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ATS-10-357

OCD Hobbs

Form 3160-3
(April 2004)

JUL 30 2010
HOBBSOCD

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

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

1a. Type of work: ☒ DRILL ☐ REENTER		5 Lease Serial No. NMLC-029405B
1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☐ Single Zone ☐ Multiple Zone		6 If Indian, Allottee or Tribe Name N/A
2 Name of Operator COG Operating LLC		7 If Unit or CA Agreement, Name and No. N/A
3a. Address 550 W. Texas, Suite 1300 Midland TX 79701		8 Lease Name and Well No. <302498> G C FEDERAL #43
3b. Phone No. (include area code) <229137> (432) 685-4385		9 API Well No. 30-025- 39858
4 Location of Well (Report location clearly and in accordance with any State requirements *) At surface SHL: 380' FSL & 1970' FWL, Unit N At proposed prod. zone BHL: 990' FSL & 1650' FWL, Unit N		10 Field and Pool, or Exploratory Maljamar; Yeso, West 44500
11 Sec., T. R. M. or Blk. and Survey or Area See 20, T17S, R32E		12 County or Parish Lea
13 State NM		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) 380'	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 650'	19 Proposed Depth 7100' TVD 7159' MD	20 BLM/BIA Bond No. on file NMB000215
21 Elevations (Show whether DF, KDB, RT, GL, etc.) 3959' GL	22 Approximate date work will start* 07/31/2010	23 Estimated duration 10 days

24. Attachments

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

- | | |
|--|---|
| 1. Well plat certified by a registered surveyor | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). |
| 2. A Drilling Plan. | 5. Operator certification |
| 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) | 6. Such other site specific information and/or plans as may be required by the authorized officer |

25. Signature 	Name (Printed/Typed) Robyn M. Odom	Date 04/19/2010
Title Regulatory Analyst		

Approved by (Signature) /s/ Don Peterson	Name (Printed/Typed)	Date JUL 29 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 USC 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

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

**APPROVAL SUBJECT TO
GENERAL REQUIREMENTS
AND SPECIAL STIPULATIONS
ATTACHED**

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State of New Mexico

DISTRICT I

1625 N. FRENCH DR., HOBBBS, NM 88240

Energy, Minerals and Natural Resources Department

Form C-102

Revised October 12, 2005

Submit to Appropriate District Office

State Lease - 4 Copies

Fee Lease - 3 Copies

DISTRICT II

1301 W. GRAND AVENUE, ARTESIA, NM 88210

HOBBSDO

OIL CONSERVATION DIVISION

1220 SOUTH ST. FRANCIS DR.
Santa Fe, New Mexico 87505

DISTRICT III

1000 Rio Brazos Rd., Aztec, NM 87410

DISTRICT IV

1220 S. ST. FRANCIS DR., SANTA FE, NM 87505

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number 30-025- 32858	Pool Code 44500	Pool Name MALJAMAR; YESO, WEST
Property Code 302498	Property Name GC FEDERAL	Well Number 43
OGRID No. 229137	Operator Name COG OPERATING, LLC	Elevation 3959'

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		380	SOUTH	1970	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
N	20	17-S	32-E		990	SOUTH	1650	WEST	LEA
Dedicated Acres 40	Joint or Infill	Consolidation Code	Order No.						

