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ATS-10-360

Form 3160-3
(April 2004)

JUL 30 2010
HOBBSOCD

OCD-HOBBS

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

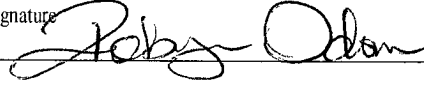
FORM APPROVED
OMB No 1004-0137
Expires March 31, 2007

1a. Type of work. ☒ DRILL ☐ REENTER		5 Lease Serial No. NMLC-029509A
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. 39875 M C FEDERAL #55
3b. Phone No. (include area code) (432) 685-4385		9 API Well No. 30-025- 39875
4. Location of Well (Report location clearly and in accordance with any State requirements *) At surface SHL: 2310' FNL & 1140' FEL, Unit H At proposed prod zone BHL: 2310' FNL & 990' FEL, Unit H		10 Field and Pool, or Exploratory Maljamar; Yeso, West 44500
11 Sec, T, R, M or Blk. and Survey or Area Sec 21, T17S, R32E		
14 Distance in miles and direction from nearest town or post office* 2.5 miles south of Maljamar NM		12 County or Parish Lea
15. Distance from proposed* location to nearest property or lease line, ft (Also to nearest drig unit line, if any) 1140'		13. State NM
16 No. of acres in lease 640		17 Spacing Unit dedicated to this well 40
18 Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft 100'		19 Proposed Depth 7100' 7200'
20 BLM/BIA Bond No. on file NMB000215		
21 Elevations (Show whether DF, KDB, RT, GL, etc.) 4033' GL		22 Approximate date work will start* 08/31/2010
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 04/28/2010
Title Regulatory Analyst		

Approved by (Signature)	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 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)

Becomes orthodox @ approx. 5050' MD

 AUG 20 2010

Roswell Controlled Water Basin

APPROVAL SUBJECT TO
GENERAL REQUIREMENTS
AND SPECIAL STIPULATIONS
ATTACHED

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

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DISTRICT I
1625 N. FRENCH DR., HOBBS, NM 88240

JUL 30 2010

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-102

DISTRICT II
1301 W. GRAND AVENUE, ARTESIA, NM 88210

HOBBSOCD

OIL CONSERVATION DIVISION

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

DISTRICT III
1000 RIO BRAZOS RD., AZTEC, NM 87410

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

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

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number 30-025- 39875	Pool Code 44500	Pool Name MALJAMAR; YESO, WEST
Property Code 302519	Property Name MC FEDERAL	Well Number 55
OGRID No. 229137	Operator Name COG OPERATING, LLC	Elevation 4033'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
H	21	17-S	32-E		1810	NORTH	1140	EAST	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
H	21	17-S	32-E		2310'	NORTH	990	EAST	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

GEODETIC COORDINATES NAD 27 NME SURFACE LOCATION Y=663323.3 N X=674269.6 E LAT.=32.822277° N LONG.=103.766047° W BOTTOM HOLE LOCATION Y=662823.7 N X=674422.5 E GRID AZ.=162°58'19" HORIZ. DIST.=522.6' 2310' 1810' 1140' 990' 4036.1' 4012.9' 600' 4040.2' 4037.4' DETAIL Penetration Point 2300' FNL + 977' FEL S.L. SEE DETAIL B.H.	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. <i>Robyn Odom</i> 4/28/2010 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 APRIL 8, 2010 Date Surveyed 12641 Signature & Seal of Professional Surveyor DSS <i>Gary G. Eidson</i> 9/22/10 10.11.0260 Certificate No. GARY G. EIDSON 12641 RONALD J. EIDSON 3239
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MASTER DRILLING PROGRAM

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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' ⁸⁴⁵	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'

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'.

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:

See
COA

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.

