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10-364

Form 3160-3
(April 2004)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

APPLICATION FOR PERMIT TO DRILL OR REENTER

5 Lease Serial No.	NMLC-029405B
6 If Indian, Allotee or Tribe Name	N/A
7 If Unit or CA Agreement, Name and No	N/A
8 Lease Name and Well No.	G C FEDERAL #61 <302498>
9. API Well No.	30-025 - 40227
10 Field and Pool, or Exploratory	Maljamar; Yeso, West 44500
11. Sec., T. R M or Blk and Survey or Area	Sec 19, T17S, R32E
12 County or Parish	Lea
13 State	NM

1a Type of work: ☑ DRILL ☐ REENTER

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

2 Name of Operator: COG Operating LLC <229137>

3a Address: 550 W. Texas, Suite 100 Midland TX 79701

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

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

At surface: SHL: 1726' FSL & 2053' FWL, Unit K

At proposed prod zone: BHL: 2310' FSL & 2310' FWL, Unit K

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

15. Distance from proposed* location to nearest property or lease line, ft (Also to nearest drig. unit line, if any)	1726'	16 No. of acres in lease	1602
17. Spacing Unit dedicated to this well	40		
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft	200'	19 Proposed Depth	7052' TVD; 7093' MD
20 BLM/BIA Bond No. on file	NMB000740		
21 Elevations (Show whether DF, KDB, RT, GL, etc)	3928' GL	22. Approximate date work will start*	06/30/2011
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: 05/02/2011
Title: Permitting Tech		
Approved by (Signature): /s/ Don Peterson	Name (Printed/Typed)	Date: AUG 8 2011
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)

KZ 08/11/11

Roswell Controlled Water Basin

Approval Subject to General Requirements & Special Stipulations Attached

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

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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 July 16, 2010
Submit to Appropriate District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
30-025 - 40227	44500	Maljamar; Yeso, West

Property Code	Property Name	Well Number
302498	GC FEDERAL	61

OGRID No.	Operator Name	Elevation
229137	COG OPERATING, LLC	3928'

Surface Location

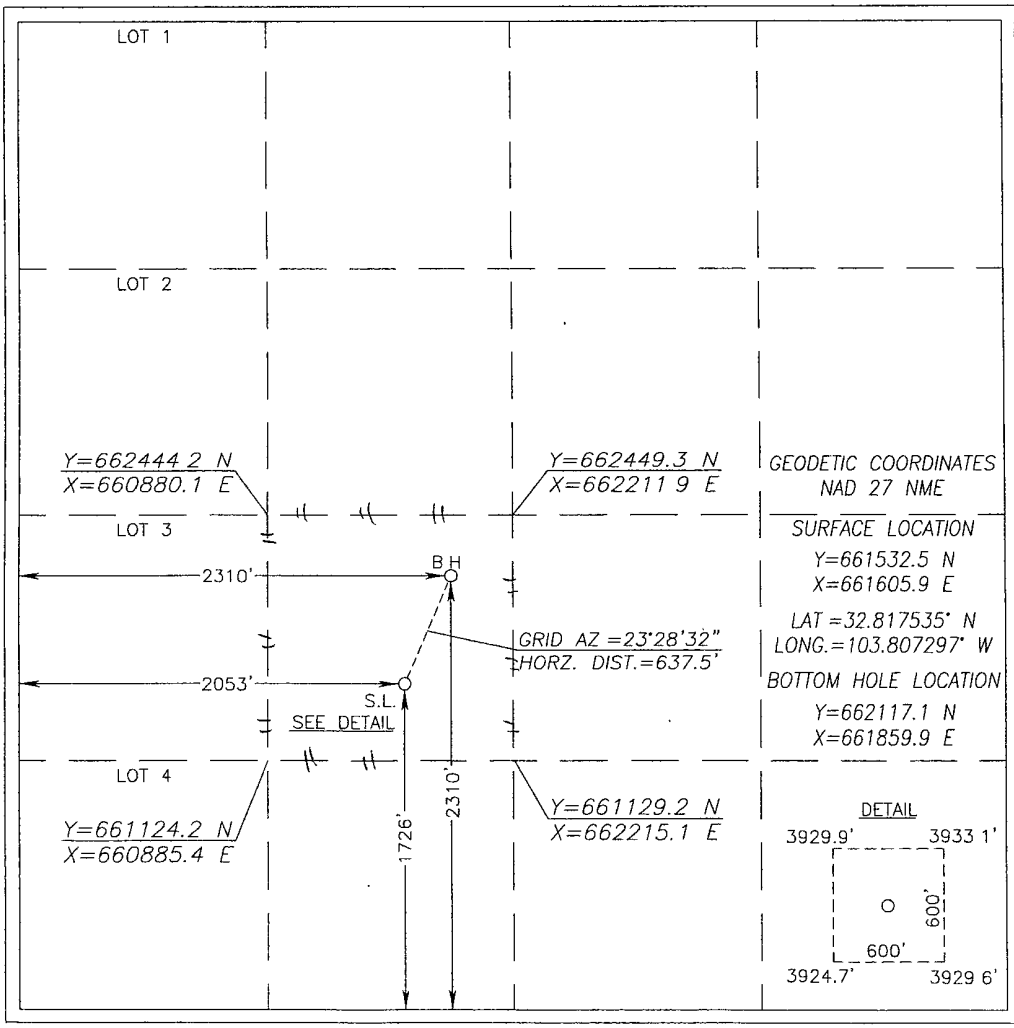
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
K	19	17-S	32-E		1726	SOUTH	2053	WEST	LEA

