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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-029405B

6 If Indian, Allotee or Tribe Name
N/A

1a. Type of work. ☑ DRILL ☐ REENTER

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

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

8 Lease Name and Well No. <302498>
G C FEDERAL #42

2 Name of Operator
COG Operating LLC <229137>

9 API Well No.
30-025- 39928

3a Address
550 W. Texas, Suite 1300 Midland TX 79701

3b Phone No. *(include area code)*
(432) 685-4385

10 Field and Pool, or Exploratory
Maljamar; Yeso, West 44500

4. Location of Well *(Report location clearly and in accordance with any State requirements *)*
At surface **330' FSL & 1650' FWL, Unit N**
At proposed prod zone

11 Sec, T R M or Blk. and Survey or Area
Sec 20, T17S, R32E

14 Distance in miles and direction from nearest town or post office*
3 miles south of Maljamar NM

12 County or Parish
Lea

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
330'	**1602**	**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
720'	**6900'**	**NMB000215**
21 Elevations (Show whether DF, KDB, RT, GL, etc.)	22 Approximate date work will start*	23 Estimated duration
3954' GL	**09/30/2010**	**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)*	Date
Robyn Odom	**Robyn M. Odom**	**06/21/2010**

Title
Regulatory Analyst

Approved by *(Signature)*	Name *(Printed/Typed)*	Date
/s/ Don Peterson		**SEP 30 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

KZ 10/5/10

Approval Subject to General Requirements & Special Stipulations Attached

PETROLEUM ENGINEER

SEE ATTACHED FOR CONDITIONS OF APPROVAL

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
11885 S. ST. FRANCIS DR., SANTA FE, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department

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OIL CONSERVATION DIVISION
11885 SOUTH ST. FRANCIS DR.
Santa Fe, New Mexico 87505

Form C-102
Revised October 12, 2005
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number	Pool Code	Pool Name
30-025- 39928	44500	MALJAMAR; YESO, WEST

Property Code	Property Name	Well Number
302498	GC FEDERAL	42

OGRID No.	Operator Name	Elevation
229137	COG OPERATING, LLC	3954'

Surface Location

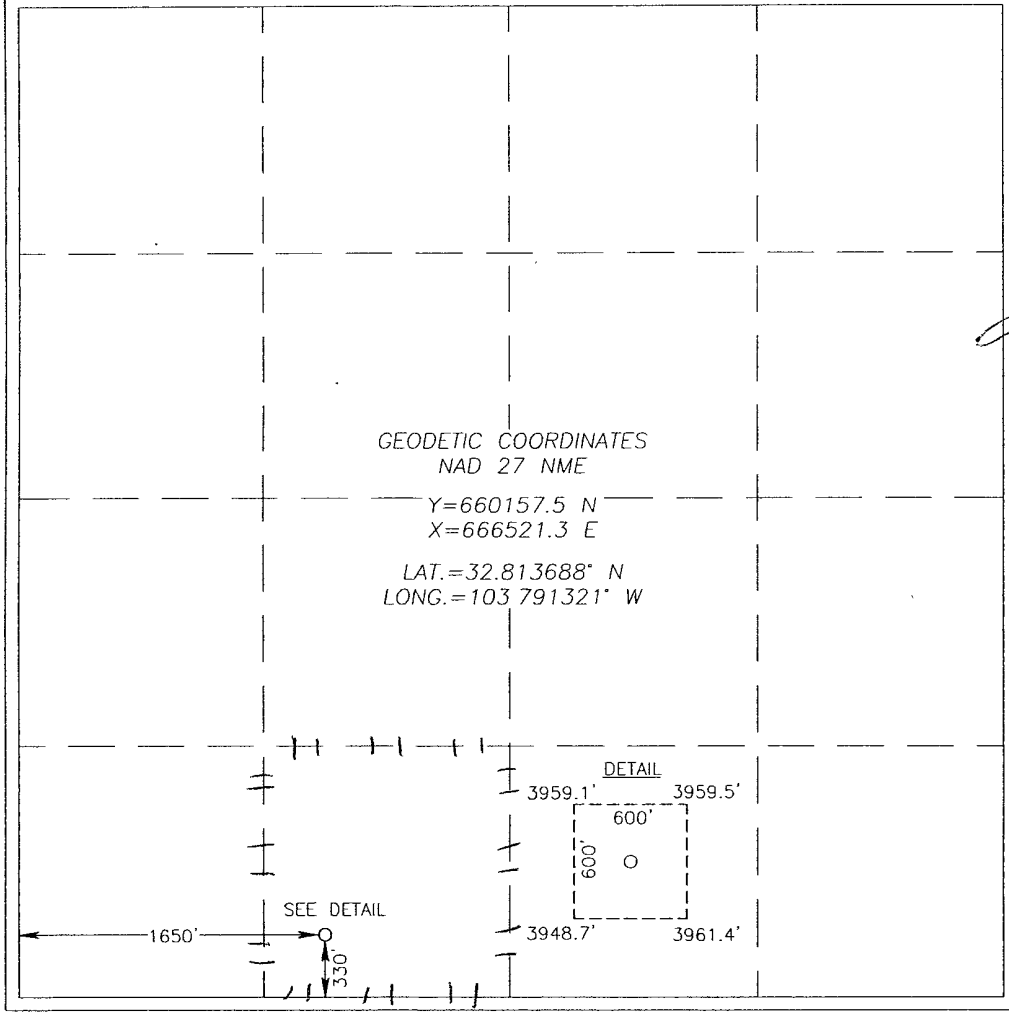
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
N	20	17-S	32-E		330	SOUTH	1650	WEST	LEA