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)

MC Federal #55

MC Federal #55

OH

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

SHL = 1810' FNL & 1140' FEL

BHL = 2300' FNL & 980' FEL

Top of Paddock = 2200' FNL & 980' FEL @ 5350' TVD

Standard Planning Report

21 May, 2010





Scientific Drilling
Planning Report



Database:	EDM 5000 1 Single User Db	Local Co-ordinate Reference:	Well MC Federal #55
Company:	COG Operating LLC	TVD Reference:	GL Elev @ 4033.00ft
Project:	Lea County, NM (NAD27 NME)	MD Reference:	GL Elev @ 4033 00ft
Site:	MC Federal #55	North Reference:	Grid
Well:	MC Federal #55	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	MC Federal #55		
Site Position:	Northings:	663,323 30 ft	Latitude: 32° 49' 20 199 N
From: Map	Easting:	674,269 60 ft	Longitude: 103° 45' 57 768 W
Position Uncertainty:	0 00 ft	Slot Radius: 0 "	Grid Convergence: 0 31 °

Well	MC Federal #55		
Well Position	+N/-S	0 00 ft	Northings: 663,323 30 ft
	+E/-W	0 00 ft	Easting: 674,269 60 ft
Position Uncertainty	0 00 ft	Wellhead Elevation:	Ground Level: 4,033 00 ft

Wellbore	OH		
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	2010/05/20	7.84	60 75	49,090

Design	Plan #1 - 7-7/8" Hole		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth: 0 00
Vertical Section:	Depth From (TVD)	+N/-S (ft)	+E/-W (ft)
	0 00	0 00	0 00
			161 60

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	
2,622 40	8 45	156 90	2,620 87	-28 59	12 20	2 00	2 00	0 00	156 90	
5,093 31	8 45	156 90	5,064 97	-362 48	154 63	0 00	0 00	0 00	0 00	
5,379 86	3 09	180 00	5,350 00	-389 60	162 90	2 00	-1 87	8 06	167 76	TG1-MC #55
7,232 57	3 09	180 00	7,200 00	-489 60	162.90	0 00	0 00	0 00	0 00	PBHL-MC #55