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
K	19	17-S	32-E		2310	SOUTH	2310	WEST	LEA

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.

Signature 5-2-11 Date

Kelly J. Holly
Printed Name

kholly@conchoresources.c
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.

APRIL 20, 2011
Date of Survey

Signature & Seal of Professional Surveyor:

RONALD J. EIDSON
NEW MEXICO
3239
REGISTERED PROFESSIONAL SURVEYOR

4/29/2011

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

LA JWSC W.O.: 11.11.0135

COG Operating LLC
Master Drilling Plan Revised 1-31-11
West 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
Rustler	680'
Top of Salt	900'
Base of Salt	1700'
Yates	2010'
Seven Rivers	2375'
Queen	2980'
Grayburg	3355'
San Andres	3700'
Glorietta	5260'
Paddock	5310'
Blinebry	5870'
Tubb	6810'

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

Water Sand	150'	Fresh Water
Grayburg	3355'	Oil/Gas
San Andres	3700'	Oil/Gas
Glorietta	5260'	Oil/Gas
Paddock	5310'	Oil/Gas
Blinebry	5870'	Oil/Gas
Tubb	6810'	Oil/Gas

*See COA

No other formations are expected to give up oil, gas or fresh water in measurable quantities. Setting 13 3/8" casing to 720' 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

Directional
7052' TVD 7093' MD

4. Casing Program

See COA

Hole Size	Interval	OD Casing	Weight	Grade	Jt., Condition	burst/collapse/tension
17 ½"	0-~~2054.75~~	13 3/8"	48#	H-40orJ-55	ST&C/New	6.03/2.578/10.32
11"	0-~~2100/2670~~	8 5/8"	24or32#	J-55	ST&C/New	1.85/1.241/4.78
7 7/8"	0-T.D. 7093	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:

LEAD Class C, 4% Gel, 2% CaCl2, .25 pps CF, 325 sx, yield-1.75 + TAIL 200 sx w/ 2% CaCl2, 0.25 pps CF, yield-1.32. 133% excess

8 5/8" Intermediate Casing:

11" Hole:
Single Stage: LEAD 50:50:10 C:Poz:Gel w/ 5% Salt +0.25% CF, 375 sx, yield-2.45 + TAIL Class C w/2% CaCl2, 200 sx, yield-1.32, back to surface. 133% excess
Multi-Stage: Stage 1: Class C w/2% CaCl2, 400 sx, yield - 1.32; 48% excess Stage 2: Class C w/2% CaCl2, 200 sx, yield – 1.32, back to surface, 48% excess; assumption for tool is lost circulation. Multi stage tool to be set at approximately, depending on hole conditions, 770' (50' below the surface casing). Cement volumes will be adjusted proportionately for depth changes of multi stage tool.

See COA

5 1/2" Production Casing:

Single Stage: LEAD 35:65:6 C:Poz:Gel w/ 5% Salt + 5 pps LCM + 0.2% SMS + 0.3% FL-52A + 0.125 pps CF, 500 sx, yield-2.05 + TAIL 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, 400 sx, yield-1.37, (to 200' minimum tie back to intermediate casing. 30% excess back to surface.) ?
Multi-Stage: Stage 1: (Assumed TD of 7000') 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, 500 sx, yield - 1.37, 13% excess; minimum volume, will be adjusted up after caliper is run. Stage 2: LEAD 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, 450 sx, yield - 1.37, + TAIL Class C w/ 0.3% R-3 + 1.5% CD-32, 250 sx, yield – 1.02 43% excess calculated back to surface. Multi stage tool to be set at approximately, depending on hole conditions, 3500'. Cement volumes will be adjusted proportionately for depth changes of multi stage tool, assumption for tool is water flow.