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

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
40			

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.

Robyn Odom 6/18/2010
Signature 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 supervision, and that the same is true and correct to the best of my belief.

RONALD J. EIDSON
NEW MEXICO
3239
REGISTERED PROFESSIONAL SURVEYOR

JUNE 9, 2010
Date Surveyed LA

Signature & Seal of Professional Surveyor

Ronald J. Eidson 06/16/2010

10/11/0647

Certificate No. GARY G. EIDSON 12641
RONALD J. EIDSON 3239

COG Operating LLC
Master Drilling Plan Revised 7-22-09
Maljamar ; Yeso, West
Use for Sections 3-35, T17S, R32E
Lea County, NM

MASTER DRILLING PROGRAM

1. Geologic Name of Surface Formation

Quaternary

2. Estimated Tops of Important Geologic Markers:

Quaternary	Surface
Top of Salt	900'
Base of Salt	1700'
Yates	2000'
Seven Rivers	2375'
Queen	2975'
Grayburg	3475'
San Andres	3775'
Glorietta	5225'
Yeso Group	5325'

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

Water Sand	150'	Fresh Water
Grayburg	3475'	Oil/Gas
San Andres	3775'	Oil/Gas
Glorietta	5225'	Oil/Gas
Yeso Group	5325'	Oil/Gas

No other formations are expected to give up oil, gas or fresh water in measurable quantities. Setting 13 3/8" casing to 650' 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 2100' 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, 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
- See COA

4. Casing Program

See COA —

Hole Size	Interval	OD Casing	Weight	Grade	Jt., Condition	burst/collapse/tension
17 ½"	0-~~650~~770	13 3/8"	48#	H-40orJ-55	ST&C/New	6.03/2.578/10.32
11"or[illegible]	0-2100'	8 5/8"	24or32#	J-55	ST&C/New	1.85/1.241/4.78
7 7/8"	0-T.D.	5 1/2"	15.5or17#	J-55orL-80	LT&C/New	1.59/1.463/2.05

5. Cement Program

13 3/8" Surface Casing:

Class C, 4% Gel, 2% CaCl2, .25 pps CF, 450 sx lead, yield-1.98 + 200 sx tail, yield-1.32.

