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Artesia OCD Hobbs

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ATS-16-359

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

1a. Type of work: ☑ DRILL ☐ REENTER	5 Lease Serial No. **NMLC-029509B**
	6. If Indian, Allotee or Tribe Name **N/A**
	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. **J C FEDERAL #48** <302508>
2 Name of Operator **COG Operating LLC** <229137>	9 API Well No. **30-025- 39873**
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 **SHL: 2490' FSL & 1980' FEL, UL J** At proposed prod. zone **BHL: 2310' FSL & 2310' FEL, UL J** SURFACE UNORTHODOX LOCATION	11. Sec., T R. M. or Blk. and Survey or Area **Sec 22, 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** / 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
1980'	**520**	**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
350'	**7100'**	**NMB000215**
21 Elevations (Show whether DF, KDB, RT, GL, etc) **3999' 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
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**	**04/19/2009**
Title **Regulatory Analyst**		

Approved by *(Signature)*	Name *(Printed/Typed)*	Date
/s/ Don Peterson		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) well becomes orthodox @ approx. 5200'-MD.

Roswell Controlled Water Basin

Approval Subject to General Requirements & Special Stipulations Attached

AUG 20 2010

KZ

SEE ATTACHED FOR CONDITIONS OF APPROVAL

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HOBBSOCD

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

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION
1220 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
30-025-39873	44500	MALJAMAR; YESO, WEST

Property Code	Property Name	Well Number
302508	JC FEDERAL	48

OGRID No.	Operator Name	Elevation
229137	COG OPERATING, LLC	3999'

Surface Location

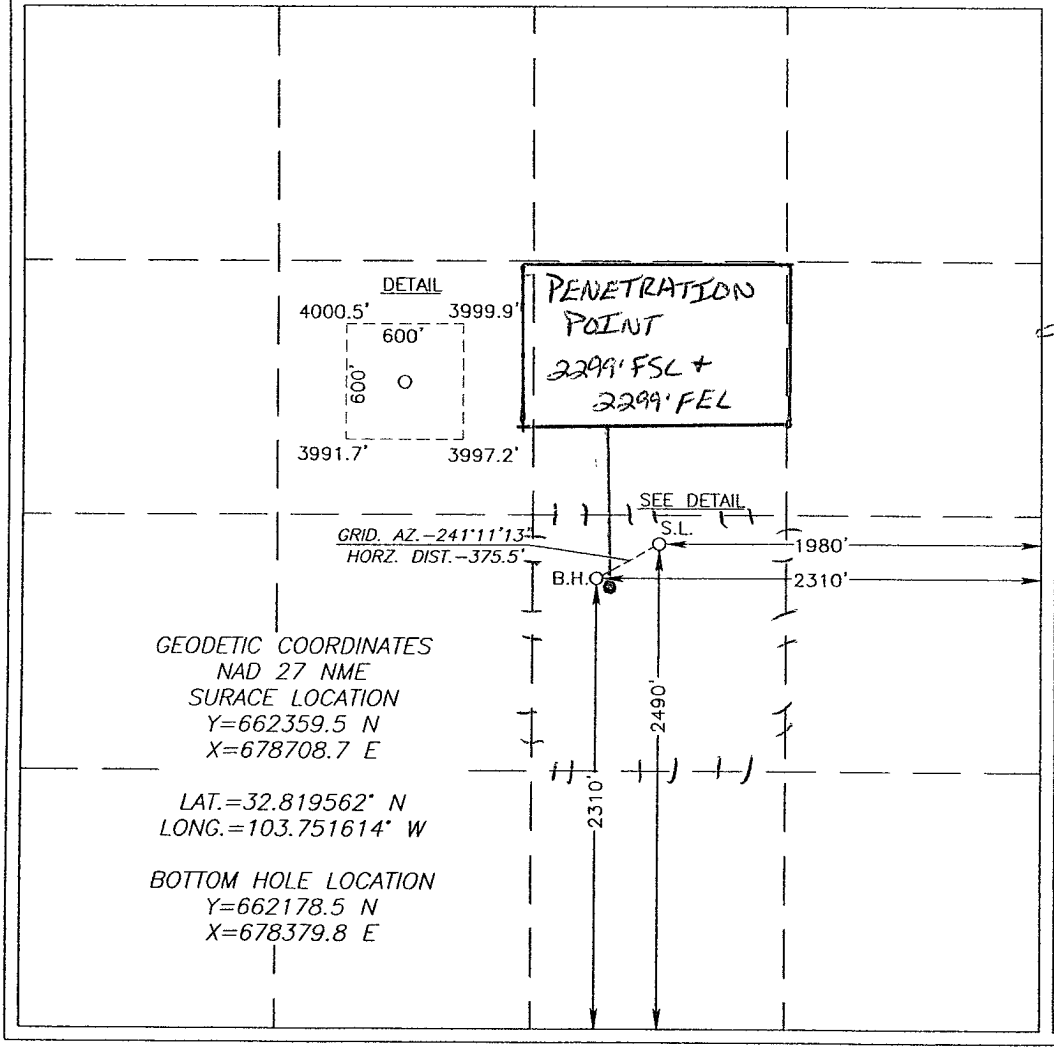
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
J	22	17-S	32-E		2490	SOUTH	1980	EAST	LEA