Scientific Drilling
Planning Report



Database:	EDM 5000 1 Single User Db	Local Co-ordinate Reference:	Well MC Federal #55
Company:	COG Operating LLC	TVD Reference:	GL Elev @ 4033 00ft
Project:	Lea County, NM (NAD27 NME)	MD Reference:	GL Elev @ 4033 00ft
Site:	MC Federal #55	North Reference:	Grid
Well:	MC Federal #55	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	
East HL-MC #55 - North HL-MC #55										
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	156 90	2,299 98	-1.61	0 68	1.74	2 00	2 00	0 00	
2,400 00	4 00	156 90	2,399 84	-6 42	2 74	6 96	2 00	2 00	0 00	
2,500 00	6 00	156 90	2,499 45	-14 44	6 16	15 64	2 00	2 00	0 00	
2,600 00	8 00	156 90	2,598 70	-25 64	10 94	27 79	2 00	2 00	0 00	
2,622 40	8 45	156 90	2,620 87	-28 59	12 20	30 98	2 00	2 00	0 00	
EOC Hold 8.45°										
2,700.00	8 45	156 90	2,697.63	-39 08	16 67	42 34	0 00	0 00	0 00	
2,800 00	8 45	156 90	2,796 54	-52 59	22 43	56 98	0 00	0 00	0 00	
2,900 00	8 45	156.90	2,895 46	-66 10	28 20	71 63	0 00	0 00	0 00	
3,000 00	8 45	156 90	2,994 37	-79.62	33 96	86.27	0 00	0 00	0 00	
3,100 00	8 45	156 90	3,093 29	-93 13	39 73	100 91	0 00	0 00	0 00	
3,200 00	8 45	156 90	3,192 20	-106 64	45 49	115 55	0 00	0 00	0 00	
3,300 00	8 45	156 90	3,291 12	-120 15	51 26	130 19	0 00	0 00	0 00	
3,400 00	8 45	156 90	3,390 03	-133 67	57 02	144 83	0 00	0 00	0 00	
3,500 00	8 45	156 90	3,488 95	-147 18	62 79	159 48	0 00	0 00	0 00	
3,600.00	8.45	156 90	3,587 86	-160 69	68 55	174 12	0 00	0 00	0 00	
3,700.00	8 45	156 90	3,686 78	-174 21	74 32	188 76	0 00	0 00	0 00	
3,800 00	8 45	156 90	3,785 69	-187 72	80 08	203 40	0 00	0 00	0 00	
3,900 00	8 45	156 90	3,884 61	-201 23	85 84	218 04	0 00	0 00	0 00	
4,000 00	8 45	156 90	3,983 52	-214.75	91 61	232 68	0 00	0 00	0.00	
4,100 00	8 45	156.90	4,082 44	-228 26	97 37	247 33	0 00	0 00	0.00	
4,200 00	8 45	156 90	4,181 35	-241 77	103 14	261 97	0 00	0 00	0 00	
4,300 00	8 45	156 90	4,280 27	-255 28	108 90	276 61	0 00	0 00	0 00	
4,400.00	8 45	156 90	4,379 18	-268 80	114 67	291 25	0 00	0 00	0 00	
4,500 00	8 45	156 90	4,478 10	-282 31	120 43	305 89	0 00	0 00	0 00	
4,600.00	8.45	156 90	4,577 01	-295 82	126 20	320.53	0 00	0 00	0 00	
4,700 00	8 45	156 90	4,675 93	-309 34	131 96	335 18	0 00	0 00	0 00	
4,800.00	8 45	156 90	4,774 84	-322 85	137 73	349 82	0 00	0 00	0 00	
4,900.00	8 45	156 90	4,873 76	-336 36	143 49	364 46	0 00	0 00	0 00	
5,000 00	8.45	156 90	4,972 67	-349 87	149 25	379 10	0 00	0 00	0 00	
5,093 31	8 45	156 90	5,064 97	-362 48	154 63	392 76	0 00	0 00	0 00	
Start DLS 2.00°/100'										
5,100 00	8 32	157 09	5,071 59	-363 38	155 02	393 74	2 00	-1 95	2 93	
5,200 00	6 38	160 97	5,170 76	-375 30	159 64	406 50	2 00	-1 94	3 88	
5,300 00	4 49	168 15	5,270 31	-384 38	162 26	415 95	2 00	-1 88	7 18	
5,379 86	3 09	180 00	5,350 00	-389 60	162 90	421 10	2 00	-1 75	14 84	
EOC Hold 3.09° - TG1-MC #55										
5,400 00	3 09	180 00	5,370 11	-390 69	162.90	422 13	0 00	0 00	0 01	
5,500 00	3 09	180 00	5,469 96	-396 08	162 90	427 26	0 00	0 00	0 00	
5,600 00	3 09	180 00	5,569 81	-401 48	162 90	432 38	0 00	0 00	0 00	
5,700 00	3 09	180 00	5,669 67	-406 88	162 90	437 50	0.00	0 00	0 00	
5,800 00	3 09	180 00	5,769 52	-412 28	162 90	442 62	0.00	0.00	0 00	
5,900 00	3 09	180 00	5,869 38	-417 67	162 90	447 74	0 00	0 00	0 00	
6,000.00	3 09	180 00	5,969 23	-423 07	162 90	452 86	0 00	0 00	0 00	
6,100 00	3 09	180 00	6,069 09	-428 47	162 90	457 98	0 00	0 00	0 00	
6,200 00	3 09	180 00	6,168 94	-433 87	162 90	463 11	0 00	0 00	0 00	
6,300 00	3 09	180.00	6,268 79	-439 26	162 90	468 23	0 00	0 00	0 00	



Scientific Drilling Planning Report



Database:	EDM 5000 1 Single User Db	Local Co-ordinate Reference:	Well MC Federal #55
Company:	COG Operating LLC	TVD Reference:	GL Elev @ 4033 00ft
Project:	Lea County, NM (NAD27 NME)	MD Reference:	GL Elev @ 4033 00ft
Site:	MC Federal #55	North Reference:	Grid
Well:	MC Federal #55	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1 - 7-7/8" Hole		

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 09	180 00	6,368 65	-444 66	162 90	473 35	0 00	0 00	0 00
6,500 00	3 09	180 00	6,468 50	-450 06	162 90	478 47	0 00	0 00	0 00
6,600 00	3 09	180 00	6,568 36	-455 46	162 90	483 59	0 00	0 00	0 00
6,700 00	3 09	180 00	6,668 21	-460 85	162 90	488 71	0 00	0 00	0 00
6,800 00	3 09	180 00	6,768 07	-466 25	162 90	493 84	0 00	0 00	0 00
6,900 00	3 09	180 00	6,867 92	-471 65	162 90	498 96	0 00	0 00	0 00
7,000 00	3 09	180 00	6,967 77	-477 05	162 90	504 08	0 00	0 00	0 00
7,100 00	3 09	180 00	7,067 63	-482 44	162 90	509 20	0 00	0 00	0 00
7,200 00	3 09	180 00	7,167 48	-487 84	162 90	514 32	0 00	0 00	0 00
7,232 57	3 09	180 00	7,200 00	-489 60	162 90	515 99	0 00	0 00	0 00
PBHL-MC #55									