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 4/19/2010
Signature Date

Robyn Odom
Printed Name

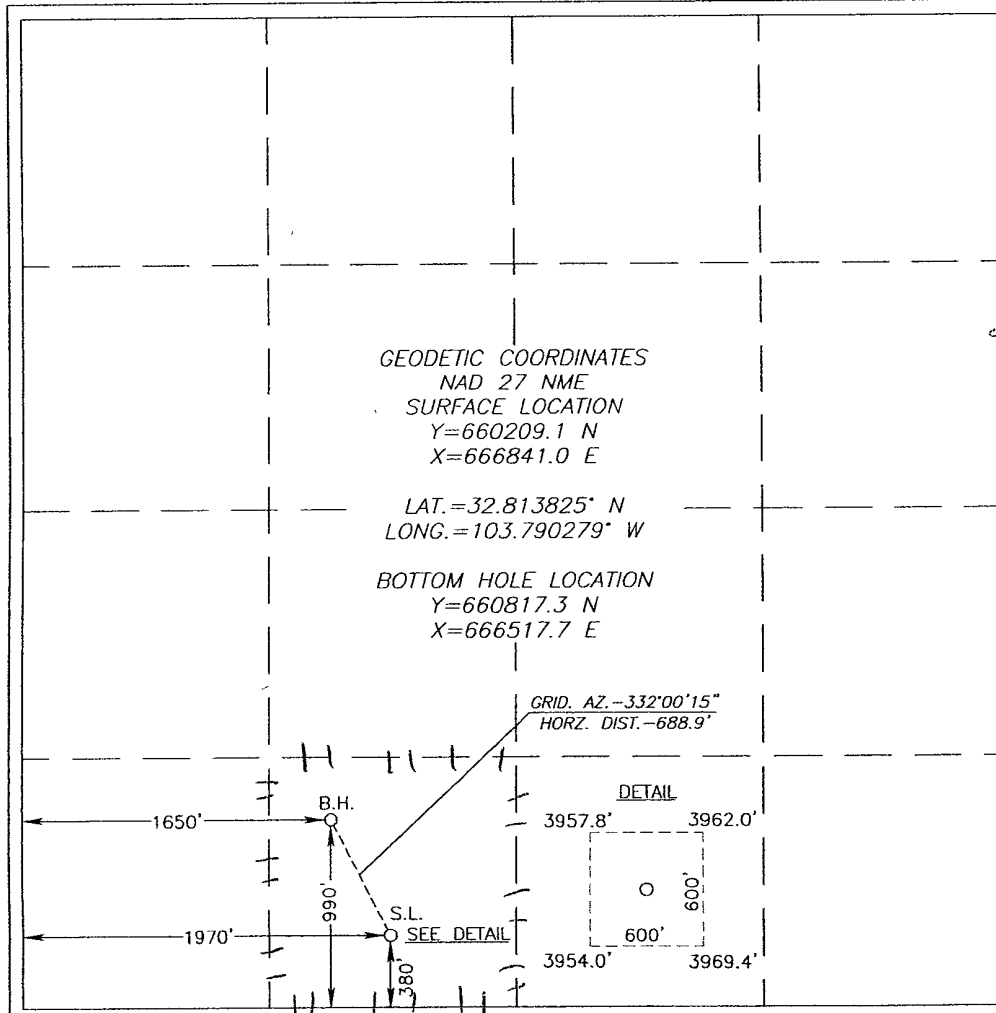
SURVEYOR CERTIFICATION

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.

GARY G. EIDSON
APPROVED
Date Surveyed 12641
Signature & Seal of Professional Surveyor

GARY G. EIDSON 4/14/10
10.11.0032

Certificate No. GARY EIDSON 12641
RONALD J. EIDSON 3239



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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

See
CoA { 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.

4. Casing Program

see COA ←

Hole Size	Interval	OD Casing	Weight	Grade	Jt., Condition	burst/collapse/tension
17 1/2"	0-650' TD	13 3/8"	48#	H-40orJ-55	ST&C/New	6.03/2.578/10.32
11" or 12 1/4"	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

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, ~~TD - 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 nipped up on the 13 3/8" surface casing with BOP equipment and tested ~~together to 1000 psi by rig pump in one test.~~ The BOP will then be nipped 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.

See
CoA

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'	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 1/2" 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.



COG Operating LLC

Lea County, NM (NAD27 NME)

GC Federal #43

GC Federal #43

OH

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Plan: Plan #1 - 7-7/8" Hole

SHL = 380' FSL & 1970' FWL

BHL = 980' FSL & 1660' FWL

Top of Paddock = 980' FSL & 1660' FWL @ 5400' TVD

Standard Planning Report

20 May, 2010



Scientific Drilling
Directional Drilling Operations



Scientific Drilling
Planning Report



Database:	EDM 5000 1: Single User, Db	Local Co-ordinate Reference:	Well GC Federal #43
Company:	COG Operating LLC	TVD Reference:	GL Elev. @ 3959.00ft
Project:	Lea County, NM (NAD27 NME)	MD Reference:	GL Elev @ 3959.00ft
Site:	GC Federal #43	North Reference:	Grid
Well:	GC Federal #43	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1 - 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 #43		
Site Position:		Northing:	660,209 10 ft
From:	Map	Easting:	666,841 00 ft
Position Uncertainty:	0 00 ft	Slot Radius:	0 "
		Latitude:	32° 48' 49.770 N
		Longitude:	103° 47' 25.007 W
		Grid Convergence:	0 29 °

Well	GC Federal #43		
Well Position	+N/-S	0 00 ft	Northing:
	+E/-W	0 00 ft	Easting:
Position Uncertainty	0.00 ft	Wellhead Elevation:	Ground Level:
			3,959 00 ft

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF200510	2010/05/20	7 85
			Dip Angle
			(°)
			60 74
			Field Strength
			(nT)
			49,083

Design	Plan #1 - 7-7/8" Hole		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth:
			0 00
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(ft)	(ft)	(ft)
	0 00	0.00	0 00
			Direction
			(°)
			332 36

