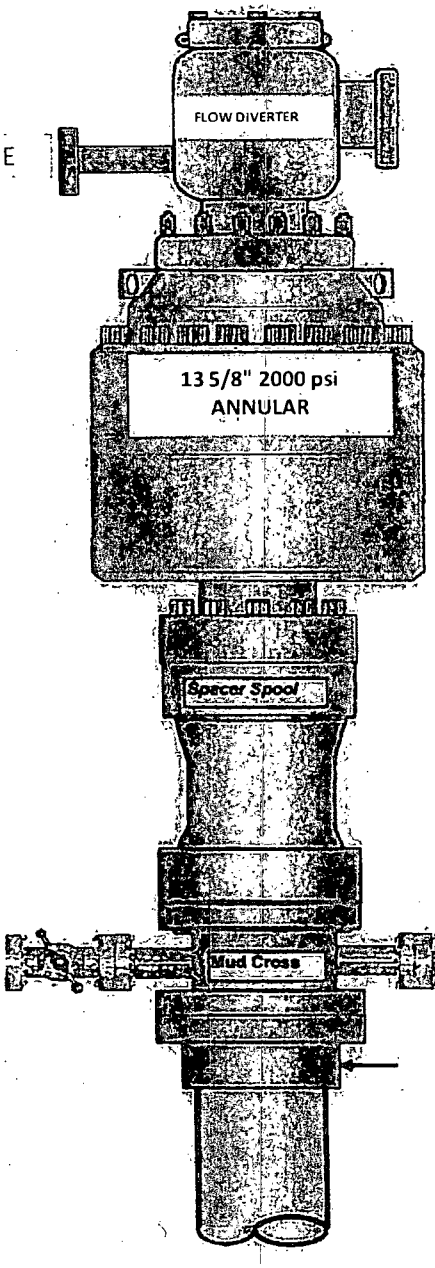
TVDPath	MDPath	Formation
4250.00	4266.91	Top of Paddock