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
J	22	17-S	32-E		2310	SOUTH	2310	EAST	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.

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
NEW MEXICO
APRIL 14, 2010
REGISTERED PROFESSIONAL SURVEYOR

Date Surveyed LA

Signature & Seal of Professional Surveyor

Gary G. Eidson 4/14/10

10.11.0036

Certificate No. GARY 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

4. Casing Program

Hole Size	Interval	OD Casing	Weight	Grade	Jt., Condition	burst/collapse/tension
17 ½"	0-~~650'~~878	13 3/8"	48#	H-40orJ-55	ST&C/New	6.03/2.578/10.32
11"or~~12 ¼"~~	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

See COA

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 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:

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 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)
JC Federal #48
JC Federal #48

OH

Plan: Plan #1 - 7-7/8" Hole
SHL = 2490' FSL & 1980' FEL
BHL = 2300' FSL & 2300' FEL
Top of Paddock = 2300' FSL & 2300' FEL @ 5450' TVD

Standard Planning Report

20 May, 2010

Scientific Drilling
Directional Drilling Operations

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well JC Federal #48
Company:	COG Operating LLC	**TVD Reference:**	GL Elev @ 3999.00ft
Project:	Lea County, NM (NAD27 NME)	**MD Reference:**	GL Elev @ 3999.00ft
Site:	JC Federal #48	**North Reference:**	Grid
Well:	JC Federal #48	**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 JC Federal #48

Site Position:		**Northing:**	662,359 50 ft	**Latitude:**	32° 49' 10.424 N
From:	Map	**Easting:**	678,708 70 ft	**Longitude:**	103° 45' 5 812 W
Position Uncertainty:	0 00 ft	**Slot Radius:**	0 "	**Grid Convergence:**	0 32 °

Well JC Federal #48

Well Position	**+N/-S**	0 00 ft	**Northing:**	662,359 50 ft	**Latitude:**	32° 49' 10 424 N
	+E/-W	0 00 ft	**Easting:**	678,708 70 ft	**Longitude:**	103° 45' 5 812 W
Position Uncertainty		0 00 ft	**Wellhead Elevation:**		**Ground Level:**	3,999 00 ft

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	2010/05/20	7 83	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) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0 00	0 00	0 00	239 08

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	
2,567 47	7 35	239.08	2,566.46	-12 09	-20 19	2.00	2 00	0.00	239 08	
5,105 39	7 35	239 08	5,083 54	-178 91	-298 71	0.00	0 00	0 00	0 00	
5,472 86	0 00	0 00	5,450.00	-191 00	-318 90	2 00	-2 00	0.00	180 00	TG1-JC #48
7,122 86	0 00	0 00	7,100 00	-191 00	-318 90	0.00	0 00	0 00	0 00	PBHL-JC #48