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	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	
2,790 32	11.81	332 36	2,786.16	53 69	-28 12	2.00	2.00	0 00	332 36	
5,033 70	11.81	332 36	4,982.07	460 31	-241 08	0 00	0 00	0 00	0 00	
5,455 70	3.37	332 36	5,400 00	509 62	-266 91	2 00	-2.00	0 00	-180 00	TG1-GC #43
7,158 64	3.37	332 36	7,100.00	598 20	-313 30	0 00	0.00	0.00	0 00	PBHL-GC #43



Scientific Drilling
Planning Report



Database:	EDM 5000 1 Single User Db	Local Co-ordinate Reference:	Well GC Federal #43
Company:	COG Operating LLC	TVD Reference:	GL Elev @ 3959 00ft
Project:	Lea County, NM (NAD27 NME)	MD Reference:	GL Elev @ 3959 00ft
Site:	GC Federal #43	North Reference:	Grd
Well:	GC Federal #43	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1 - 7-7/8" Hole		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	N/S (ft)	E/W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0 00	0 00	0 00	0 00	0 00	0 00	0 00	0.00	0 00	0 00
West HL-GC #43 - South HL-GC #43									
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	332.36	2,299 98	1 55	-0.81	1 75	2 00	2 00	0 00
2,400 00	4 00	332.36	2,399 84	6.18	-3.24	6 98	2 00	2 00	0 00
2,500 00	6 00	332 36	2,499 45	13 90	-7 28	15 69	2 00	2 00	0 00
2,600 00	8 00	332 36	2,598 70	24 70	-12 94	27 88	2 00	2 00	0 00
2,700 00	10 00	332 36	2,697 47	38 55	-20 19	43 52	2 00	2 00	0 00
2,790 32	11.81	332 36	2,786 16	53 69	-28 12	60.61	2.00	2 00	0 00
EOC Hold 11.81°									
2,800 00	11 81	332 36	2,795 63	55 44	-29 04	62 59	0 00	0 00	0 00
2,900 00	11 81	332 36	2,893 51	73 57	-38 53	83.05	0 00	0.00	0 00
3,000 00	11.81	332 36	2,991 40	91 69	-48 02	103 51	0 00	0.00	0 00
3,100 00	11 81	332 36	3,089.28	109 82	-57 52	123 97	0.00	0 00	0 00
3,200.00	11 81	332 36	3,187.16	127 94	-67 01	144 43	0 00	0 00	0.00
3,300.00	11 81	332 36	3,285 05	146 07	-76 50	164 89	0 00	0 00	0.00
3,400 00	11 81	332 36	3,382 93	164 19	-85.99	185 35	0 00	0 00	0.00
3,500 00	11.81	332 36	3,480 82	182 32	-95.49	205.81	0 00	0 00	0 00
3,600 00	11 81	332 36	3,578 70	200.44	-104 98	226 27	0 00	0 00	0 00
3,700 00	11 81	332 36	3,676 59	218 57	-114 47	246 73	0 00	0.00	0 00
3,800 00	11 81	332 36	3,774 47	236 70	-123 97	267.19	0 00	0 00	0.00
3,900 00	11 81	332 36	3,872 36	254 82	-133 46	287 65	0 00	0 00	0.00
4,000 00	11 81	332 36	3,970 24	272 95	-142 95	308 11	0 00	0 00	0.00
4,100.00	11 81	332 36	4,068 12	291.07	-152 45	328 58	0 00	0 00	0.00
4,200.00	11.81	332.36	4,166 01	309 20	-161 94	349 04	0 00	0 00	0 00
4,300 00	11 81	332 36	4,263 89	327 32	-171 43	369 50	0 00	0 00	0 00
4,400 00	11 81	332 36	4,361 78	345 45	-180 92	389 96	0 00	0 00	0 00
4,500 00	11 81	332 36	4,459 66	363.57	-190 42	410 42	0 00	0 00	0 00
4,600 00	11 81	332 36	4,557 55	381 70	-199 91	430 88	0 00	0 00	0.00
4,700 00	11 81	332 36	4,655.43	399 82	-209 40	451 34	0 00	0 00	0.00
4,800 00	11 81	332 36	4,753.31	417 95	-218 90	471 80	0 00	0 00	0 00
4,900 00	11 81	332 36	4,851 20	436 07	-228 39	492 26	0 00	0.00	0 00
5,000 00	11 81	332 36	4,949.08	454 20	-237 88	512.72	0 00	0 00	0 00
5,033.70	11 81	332 36	4,982 07	460 31	-241 08	519 62	0 00	0 00	0 00
Start DLS 2.00°/100'									
5,100 00	10 48	332 36	5,047 12	471 66	-247.02	532 43	2 00	-2 00	0.00
5,200 00	8 48	332 36	5,145 75	486 25	-254 67	548 90	2 00	-2 00	0.00
5,300 00	6 48	332 36	5,244 89	497 78	-260 71	561 92	2 00	-2 00	0 00
5,400 00	4.48	332 36	5,344 43	506 24	-265 14	571 47	2 00	-2 00	0 00
5,455 70	3.37	332 36	5,400 00	509 62	-266 91	575 28	2 00	-2.00	0 00
EOC Hold 3.37° - TG1-GC #43									
5,500 00	3 37	332 36	5,444 22	511 92	-268 11	577 88	0 00	0 00	0 00
5,600 00	3 37	332 36	5,544 05	517 12	-270 84	583 75	0 00	0 00	0 00
5,700 00	3 37	332 36	5,643.88	522 32	-273 56	589.63	0 00	0 00	0 00
5,800 00	3 37	332 36	5,743 70	527 53	-276 29	595.50	0 00	0 00	0 00
5,900 00	3 37	332 36	5,843 53	532.73	-279.01	601.37	0 00	0 00	0 00
6,000 00	3 37	332 36	5,943 36	537 93	-281 73	607 24	0 00	0 00	0 00
6,100.00	3.37	332 36	6,043 19	543.13	-284 46	613.11	0 00	0 00	0 00
6,200 00	3.37	332 36	6,143 01	548 33	-287 18	618 99	0 00	0 00	0 00
6,300.00	3 37	332 36	6,242.84	553 54	-289.91	624.86	0 00	0 00	0 00