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, 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.

See COA

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.

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:

See COA

DEPTH	TYPE	WEIGHT	VISCOSITY	WATERLOSS
0-720'	Fresh Water	8.5	28	N.C.
720-2100'	Brine	10	30	N.C.
2100'-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 See COA

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 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.

CONCHO

COG Operating LLC

Lea County, NM (NAD27 NME)
GC Federal #61
GC Federal #61

OH

Plan: Plan #2 - 7-7/8" Hole
SHL = 1726' FSL & 2053' FWL
BHL = 2260' FSL & 2260' FWL
Paddock Top = 441' N of Surface & 168' E of Surface @ 5260' TVD

Standard Planning Report

05 May, 2011

Scientific Drilling
Directional Drilling Operations

Database:	EDM-Julio	**Local Co-ordinate Reference:**	Well GC Federal #61
Company:	COG Operating LLC	**TVD Reference:**	GL Elev @ 3928 00usft
Project:	Lea County, NM (NAD27 NME)	**MD Reference:**	GL Elev @ 3928.00usft
Site:	GC Federal #61	**North Reference:**	Grid
Well:	GC Federal #61	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #2 - 7-7/8" Hole		

Project Lea County, NM (NAD27 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 GC Federal #61

Site Position:		**Northing:**	661,532 50 usft	**Latitude:**	32° 49' 3 127 N
From:	Map	**Easting:**	661,605.90 usft	**Longitude:**	103° 48' 26 270 W
Position Uncertainty:	0 00 usft	**Slot Radius:**	0 "	**Grid Convergence:**	0.29 °

Well GC Federal #61

Well Position	**+N/-S**	0.00 usft	**Northing:**	661,532 50 usft	**Latitude:**	32° 49' 3 127 N
	+E/-W	0 00 usft	**Easting:**	661,605 90 usft	**Longitude:**	103° 48' 26 270 W
Position Uncertainty		0 00 usft	**Wellhead Elevation:**		**Ground Level:**	3,928 00 usft

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2011/05/05	7 75	60 70	48,956

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	20 89

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0 00	0 00	0 00	0 00	0 00	0.00	0.00	0 00	0 00	0 00	
2,200.00	0 00	0 00	2,200 00	0 00	0 00	0 00	0 00	0.00	0.00	
2,696 67	9 93	20.89	2,694 19	40.12	15 31	2 00	2 00	0 00	20 89	
4,961.87	9 93	20 89	4,925.43	405.20	154 62	0 00	0 00	0 00	0 00	
5,298.84	3 19	20 89	5,260 00	441 17	168 35	2 00	-2 00	0 00	180 00	PP-GCF #61
7,093 63	3 19	20 89	7,052 00	534.60	204.00	0 00	0 00	0 00	0 00	PBHL-GCF #61