Database:	EDM 5000 1 Single User Db	**Local Co-ordinate Reference:**	Well JC Federal #48
Company:	COG Operating LLC	**TVD Reference:**	GL Elev @ 3999 00ft
Project:	Lea County, NM (NAD27 NME)	**MD Reference:**	GL Elev @ 3999 00ft
Site:	JC Federal #48	**North Reference:**	Grid
Well:	JC Federal #48	**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-JC #48 - South HL-JC #48									
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	239.08	2,299 98	-0 90	-1 50	1 75	2 00	2 00	0.00
2,400 00	4 00	239.08	2,399 84	-3 59	-5 99	6 98	2 00	2 00	0.00
2,500 00	6 00	239 08	2,499 45	-8 06	-13 46	15 69	2.00	2.00	0 00
2,567 47	7 35	239 08	2,566 46	-12 09	-20 19	23 54	2 00	2 00	0 00
EOC Hold 7.35°									
2,600.00	7 35	239 08	2,598 73	-14 23	-23 76	27.70	0 00	0 00	0 00
2,700 00	7 35	239.08	2,697 90	-20 80	-34 74	40 49	0 00	0 00	0 00
2,800 00	7 35	239 08	2,797 08	-27 38	-45 71	53 28	0 00	0 00	0 00
2,900 00	7 35	239 08	2,896 26	-33 95	-56.68	66 07	0 00	0 00	0 00
3,000 00	7 35	239 08	2,995 44	-40.52	-67 66	78 86	0 00	0.00	0 00
3,100 00	7 35	239 08	3,094 62	-47.10	-78 63	91 66	0 00	0 00	0 00
3,200.00	7 35	239.08	3,193 80	-53 67	-89.61	104 45	0.00	0 00	0 00
3,300 00	7 35	239 08	3,292 98	-60 24	-100 58	117 24	0 00	0.00	0 00
3,400.00	7 35	239 08	3,392 15	-66 81	-111 55	130.03	0 00	0.00	0 00
3,500 00	7 35	239 08	3,491 33	-73 39	-122 53	142 83	0 00	0 00	0.00
3,600 00	7 35	239 08	3,590.51	-79 96	-133 50	155 62	0 00	0.00	0.00
3,700 00	7 35	239.08	3,689 69	-86 53	-144 48	168 41	0 00	0 00	0 00
3,800.00	7 35	239.08	3,788 87	-93 11	-155 45	181.20	0 00	0 00	0 00
3,900 00	7.35	239 08	3,888 05	-99 68	-166 43	193.99	0 00	0 00	0.00
4,000 00	7 35	239 08	3,987.22	-106 25	-177 40	206 79	0 00	0.00	0 00
4,100.00	7.35	239 08	4,086 40	-112 82	-188 37	219 58	0 00	0.00	0 00
4,200.00	7 35	239 08	4,185 58	-119 40	-199 35	232 37	0 00	0 00	0.00
4,300 00	7 35	239 08	4,284 76	-125 97	-210 32	245 16	0 00	0 00	0 00
4,400 00	7 35	239 08	4,383 94	-132 54	-221 30	257 95	0 00	0 00	0 00
4,500 00	7 35	239 08	4,483 12	-139 12	-232 27	270 75	0 00	0 00	0 00
4,600.00	7 35	239 08	4,582 29	-145 69	-243 25	283 54	0 00	0 00	0 00
4,700 00	7 35	239 08	4,681 47	-152 26	-254 22	296.33	0 00	0 00	0 00
4,800 00	7 35	239 08	4,780 65	-158 83	-265 19	309 12	0 00	0 00	0 00
4,900.00	7 35	239 08	4,879 83	-165 41	-276 17	321 91	0 00	0.00	0 00
5,000 00	7 35	239.08	4,979 01	-171 98	-287 14	334 71	0 00	0 00	0 00
5,100 00	7 35	239 08	5,078 19	-178 55	-298 12	347 50	0 00	0 00	0 00
5,105 39	7 35	239 08	5,083.53	-178 91	-298 71	348 19	0 00	0 00	0 00
Start DLS 2.00°/100'									
5,200 00	5 46	239 08	5,177 55	-184 33	-307 76	358 74	2 00	-2 00	0.00
5,300.00	3 46	239.08	5,277 24	-188 32	-314 43	366.51	2 00	-2 00	0 00
5,400 00	1 46	239 08	5,377 14	-190 52	-318 11	370 80	2 00	-2 00	0 00
5,472 86	0 00	239 08	5,450 00	-191 00	-318 90	371 72	2 00	-2.00	0 00
EOC Hold 0.00° - TG1-JC #48									
7,122 86	0 00	0 00	7,100.00	-191 00	-318 90	371 72	0 00	0 00	0.00
PBHL-JC #48									