Scientific Drilling Planning Report



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well GC Federal #43
Company:	COG Operating LLC	TVD Reference:	GL Elev @ 3959.00ft
Project:	Lea County NM (NAD27 NME)	MD Reference:	GL Elev @ 3959.00ft
Site:	GC Federal #43	North Reference:	Grid
Well:	GC Federal #43	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1 - 7-7/8" Hole		

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
6,400.00	3.37	332.36	6,342.67	558.74	-292.63	630.73	0.00	0.00	0.00
6,500.00	3.37	332.36	6,442.50	563.94	-295.36	636.60	0.00	0.00	0.00
6,600.00	3.37	332.36	6,542.32	569.14	-298.08	642.47	0.00	0.00	0.00
6,700.00	3.37	332.36	6,642.15	574.34	-300.80	648.35	0.00	0.00	0.00
6,800.00	3.37	332.36	6,741.98	579.54	-303.53	654.22	0.00	0.00	0.00
6,900.00	3.37	332.36	6,841.81	584.75	-306.25	660.09	0.00	0.00	0.00
7,000.00	3.37	332.36	6,941.63	589.95	-308.98	665.96	0.00	0.00	0.00
7,100.00	3.37	332.36	7,041.46	595.15	-311.70	671.83	0.00	0.00	0.00
7,158.64	3.37	332.36	7,100.00	598.20	-313.30	675.28	0.00	0.00	0.00
PBHL-GC #43									