Database:	EDM-Julio	**Local Co-ordinate Reference:**	Well GC Federal #61
Company:	COG Operating LLC	**TVD Reference:**	GL Elev @ 3928 00usft
Project:	Lea County, NM (NAD27 NME)	**MD Reference:**	GL Elev @ 3928 00usft
Site:	GC Federal #61	**North Reference:**	Grid
Well:	GC Federal #61	**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
South HL-GCF #61 - West HL-GCF #61									
2,100.00	0 00	0 00	2,100 00	0.00	0.00	0 00	0.00	0 00	0 00
8 5/8" Casing									
2,200 00	0 00	0 00	2,200 00	0 00	0.00	0 00	0.00	0 00	0 00
KOP Start Build 2.00°/100'									
2,300.00	2 00	20 89	2,299 98	1 63	0.62	1 75	2 00	2.00	0 00
2,400.00	4 00	20 89	2,399 84	6.52	2.49	6 98	2 00	2 00	0 00
2,500 00	6.00	20 89	2,499.45	14 66	5.60	15 69	2 00	2 00	0 00
2,600 00	8 00	20 89	2,598.70	26 05	9.94	27 88	2.00	2 00	0 00
2,696 67	9 93	20 89	2,694.19	40 12	15.31	42 95	2 00	2 00	0 00
EOC hold 9.93°									
2,700 00	9 93	20 89	2,697.47	40.66	15.52	43 52	0 00	0 00	0 00
2,800 00	9.93	20 89	2,795.97	56 78	21 67	60 77	0 00	0 00	0.00
2,900.00	9.93	20 89	2,894 47	72 89	27 82	78 02	0 00	0 00	0 00
3,000.00	9.93	20 89	2,992.97	89 01	33 97	95 27	0.00	0 00	0 00
3,100 00	9 93	20 89	3,091.47	105 13	40 12	112.52	0.00	0 00	0 00
3,200 00	9 93	20 89	3,189 97	121 25	46 27	129.77	0 00	0 00	0 00
3,300 00	9 93	20 89	3,288 47	137 36	52 42	147.02	0 00	0 00	0 00
3,400 00	9 93	20 89	3,386 97	153 48	58 57	164 27	0 00	0 00	0 00
3,500 00	9 93	20 89	3,485.47	169 60	64.72	181 52	0 00	0 00	0 00
3,600 00	9.93	20 89	3,583 97	185 71	70 87	198 77	0 00	0 00	0 00
3,700 00	9 93	20 89	3,682 47	201 83	77 02	216 03	0.00	0 00	0 00
3,800.00	9 93	20 89	3,780 98	217 95	83.17	233 28	0 00	0.00	0 00
3,900 00	9 93	20 89	3,879.48	234 06	89 32	250.53	0 00	0 00	0 00
4,000 00	9 93	20 89	3,977 98	250 18	95 47	267 78	0 00	0 00	0 00
4,100 00	9 93	20.89	4,076.48	266.30	101 62	285 03	0.00	0 00	0 00
4,200 00	9 93	20 89	4,174 98	282 41	107 77	302 28	0 00	0 00	0 00
4,300 00	9.93	20.89	4,273 48	298 53	113 92	319 53	0 00	0 00	0 00
4,400.00	9 93	20.89	4,371.98	314.65	120.07	336 78	0 00	0 00	0 00
4,500 00	9 93	20 89	4,470 48	330 76	126 22	354 03	0 00	0 00	0 00
4,600 00	9 93	20 89	4,568 98	346 88	132.37	371 28	0 00	0 00	0 00
4,700 00	9 93	20 89	4,667 48	363.00	138 52	388 53	0 00	0 00	0 00
4,800.00	9.93	20 89	4,765.98	379 12	144.67	405.78	0.00	0 00	0 00
4,900 00	9 93	20 89	4,864 49	395 23	150 82	423 03	0 00	0 00	0 00
4,961.87	9 93	20 89	4,925 43	405 20	154 62	433 70	0.00	0.00	0.00
Start Drop 2.00°/100'									
5,000.00	9 17	20 89	4,963 03	411 12	156 88	440 03	2.00	-2 00	0 00
5,100 00	7 17	20 89	5,062 01	424 39	161 95	454 24	2 00	-2.00	0.00
5,200 00	5 17	20 89	5,161 42	434 44	165 78	464 99	2 00	-2 00	0 00
5,298 84	3 19	20 89	5,260 00	441.17	168 35	472 20	2 00	-2 00	0 00
EOC hold 3.19° - Top of Paddock - PP-GCF #61									
5,300.00	3 19	20 89	5,261 15	441 23	168.37	472.26	0 00	0 00	0 00
5,400 00	3 19	20 89	5,361 00	446 44	170.36	477.84	0 00	0 00	0 00
5,500 00	3 19	20 89	5,460 84	451.64	172.34	483.41	0 00	0 00	0 00
5,600 00	3 19	20 89	5,560 69	456 85	174 33	488 98	0 00	0 00	0 00
5,700 00	3.19	20 89	5,660.53	462 05	176 32	494 55	0 00	0 00	0 00
5,800 00	3 19	20 89	5,760 38	467 26	178 30	500 12	0 00	0 00	0.00
5,900 00	3 19	20 89	5,860 22	472.46	180 29	505 69	0 00	0 00	0 00
6,000 00	3 19	20 89	5,960.07	477 67	182.28	511.27	0 00	0 00	0 00
6,100 00	3 19	20 89	6,059 91	482 88	184 26	516 84	0 00	0.00	0 00
6,200 00	3 19	20.89	6,159 76	488 08	186 25	522 41	0.00	0 00	0 00
6,300.00	3 19	20 89	6,259.60	493 29	188 24	527 98	0.00	0 00	0 00