Database:	EDM 5000 1 Single User Db	**Local Co-ordinate Reference:**	Well JC Federal #48
Company:	COG Operating LLC	**TVD Reference:**	GL Elev @ 3999 00ft
Project:	Lea County, NM (NAD27 NME)	**MD Reference:**	GL Elev @ 3999 00ft
Site:	JC Federal #48	**North Reference:**	Grid
Well:	JC Federal #48	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1 - 7-7/8" Hole		

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
West HL-JC #48 - plan misses target center by 375 41ft at 0.00ft MD (0 00 TVD, 0.00 N, 0 00 E) - Rectangle (sides W0.00 H200 00 D0 00)	0 00	0 00	0.00	-181 00	-328 90	662,178 50	678,379 80	32° 49' 8 651 N	103° 45' 9 677 W
South HL-JC #48 - plan misses target center by 375 41ft at 0.00ft MD (0.00 TVD, 0 00 N, 0 00 E) - Rectangle (sides W200 00 H0 00 D0 00)	0 00	0 00	0.00	-181.00	-328.90	662,178 50	678,379.80	32° 49' 8 651 N	103° 45' 9 677 W
TG1-JC #48 - plan hits target center - Point	0 00	0 00	5,450 00	-191 00	-318 90	662,168 50	678,389 80	32° 49' 8 551 N	103° 45' 9 561 W
PBHL-JC #48 - plan hits target center - Circle (radius 10 00)	0 00	0 00	7,100 00	-191 00	-318 90	662,168 50	678,389 80	32° 49' 8 551 N	103° 45' 9 561 W

Casing Points

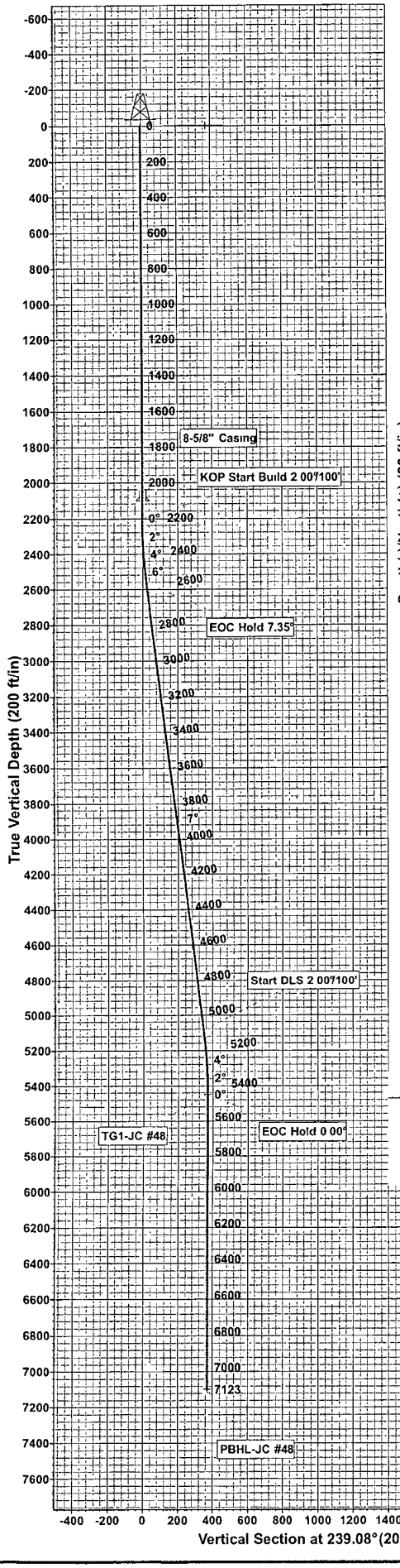
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
2,100 00	2,100 00	8-5/8" Casing	8-5/8	12-1/4