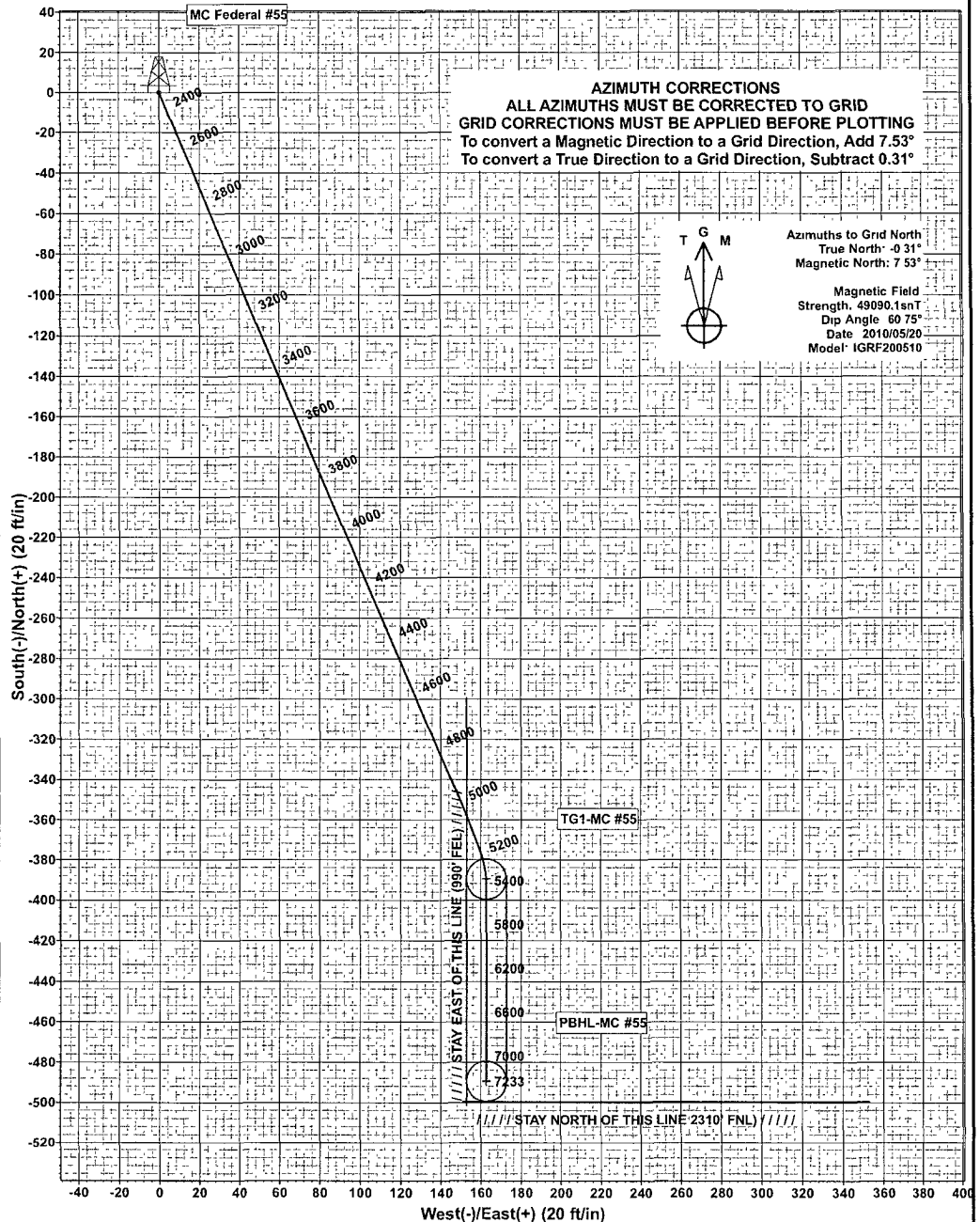
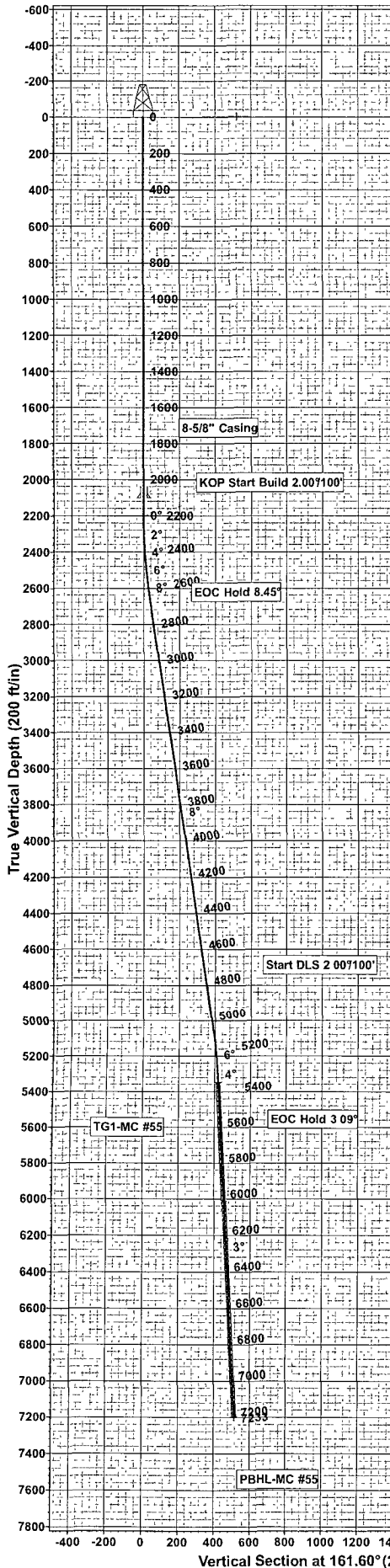
Target Name	hit/miss target	Dip Angle (°)	Dip Dir (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
East HL-MC #55		0 00	0 00	0 00	-499 60	152 90	662,823 70	674,422 50	32° 49' 15 248 N	103° 45' 56 008 W
- plan misses target center by 522 47ft at 0 00ft MD (0 00 TVD, 0 00 N, 0 00 E)										
- Rectangle (sides W0 00 H200 00 D0 00)										
North HL-MC #55		0 00	0 00	0 00	-499 60	152 90	662,823 70	674,422 50	32° 49' 15 248 N	103° 45' 56 008 W
- plan misses target center by 522 47ft at 0 00ft MD (0 00 TVD, 0 00 N, 0 00 E)										
- Rectangle (sides W200 00 H0 00 D0 00)										
TG1-MC #55		0 00	0 00	5,350 00	-389 60	162 90	662,933 70	674,432 50	32° 49' 16 335 N	103° 45' 55 884 W
- plan hits target center										
- Point										
PBHL-MC #55		3 09	0 00	7,200 00	-489 60	162 90	662,833 70	674,432 50	32° 49' 15 346 N	103° 45' 55 890 W
- plan hits target center										
- Circle (radius 10 00)										