Database:	EDM-Julio	**Local Co-ordinate Reference:**	Well GC Federal #61
Company:	COG Operating LLC	**TVD Reference:**	GL Elev @ 3928 00usft
Project:	Lea County, NM (NAD27 NME)	**MD Reference:**	GL Elev @ 3928 00usft
Site:	GC Federal #61	**North Reference:**	Grid
Well:	GC Federal #61	**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)
6,400 00	3 19	20 89	6,359 45	498 49	190 22	533 55	0 00	0.00	0.00
6,500 00	3 19	20 89	6,459.29	503 70	192.21	539 12	0 00	0 00	0 00
6,600 00	3 19	20 89	6,559 13	508.90	194 19	544 70	0 00	0 00	0 00
6,700 00	3 19	20 89	6,658 98	514 11	196.18	550 27	0 00	0 00	0 00
6,800 00	3 19	20.89	6,758 82	519 31	198 17	555.84	0.00	0 00	0 00
6,900 00	3 19	20.89	6,858 67	524 52	200 15	561 41	0 00	0 00	0 00
7,000 00	3 19	20 89	6,958 51	529 73	202 14	566 98	0 00	0.00	0 00
7,093.63	3 19	20 89	7,052 00	534 60	204 00	572.20	0 00	0 00	0 00
PBHL-GCF #61									

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
South HL-GCF #61	0 00	0 00	0 00	584.60	254 00	662,117 10	661,859 90	32° 49' 8 899 N	103° 48' 23 260 W
- plan misses target center by 637 40usft at 0 00usft MD (0 00 TVD, 0 00 N, 0 00 E)									
- Rectangle (sides W200 00 H0.00 D0.00)									
West HL-GCF #61	0 00	0 00	0 00	584 60	254 00	662,117 10	661,859 90	32° 49' 8 899 N	103° 48' 23 260 W
- plan misses target center by 637 40usft at 0 00usft MD (0.00 TVD, 0 00 N, 0 00 E)									
- Rectangle (sides W0 00 H200 00 D0 00)									
PP-GCF #61	0 00	0 01	5,260 00	441 17	168 35	661,973 68	661,774 25	32° 49' 7 484 N	103° 48' 24.272 W
- plan hits target center									
- Point									
PBHL-GCF #61	0 00	0 00	7,052 00	534 60	204 00	662,067.10	661,809 90	32° 49' 8 407 N	103° 48' 23 849 W
- plan hits target center									
- Circle (radius 50 00)									

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
2,100 00	2,100.00	8 5/8" Casing	8-5/8	10-5/8