13 5/8" 2K ANNULAR



FILL LINE

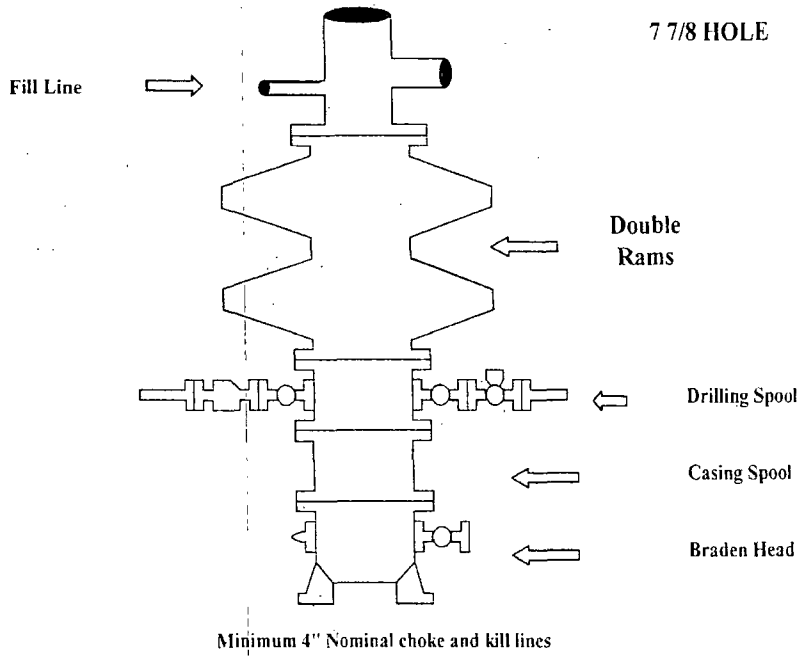
4-1/16",2K VALVES

13 5/8" 3K "A" SECTION

COG Operating LLC

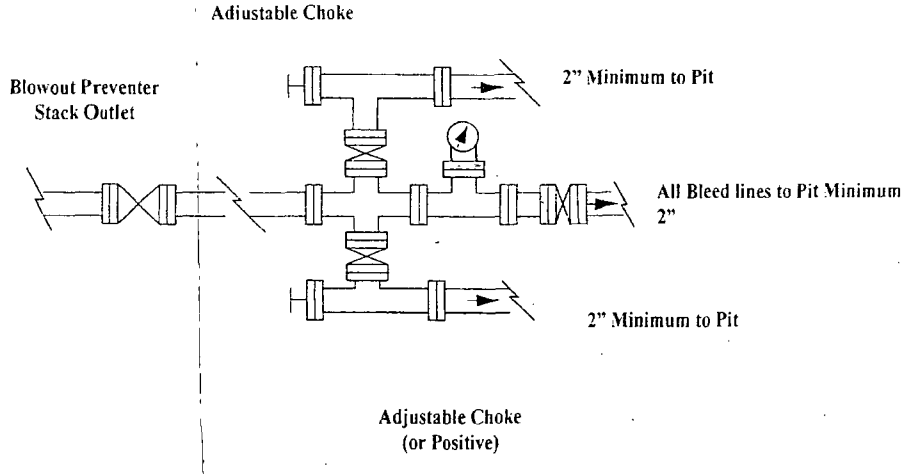
Exhibit #9

BOPE and Choke Schematic



Minimum 4" Nominal choke and kill lines

Choke Manifold Requirement (2000 psi WP)
No Annular Required

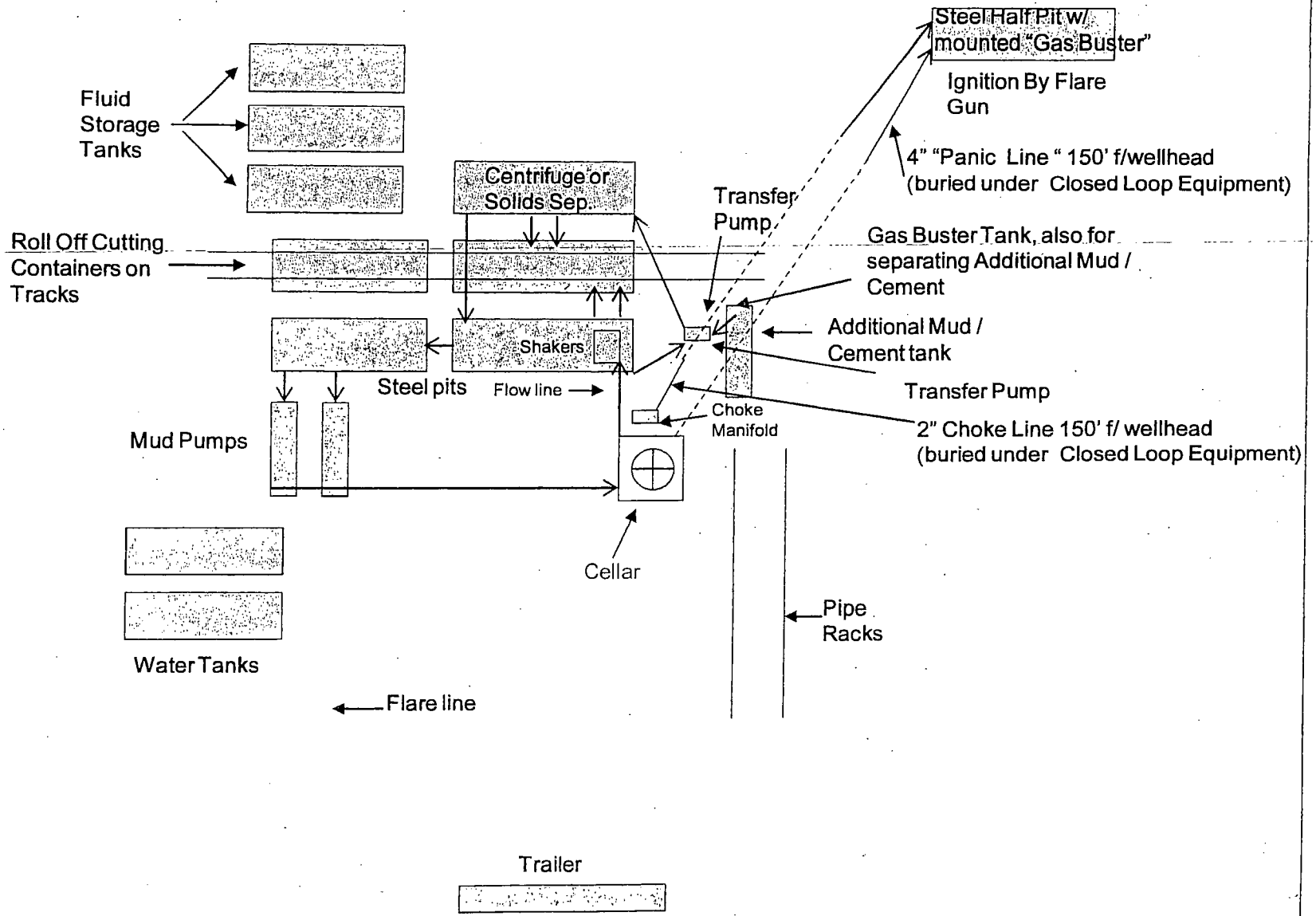


NOTES REGARDING THE BLOWOUT PREVENTERS
Master Drilling Plan
Eddy County, New Mexico