8 5/8" Intermediate Casing:

11" Hole:
Single Stage: 50:50:10, 400 sx lead, yield-2.45 + Class C, 200 sx tail, yield-1.32, back to surface.
Multi-Stage: Stage 1: Class C, 400 sx, yield - 1.32; Stage 2: Class C, 200 sx, yield – 1.32, back to surface. Multi stage tool to be set at approximately, depending on hole conditions, ~~650'~~ See COA — See COA

5 1/2" Production Casing:

Single Stage: 35:65:6, 500 sx Lead, yield-2.05 + 50:50:2, 400 sx Tail, yield-1.37, to 200' minimum tie back to intermediate casing.
Multi-Stage: Stage 1: 50:50:2, 400 sx, yield - 1.37; Stage 2: 35:65:6, 500 sx, yield – 2.05, to 200' minimum tie back to intermediate casing. Multi stage tool to be set at approximately, depending on hole conditions, ~~4000'-2000'~~. See COA

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. 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. The BOP will be nippled up on the 13 3/8" surface casing with BOP equipment and tested ~~together to 1000 psi by rig pump in one test~~. See COA 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. All BOP's and accessory equipment will be tested to 2000 psi before drilling out of the intermediate casing. 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.

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-~~650'~~ 770	Fresh Water	8.5	28	N.C.
~~650~~-2100'	Brine	10	30	N.C.
2100'-TD	Cut Brine	8.7-9.1	29	N.C.

See COA

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.

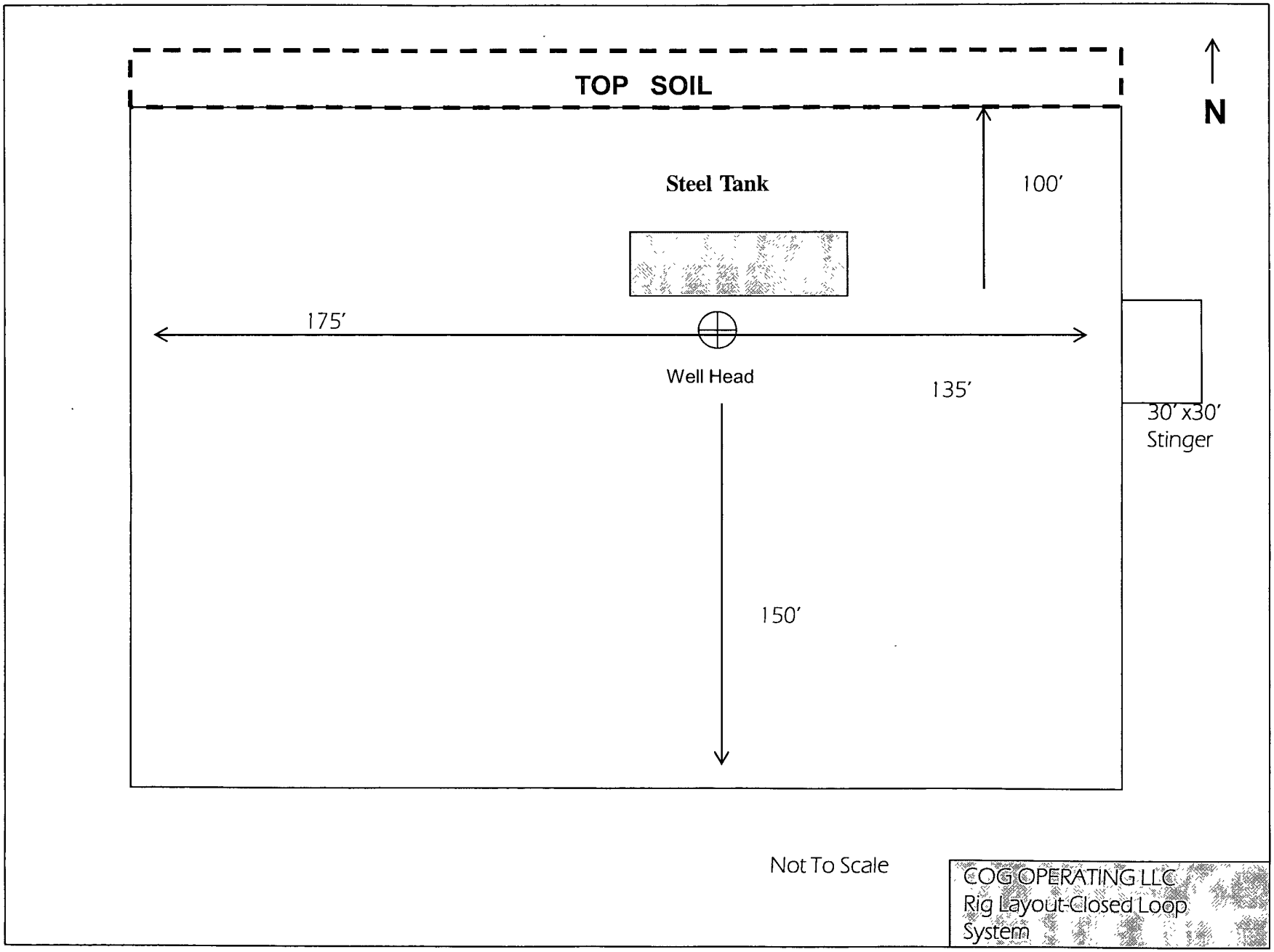
D. Further testing procedures will be determined after the 5 ½" production casing has been cemented at TD, based on drill shows and log evaluation.