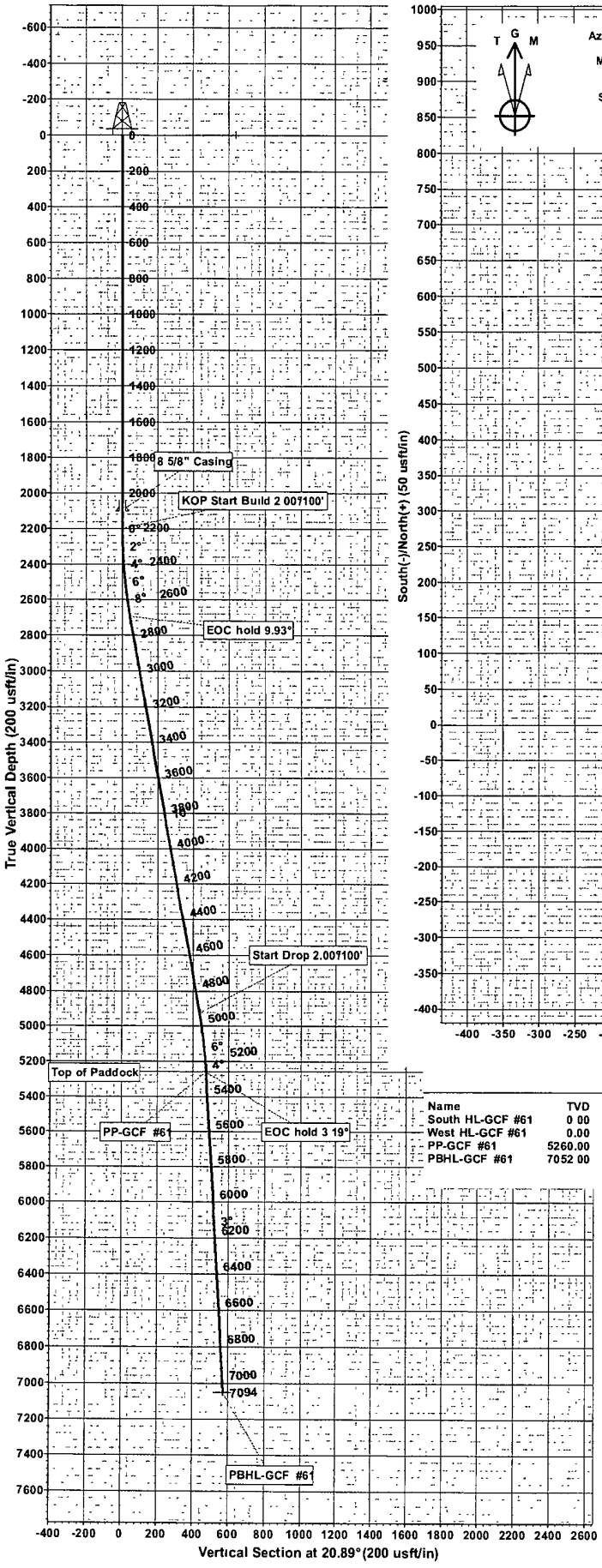
Formations

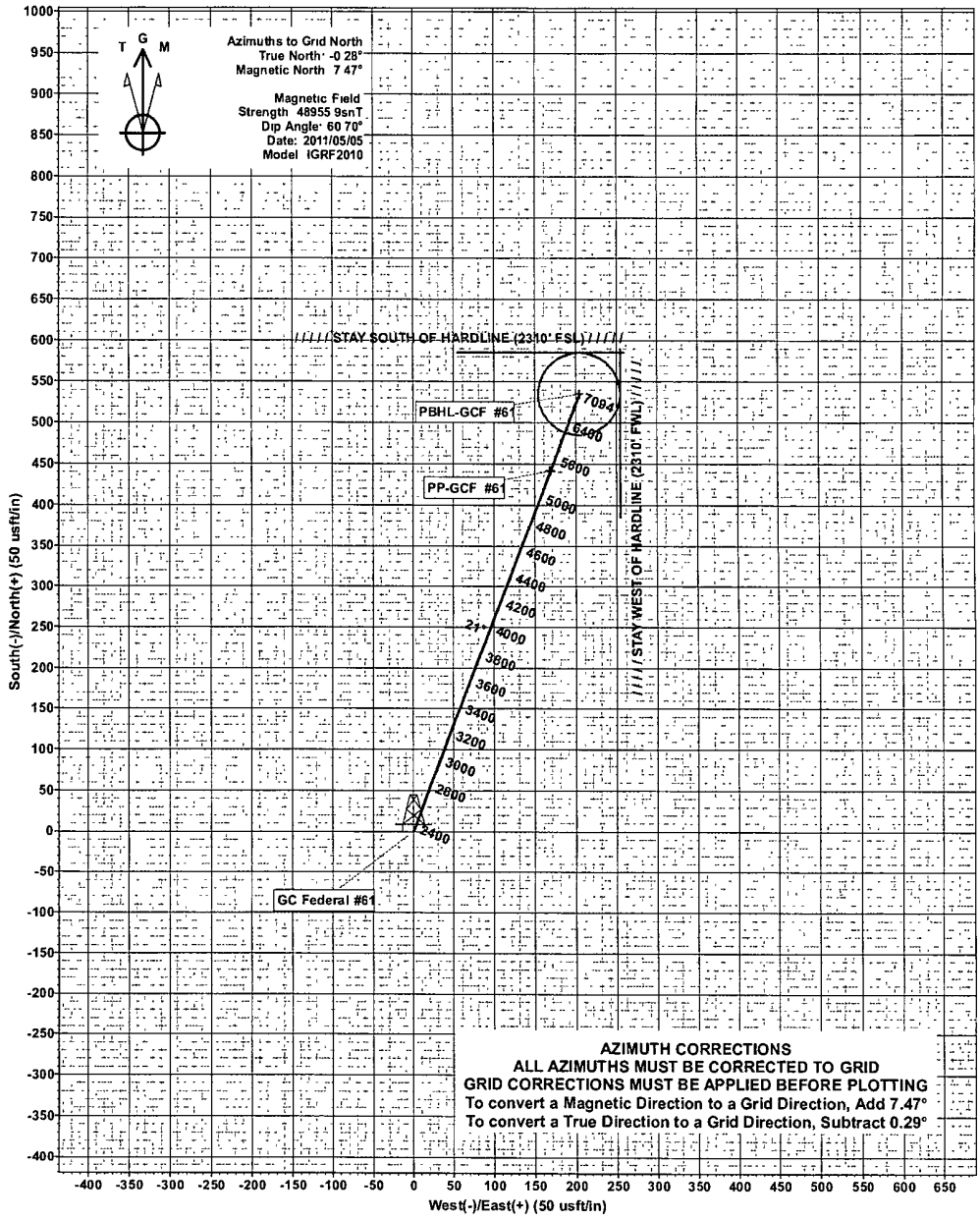
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
5,298.84	5,260 00	Top of Paddock		0.00	

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
2,200 00	2,200 00	0 00	0 00	KOP Start Build 2.00°/100'
2,696 67	2,694 19	40 12	15 31	EOC hold 9.93°
4,961 87	4,925 43	405 20	154 62	Start Drop 2 00°/100'
5,298 84	5,260 00	441 17	168 35	EOC hold 3 19°