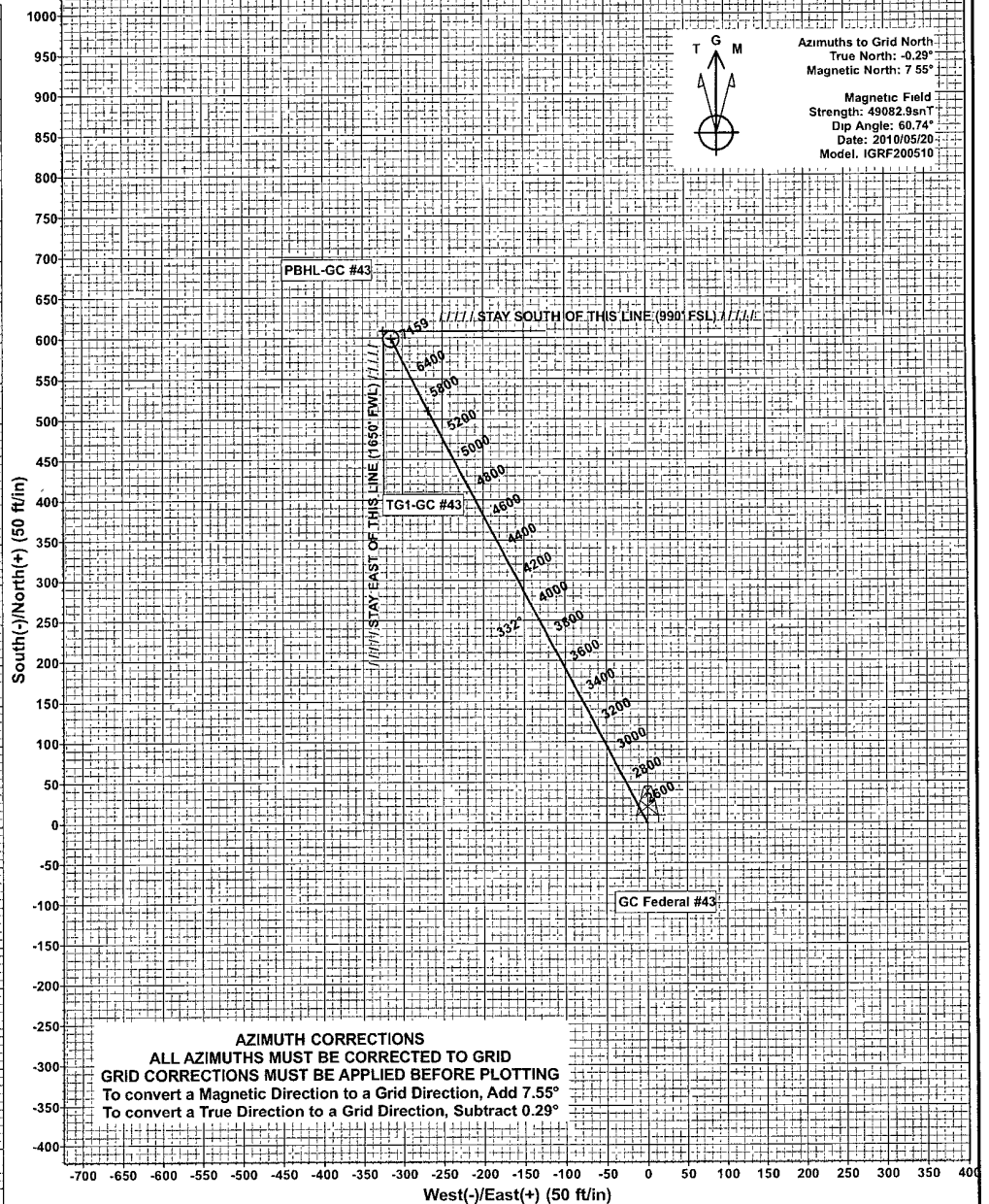
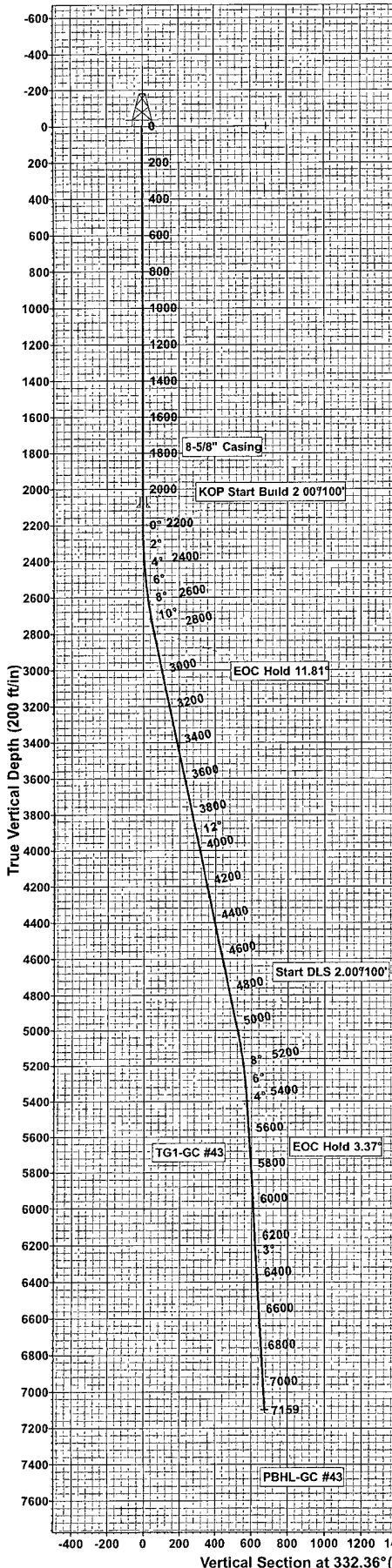
Design Targets									
Target Name	hit/miss target	Dip Angle (°)	Dip Dir (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	
West HL-GC #43	- Shape	0.00	0.00	0.00	608.20	-323.30	660,817.30	666,517.70	Latitude Longitude
- plan misses target center by 688.79ft at 0.00ft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Rectangle (sides W0.00 H200.00 D0.00)									
South HL-GC #43	- Shape	0.00	0.00	0.00	608.20	-323.30	660,817.30	666,517.70	Latitude Longitude
- plan misses target center by 688.79ft at 0.00ft MD (0.00 TVD, 0.00 N, 0.00 E)									
- Rectangle (sides W200.00 H0.00 D0.00)									
TG1-GC #43	- plan hits target center	0.00	0.00	5,400.00	509.62	-266.91	660,718.72	666,574.10	Latitude Longitude
- Point									
PBHL-GC #43	- plan hits target center	0.00	0.00	7,100.00	598.20	-313.30	660,807.30	666,527.70	Latitude Longitude
- Circle (radius 10.00)									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name		Casing Diameter (")	Hole Diameter (")
2,100.00	2,100.00	8-5/8" Casing		8-5/8	12-1/4