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

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates	Comment
2,200 00	2,200 00	0 00	0 00
2,622 40	2,620 87	-28 59	12 20
5,093 31	5,064 97	-362 48	154 63
5,379 86	5,350 00	-389 60	162 90
KOP Start Build 2 00°/100'			
EOC Hold 8 45°			
Start DLS 2 00°/100'			
EOC Hold 3 09°			



Scientific Drilling for COG Operating LLC
Site: Lea County, NM (NAD27 NME)
Well: MC Federal #55
Wellbore: OH
Design: Plan #1 - 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 7.53°
To convert a True Direction to a Grid Direction, Subtract 0.31°



Azimuths to Grid North
True North: 0.31°
Magnetic North: 7.53°
Magnetic Field
Strength: 49090.1snT
Dip Angle: 60.75°
Date: 2010/05/20
Model: IGRF200510

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
East HL-MC #55	0 00	-499.60	152.90	662823.70	674422.50	32°49' 15.248 N	103°45' 56.008 W	Rectangle (Sides: L2 00 00 W0 00)
North HL-MC #55	0 00	-499.60	152.90	662823.70	674422.50	32°49' 15.248 N	103°45' 56.008 W	Rectangle (Sides: L 0 00 W200 00)
TG1-MC #55	5350.00	-389.60	162.90	662933.70	674432.50	32°49' 16.335 N	103°45' 55.884 W	Point
PBHL-MC #55	7200 00	-489.60	162.90	662833.70	674432.50	32°49' 15.346 N	103°45' 55.890 W	Circle (Radius: 10 0 0)