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



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. Closed Loop Blow Down Tank

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

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

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

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

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

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

4. **Visual warning systems:**

   A. Wind direction indicators as shown on well site diagram.

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

5. **Mud program:**

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

6. **Metallurgy:**

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

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

7. **Communication:**

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

   B. Land line (telephone) communication at Office.

8. **Well testing:**

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

   B. There will be no drill stem testing.

EXHIBIT #7

WARNING

YOU ARE ENTERING AN H2S

AUTHORIZED PERSONNEL ONLY

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

COG OPERATING LLC

1-432-683-7443

1-575-746-2010

EDDY COUNTY EMERGENCY NUMBERS

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

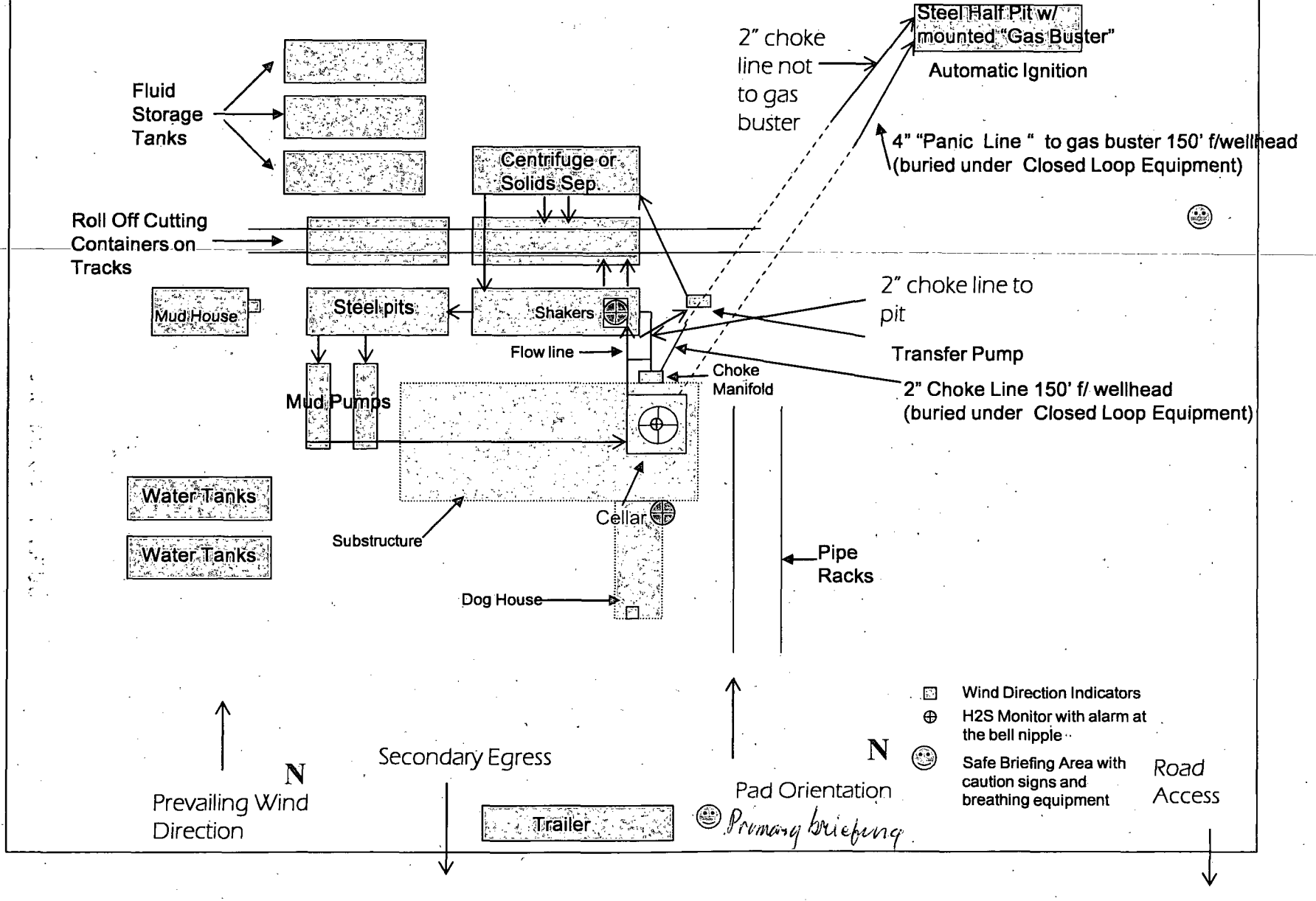
LEA COUNTY EMERGENCY NUMBERS

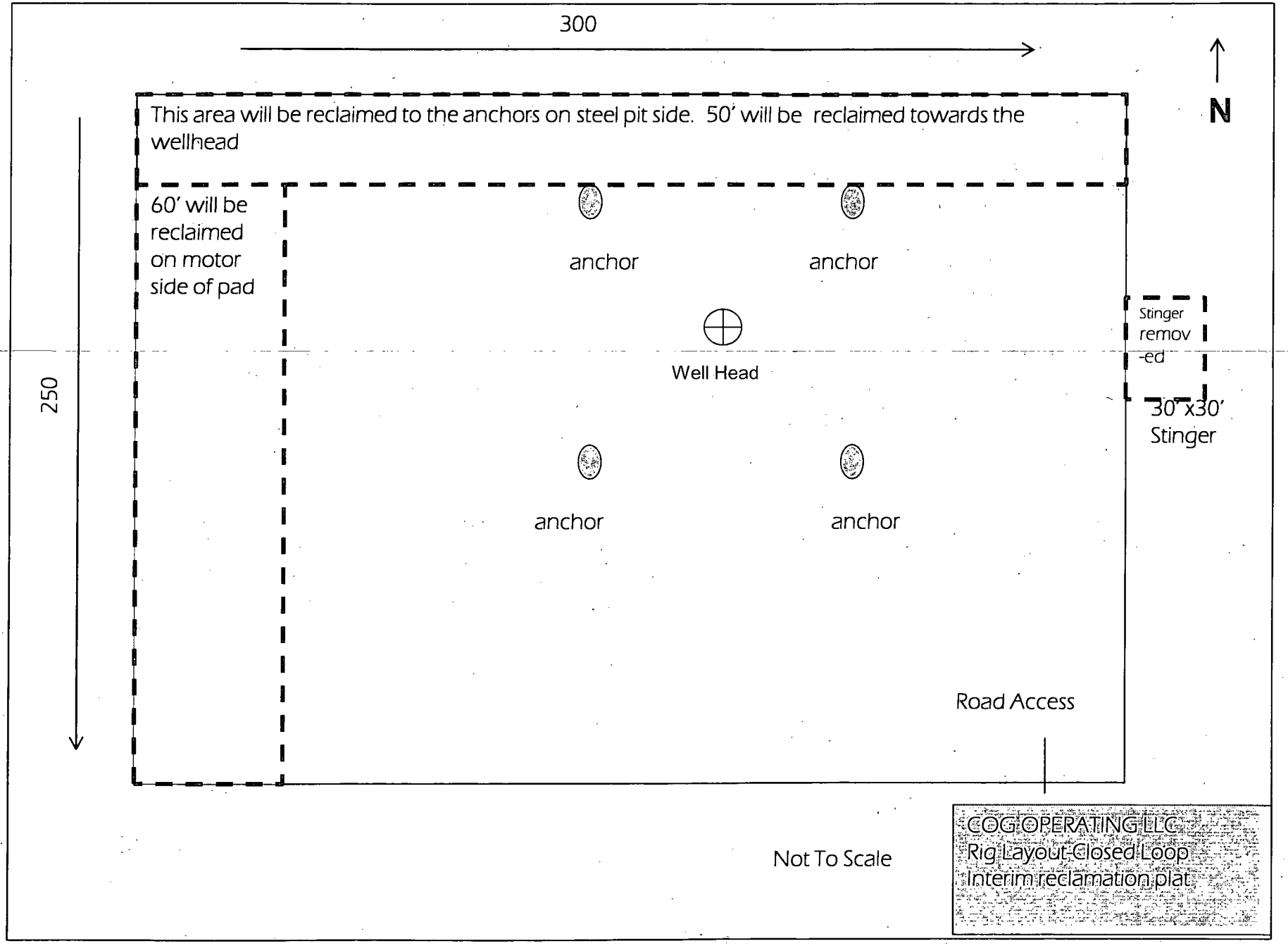
HOBBS FIRE DEPT. 575-397-9308
HOBBS POLICE DEPT. 575-397-9285
LEA CO. SHERIFF DEPT. 575-396-1196

COG Operating LLC

Drilling Location - H2S Safety Equipment Diagram

EXHIBIT 8-
Bku 635




300
N
This area will be reclaimed to the anchors on steel pit side. 50' will be reclaimed towards the wellhead
60' will be reclaimed on motor side of pad
anchor
anchor
Stinger removed
Well Head
30' x30' Stinger
250
anchor
anchor
Road Access
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.:	LC028784B
WELL NAME & NO.:	635-BURCH KEELY UNIT
SURFACE HOLE FOOTAGE:	100'/S. & 2266'/W.
BOTTOM HOLE FOOTAGE	10'/N. & 2640'/W. (Sec. 26)
LOCATION:	Section 23, T. 17 S., R. 29 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.