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
2,200.00	2,200.00	0.00	0.00	KOP Start Build 2.00°/100'
2,790.32	2,786.16	53.69	-28.12	EOC Hold 11.81°
5,033.70	4,982.07	460.31	-241.08	Start DLS 2.00°/100'
5,455.70	5,400.00	509.62	-266.91	EOC Hold 3.37°



Scientific Drilling for COG Operating LLC
Site: Lea County, NM (NAD27 NME)
Well: GC Federal #43
Wellbore: OH
Design: Plan #1 - 7-7/8" Hole



Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
South HL-GC #43	0.00	608.20	-323.30	660817.30	666517.70	32° 48' 55.805 N	103° 47' 28.758 W	Rectangle (Sides: L 0.00 W200.00)
West HL-GC #43	0.00	608.20	-323.30	660817.30	666517.70	32° 48' 55.805 N	103° 47' 28.758 W	Rectangle (Sides: L2 00.00 W0.00)
TG1-GC #43	5400.00	509.62	-266.91	660718.72	666574.09	32° 48' 54.826 N	103° 47' 28.103 W	Point
PBHL-GC #43	7100.00	598.20	-313.30	660807.30	666527.70	32° 48' 55.705 N	103° 47' 28.642 W	Circle (Radius: 10.0 0)

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	2790.32	11.81	332.36	2786.16	53.69	-28.12	2.00	332.36	60.61	
4	5033.70	11.81	332.36	4982.07	460.31	-241.08	0.00	0.00	519.62	
5	5455.70	3.37	332.36	5400.00	509.62	-266.91	2.00	-180.00	575.28	TG1-GC #43
6	7158.64	3.37	332.36	7100.00	598.20	-313.30	0.00	0.00	675.28	PBHL-GC #43