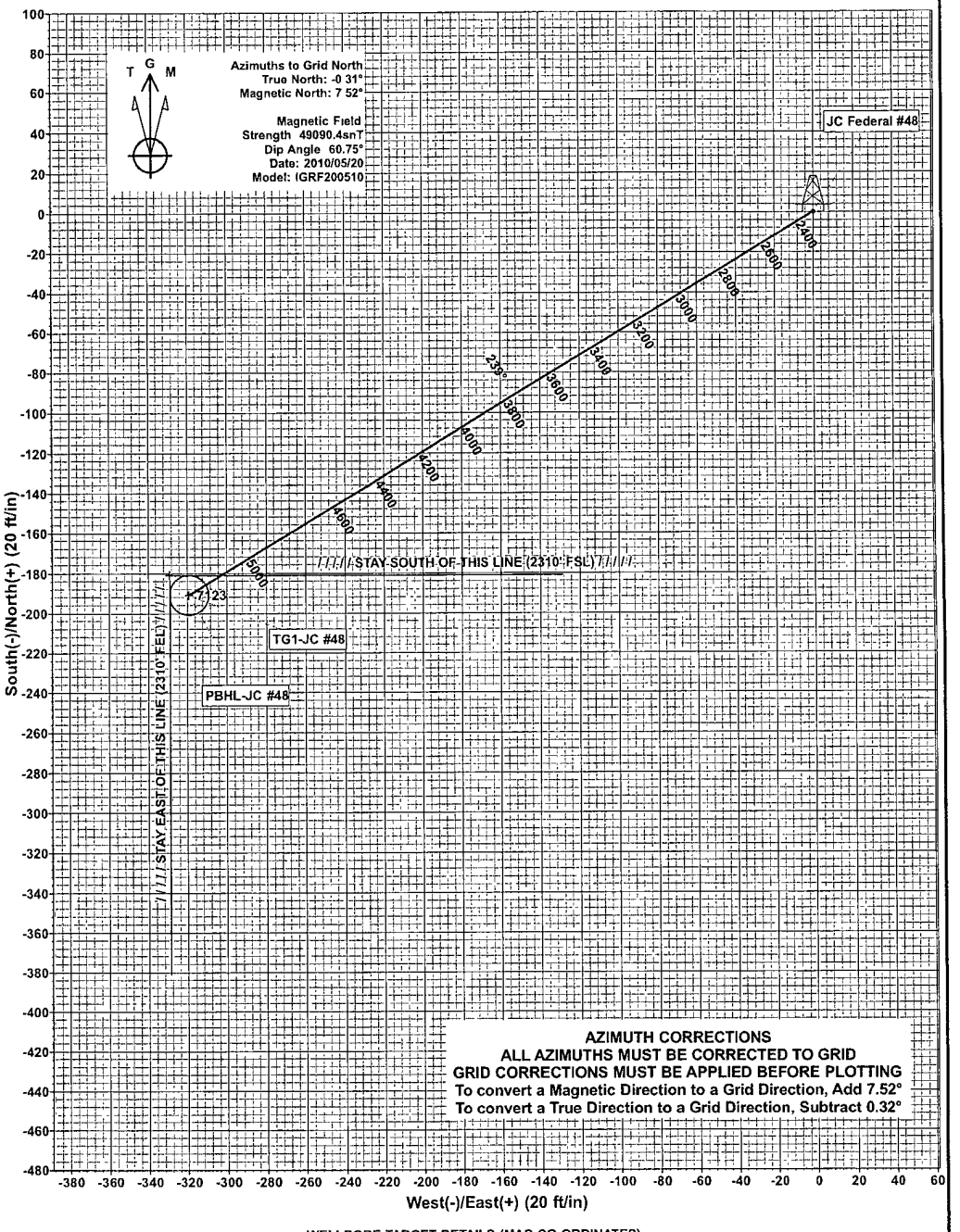
Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
2,200 00	2,200 00	0 00	0 00	KOP Start Build 2 00°/100'
2,567 47	2,566 46	-12 09	-20 19	EOC Hold 7 35°
5,105 39	5,083 53	-178 91	-298 71	Start DLS 2 00°/100'
5,472 86	5,450 00	-191 00	-318.90	EOC Hold 0 00°

Scientific Drilling for COG Operating LLC
Site: Lea County, NM (NAD27 NME)
Well: JC Federal #48
Wellbore: OH
Design: Plan #1 - 7-7/8" Hole

Scientific Drilling
Directional Drilling Operations





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 7.52°
To convert a True Direction to a Grid Direction, Subtract 0.32°