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. See COA

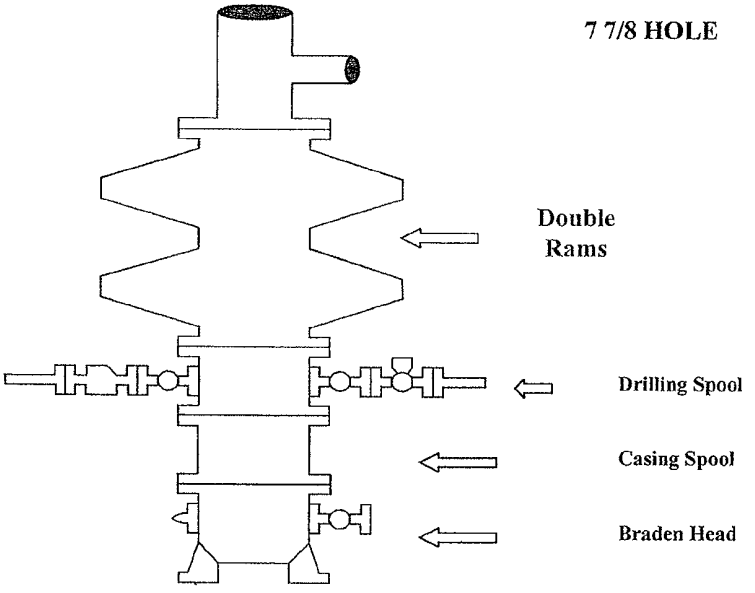
11. Anticipated Starting Date and Duration of Operations

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 15 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.