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	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	2622.40	8.45	156.90	2620.87	-28.59	12.20	2.00	156.90	30.98	
4	5093.31	8.45	156.90	5064.97	-362.48	154.63	0.00	0.00	392.76	
5	5379.86	3.09	180.00	5350.00	-389.60	162.90	2.00	167.76	421.10	TG1-MC #55
6	7232.57	3.09	180.00	7200.00	-489.60	162.90	0.00	0.00	515.99	PBHL-MC #55

WELL DETAILS: MC Federal #55

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	663323.30	674269.60	32°49' 20.199 N	103°45' 57.768 W	

PROJECT DETAILS: Lea County, NM (NAD27 NME)

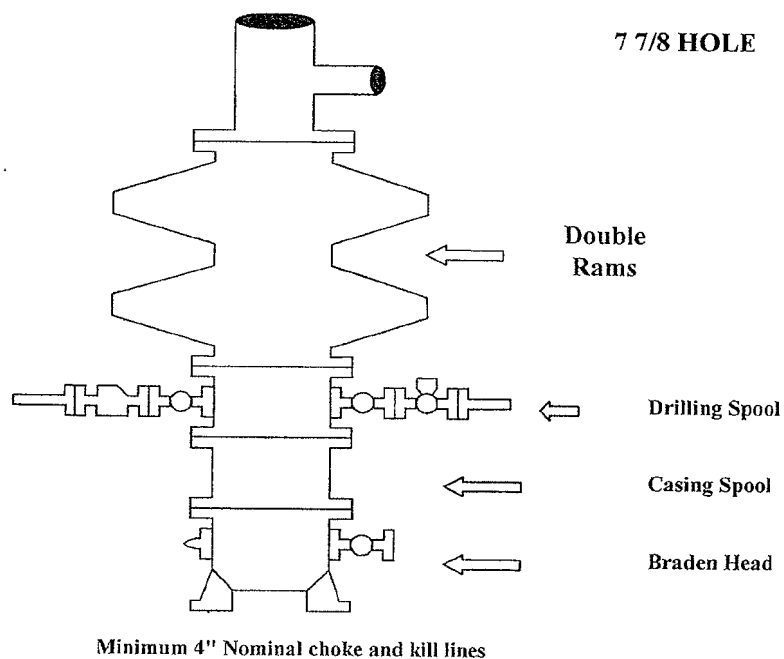
Plan: Plan #1 - 7-7/8" Hole (MC Federal #55/OH)

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	Reviewed: _____	Date: _____
System Datum: Mean Sea Level	Approved: _____	Date: _____

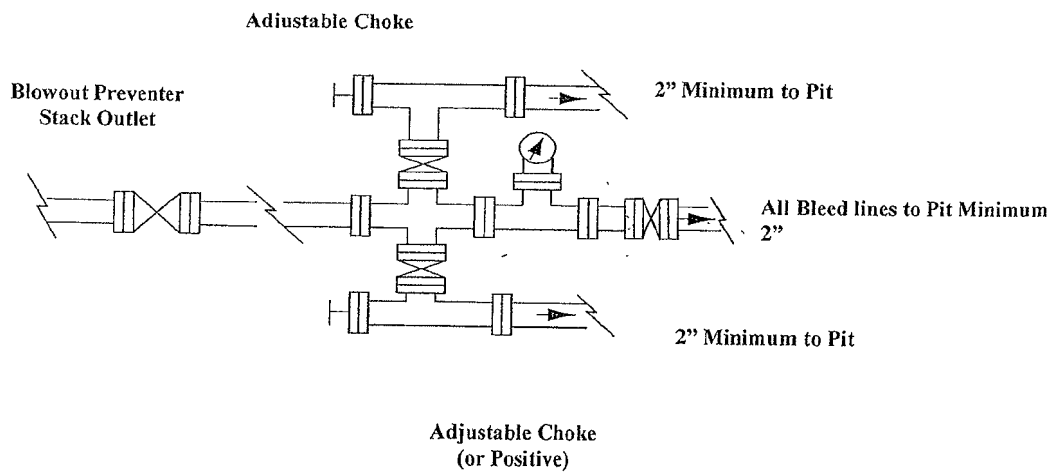
COG Operating LLC

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.