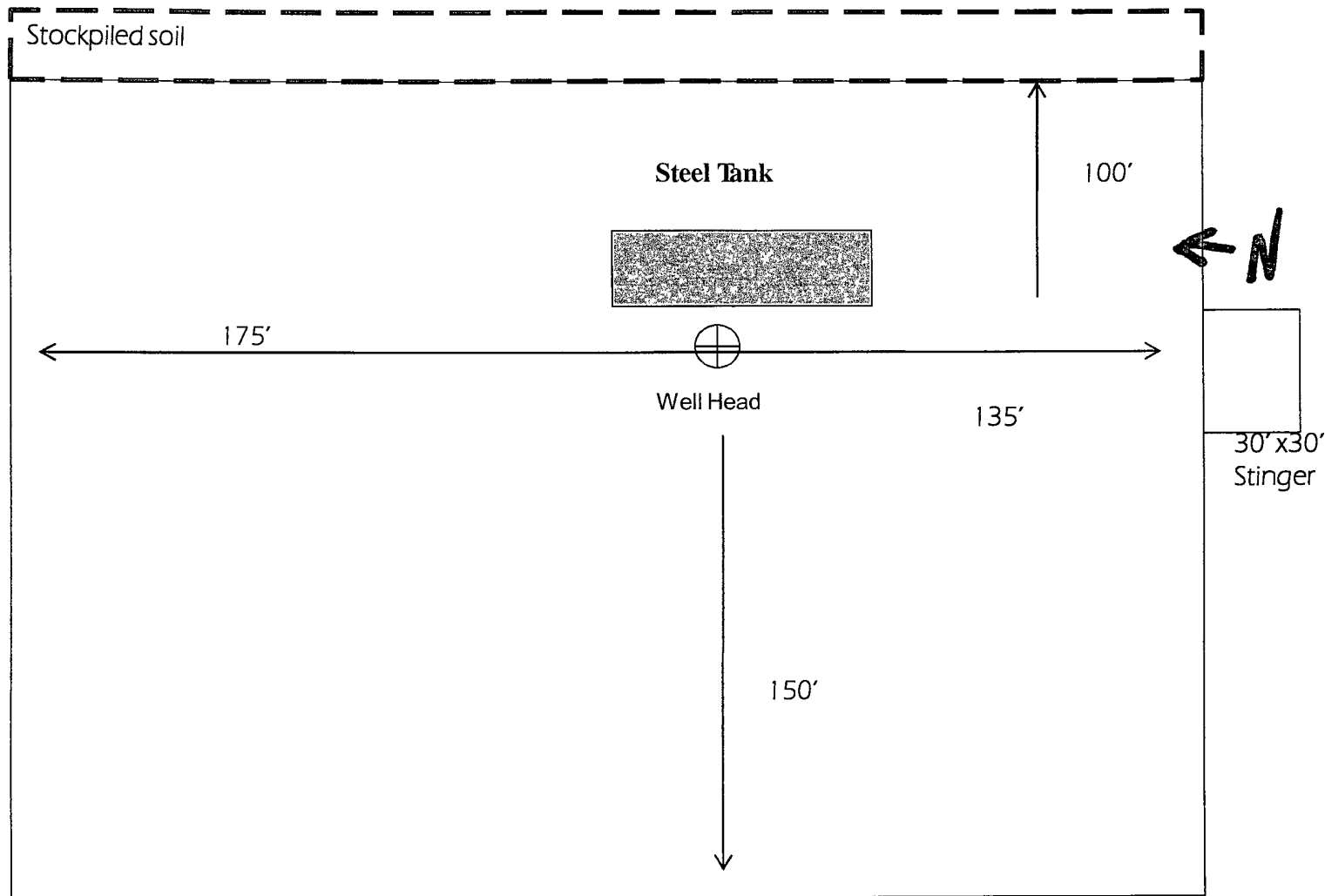
WELL DETAILS: GC Federal #43

+N/-S	+E/-W	Ground Level:	Latitude	Longitude	Slot
0.00	0.00	Northings 660209.10 Eastings 666841.00	3959.00 32° 48' 49.770 N	103° 47' 25.007 W	

PROJECT DETAILS: Lea County, NM (NAD27 NME)

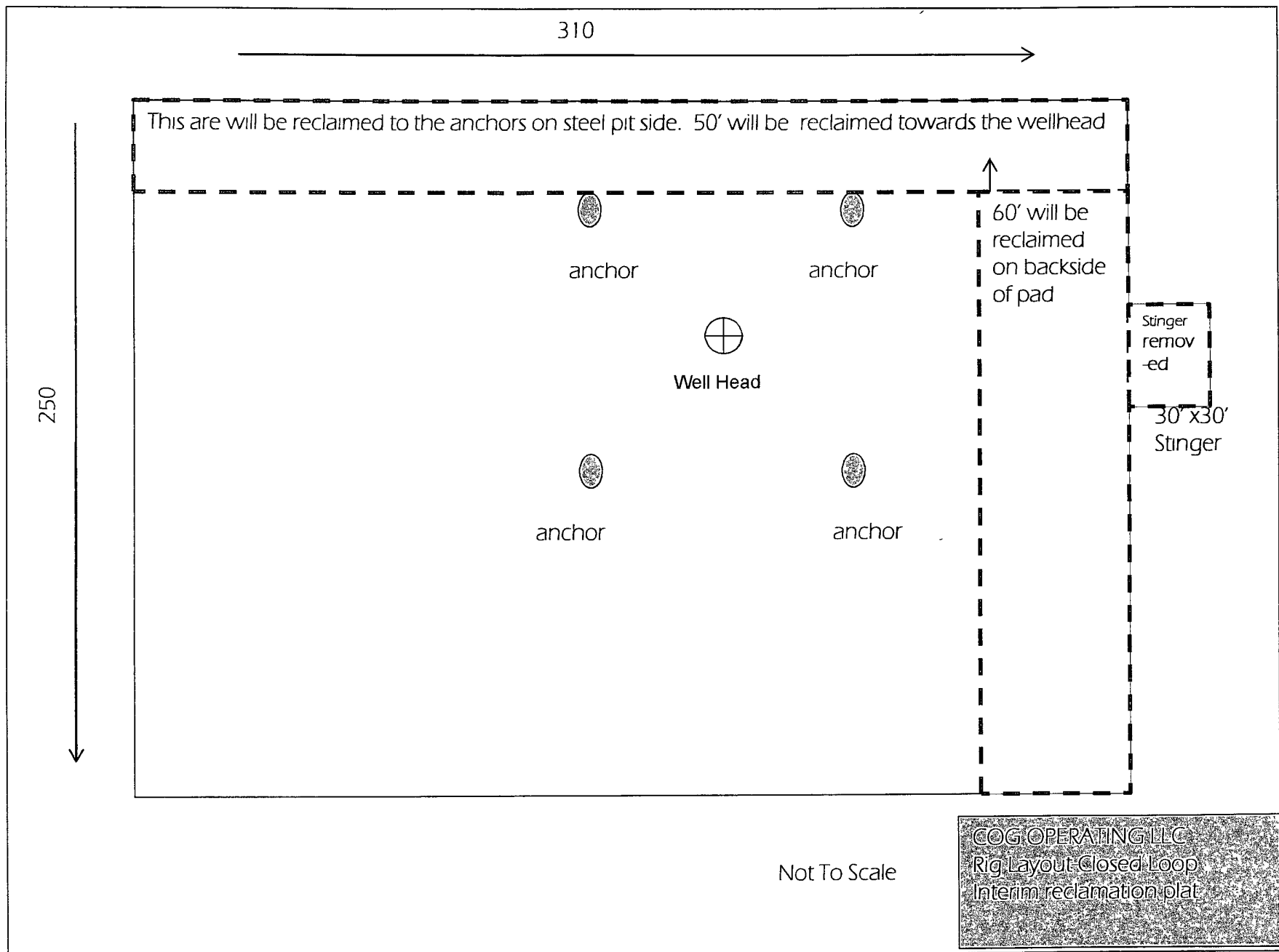
Plan: Plan #1 - 7-7/8" Hole (GC Federal #43/OH)