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

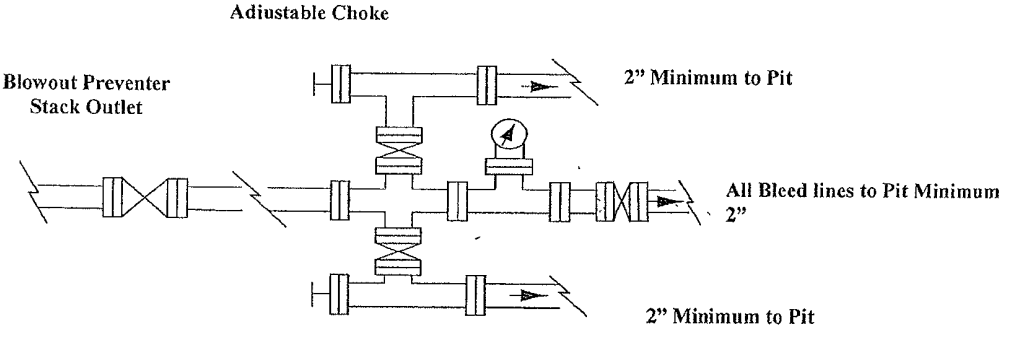
COG Operating LLC

Exhibit #9
BOPE and Choke Schematic



Minimum 4" Nominal choke and kill lines

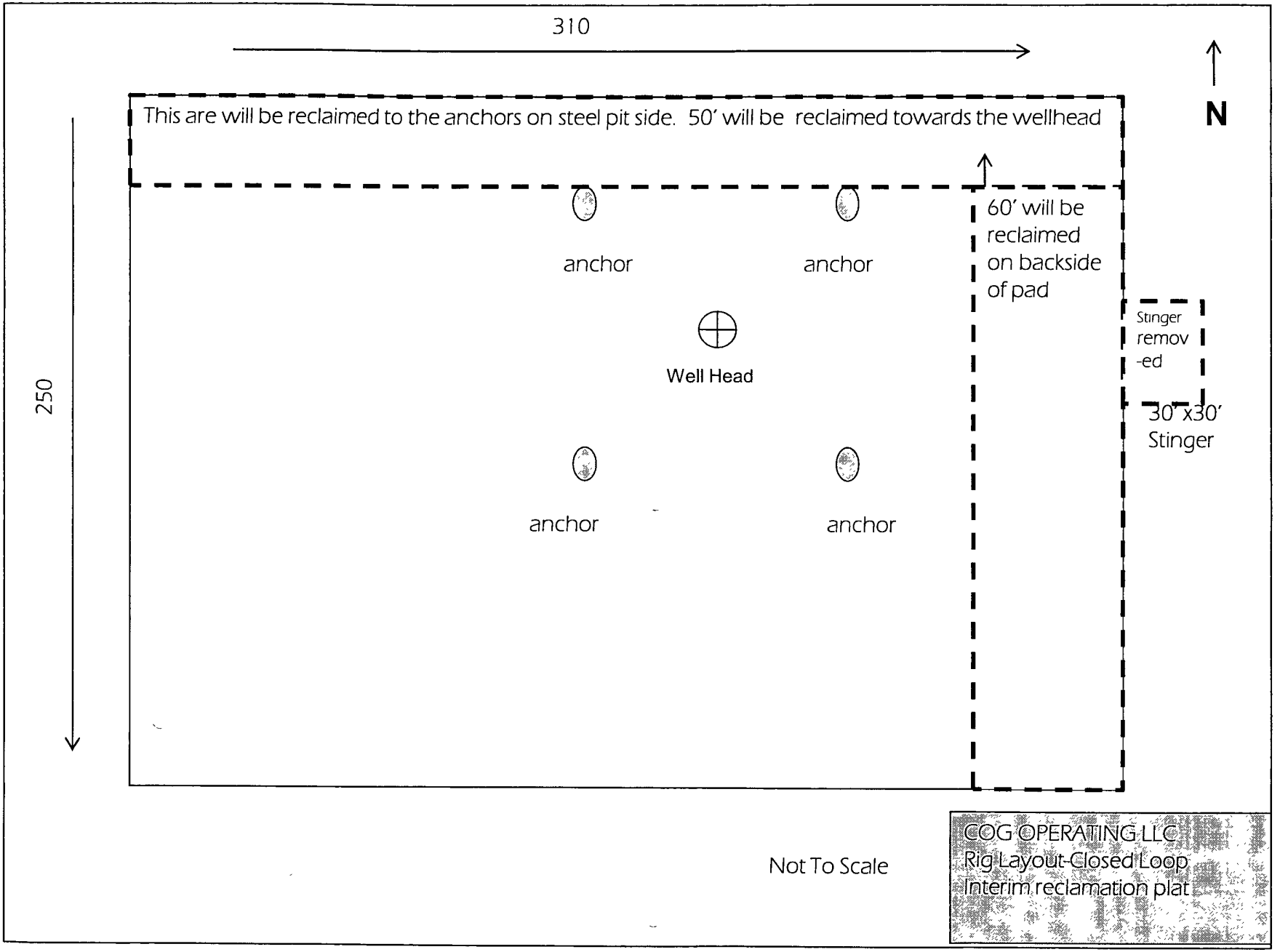
Choke Manifold Requirement (2000 psi WP)
No Annular Required



Adjustable Choke
(or Positive)

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.


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