Scientific Drilling for COG Operating LLC
Site: Lea County, NM (NAD27 NME)
Well: GC Federal #61
Wellbore: OH
Design: Plan #2 - 7-7/8" Hole





AZIMUTH CORRECTIONS
ALL AZIMUTHS MUST BE CORRECTED TO GRID
GRID CORRECTIONS MUST BE APPLIED BEFORE PLOTTING
To convert a Magnetic Direction to a Grid Direction, Add 7.47°
To convert a True Direction to a Grid Direction, Subtract 0.29°

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
South HL-GCF #61	0 00	584.60	254.00	662117 10	661859 90	32° 49' 8.899 N	103° 48' 23.260 W	Rectangle (Sides: L0 .00 W200.00)
West HL-GCF #61	0.00	584.60	254 00	662117 10	661859 90	32° 49' 8.899 N	103° 48' 23.260 W	Rectangle (Sides: L20 0 00 W0.00)
PP-GCF #61	5260.00	441.17	168 35	661973.67	661774.25	32° 49' 7 484 N	103° 48' 24.272 W	Point
PBHL-GCF #61	7052 00	534.60	204.00	662067.10	661809.90	32° 49' 8 407 N	103° 48' 23.849 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	2200.00	0.00	0.00	2200 00	0.00	0 00	0.00	0.00	0.00	
3	2696 67	9.93	20.89	2694.19	40.12	15.31	2 00	20.89	42 95	
4	4961.87	9 93	20.89	4925.43	405 20	154.62	0 00	0 00	433.70	
5	5298.84	3.19	20.89	5260 00	441.17	168.35	2 00	180.00	472 20	PP-GCF #61
6	7093.63	3.19	20.89	7052.00	534 60	204.00	0 00	0 00	572.20	PBHL-GCF #61

WELL DETAILS: GC Federal #61

Ground Level. 3928.00

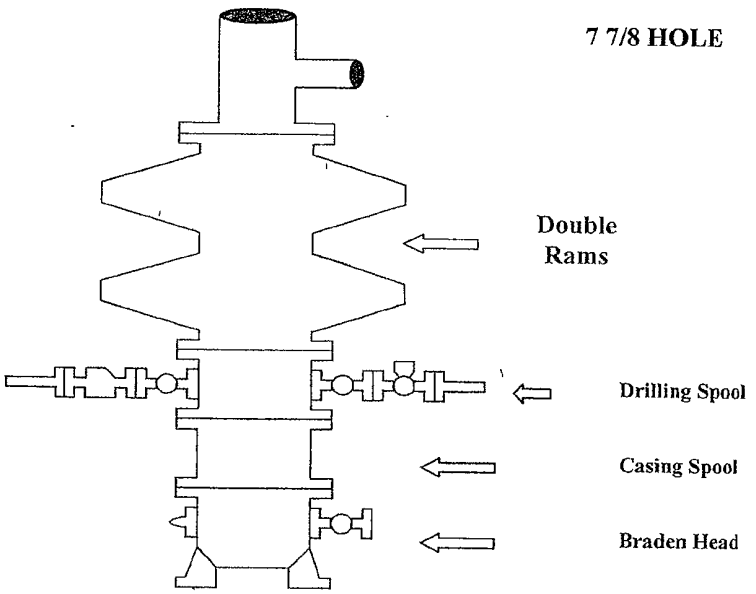
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0 00	0 00	661532.50	661605 90	32° 49' 3 127 N	103° 48' 2 6.270 W	

PROJECT DETAILS: Lea County, NM (NAD27 NME) — Plan: Plan #2 - 7-7/8" Hole (GC Federal #61/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

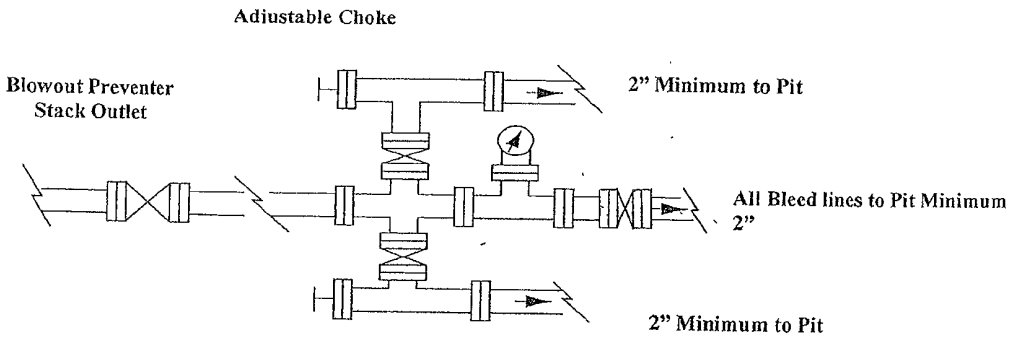
Created By: Julio Pina — Date: 05-May-11
Checked: _____ Date: _____
Reviewed _____ Date: _____
Approved: _____ Date: _____

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.