Geodetic System: US State Plane 1927 (Exact solution)	Created By: Julio Pina	Date: 20-May-10
Datum: NAD 1927 (NADCON CONUS)		
Ellipsoid: Clarke 1866	Checked: _____	Date: _____
Zone: New Mexico East 3001		
System Datum: Mean Sea Level	Reviewed: _____	Date: _____
	Approved: _____	Date: _____



Not To Scale

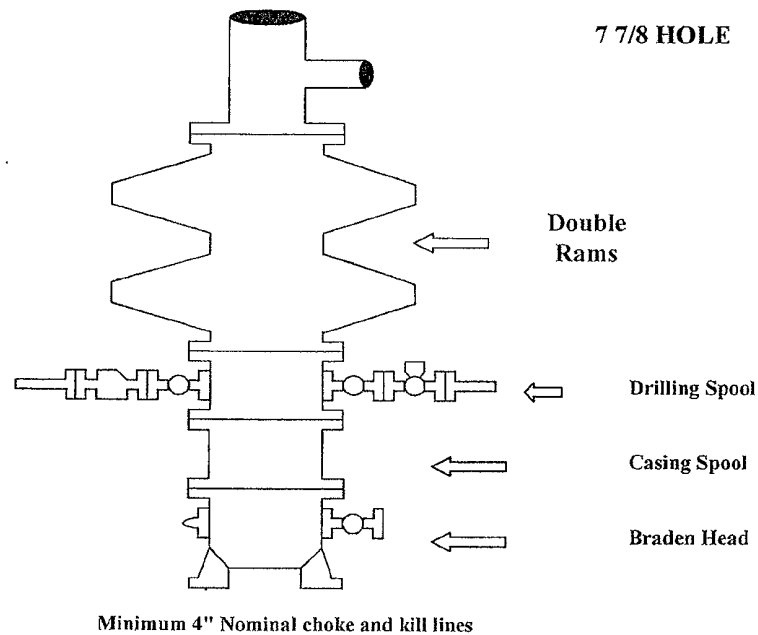
COG OPERATING LLC
Rig Layout-Closed Loop
System



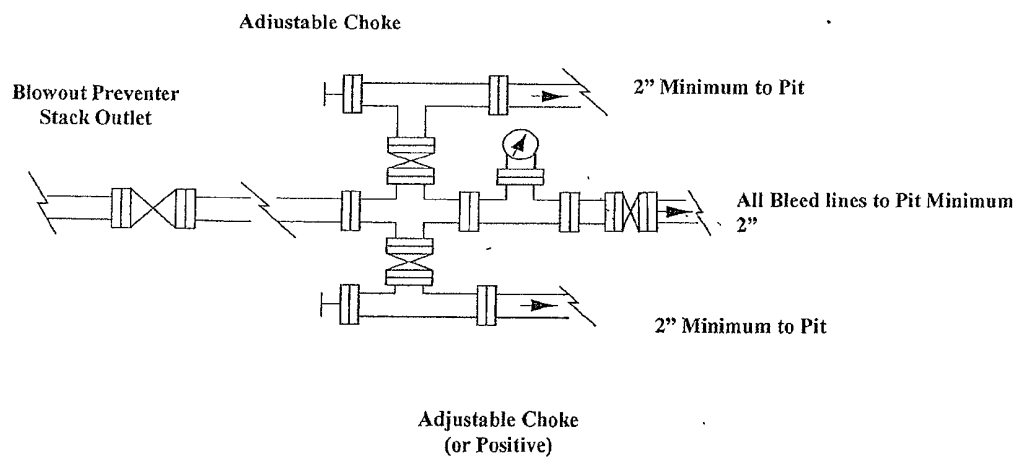
COG Operating LLC

Exhibit #9

BOPE and Choke Schematic



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.