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
South HL-JC #48	0.00	-181.00	-328.90	662178 50	678379.80	32°49' 8.651 N	103°45' 9 677 W	Rectangle (Sides: L0 .00 W200.00)
West HL-JC #48	0.00	-181.00	-328 90	662178.50	678379 80	32°49' 8.651 N	103°45' 9 677 W	Rectangle (Sides: L20 0.00 W0 00)
TG1-JC #48	5450.00	-191.00	-318 90	662168.50	678389 80	32°49' 8.551 N	103°45' 9 561 W	Point
PBHL-JC #48	7100.00	-191.00	-318 90	662168.50	678389.80	32°49' 8.551 N	103°45' 9.561 W	Circle (Radius: 10.00)

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	2567.47	7.35	239 08	2566 46	-12.09	-20.19	2 00	239 08	23.54	
4	5105.39	7.35	239 08	5083 54	-178.91	-298 71	0 00	0 00	348.19	
5	5472.86	0 00	0.00	5450.00	-191.00	-318 90	2 00	180.00	371 72	TG1-JC #48
6	7122.86	0.00	0 00	7100.00	-191.00	-318 90	0.00	0 00	371 72	PBHL-JC #48

WELL DETAILS: JC Federal #48

Ground Level: 3999 00

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	662359.50	678708 70	32°49' 10 424 N	103°45' 5 812 W	

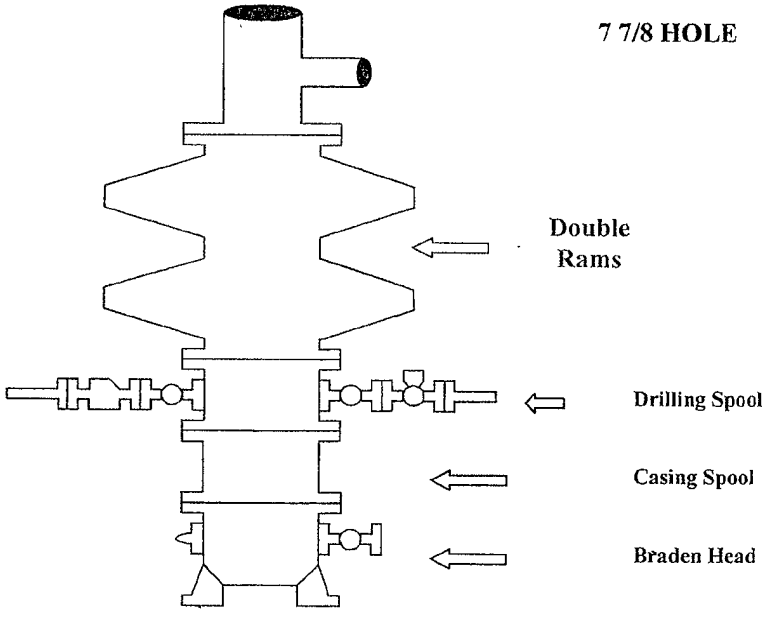
PROJECT DETAILS: Lea County, NM (NAD27 NME)

Plan: Plan #1 - 7-7/8" Hole (JC Federal #48/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

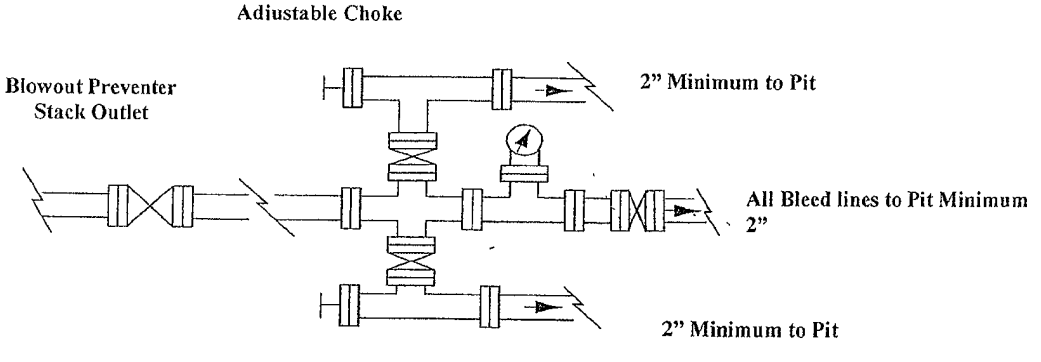
Created By: Julio Pina Date: 20-May-10
Checked: _____ Date: _____
Reviewed: _____ Date: _____
Approved: _____ Date: _____

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.