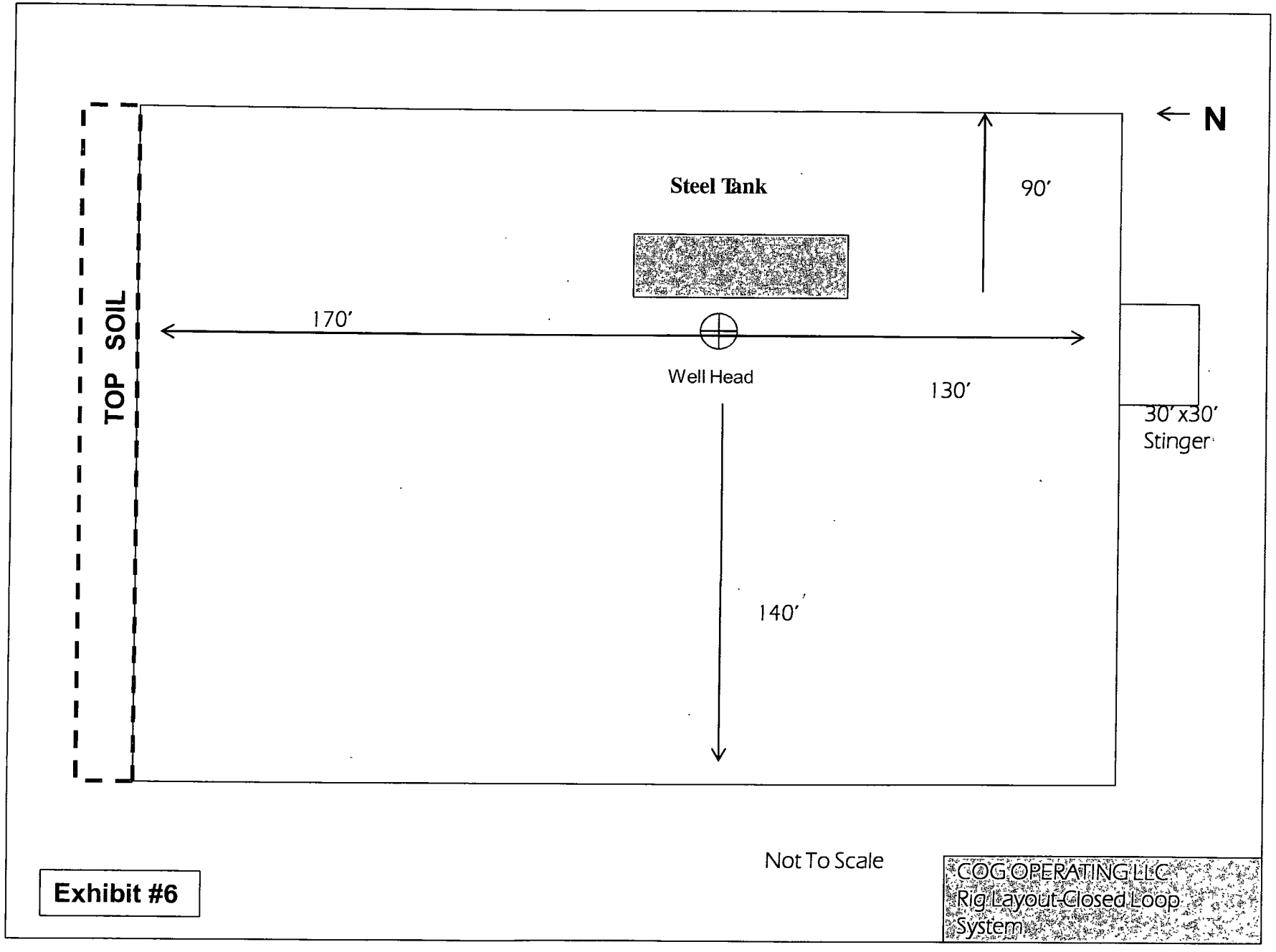

N
Steel Tank
90'
TOP SOIL
170'
Well Head
130'
30' x30'
Stinger
140'
Not To Scale
COG OPERATING LLC
Rig Layout-Closed Loop
System

Exhibit #6