

ATS-10-673

OCD Hobbs

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Form 3160-3
(April 2004)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

MAR 28 2011
HOBBSOCD

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

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. NMLC-029405A
1b. Type of Well: <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other <input type="checkbox"/> Single Zone <input type="checkbox"/> 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. <302456> B C Federal #62
3b. Phone No. (include area code) (432) 685-4385		9. API Well No. 30-025- 40098
4. Location of Well (Report location clearly and in accordance with any State requirements.) At surface SHL: 1105' FNL & 2015' FWL, Unit C At proposed prod. zone BHL: 1650' FNL & 2310' FWL, Unit F		10. Field and Pool, or Exploratory Maljamar; Yeso, West <44500>
14. Distance in miles and direction from nearest town or post office* 2.5 miles SW of Maljamar, NM		11. Sec., T. R. M. or Blk. and Survey of Area Sec 20, T17S, R32E
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 1105'	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. 500'	19. Proposed Depth 7149' MD 7100' TVD	20. BLM/BIA Bond No. on file NMB000215
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3988' GL	22. Approximate date work will start* 12/31/2010	23. Estimated duration 10 days

UNORTHODOX
LOCATION

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 09/08/2010
Title Regulatory Analyst		

Approved by (Signature) /s/ JEANETTE MARTINEZ	Name (Printed/Typed)	Date MAR 24 2011
Title for FIELD MANAGER	Office CARLSBAD FIELD OFFICE	

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
Conditions of approval, if any, are attached.

APPROVAL FOR TWO YEARS

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

*(Instructions on page 2)

Roswell Controlled Water Basin

MAR 29 2011
K2 03/28/11
PETROLEUM ENGINEER

Approval Subject to General Requirements
& Special Stipulations Attached

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

dm

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

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

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

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

State of New Mexico
Energy, Minerals and Natural Resources Department

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

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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 30-025- 40098	Pool Code 44500	Pool Name MALJAMAR; YESO, WEST
Property Code 302456	Property Name BC FEDERAL	Well Number 62
OGRID No. 229137	Operator Name COG OPERATING, LLC	Elevation 3988'

Surface Location

UL or lot No. C	Section 20	Township 17-S	Range 32-E	Lot Idn	Feet from the 1105	North/South line NORTH	Feet from the 2015	East/West line WEST	County LEA
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Bottom Hole Location If Different From Surface

UL or lot No. F	Section 20	Township 17-S	Range 32-E	Lot Idn	Feet from the 1650	North/South line NORTH	Feet from the 2310	East/West line WEST	County 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 9/8/2010
Signature Date

Robyn Odom

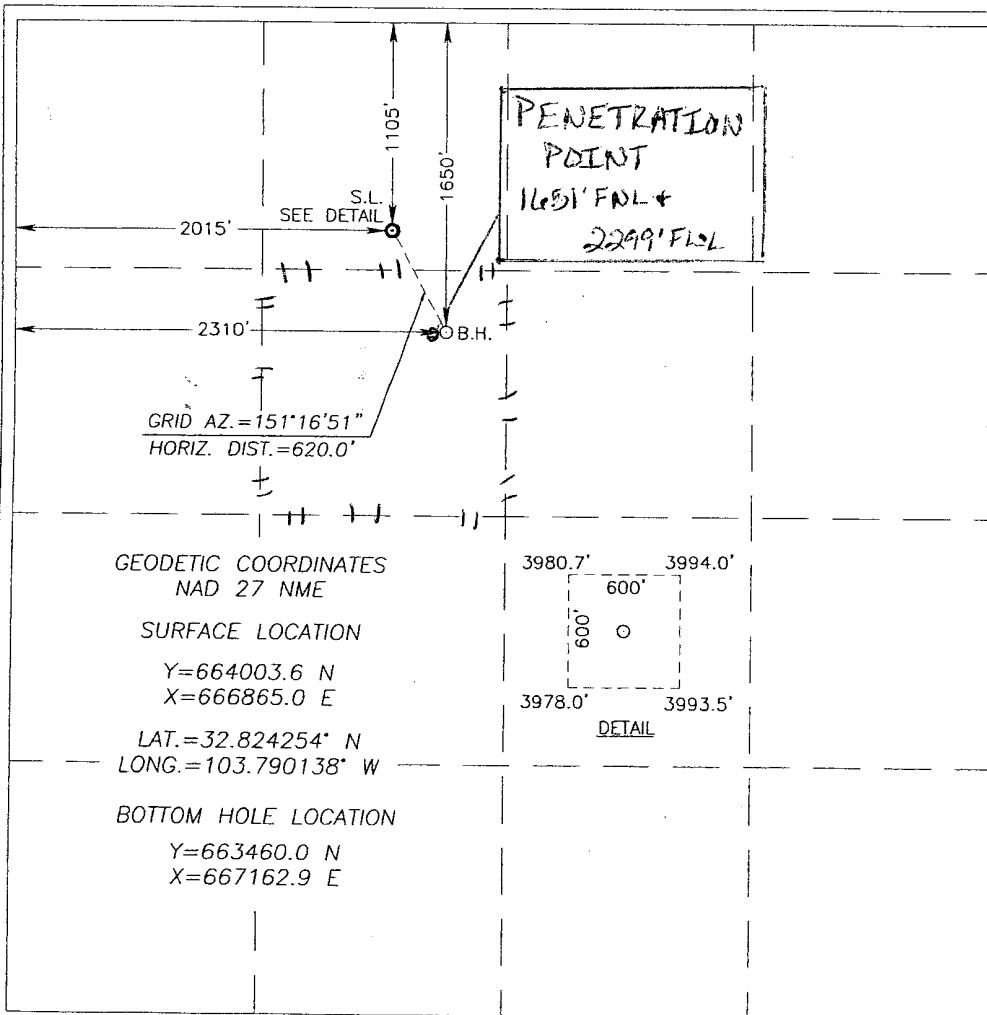
Printed Name

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.

DATE SURVEYED 9/8/2010
SIGNATURE & SEAL OF PROFESSIONAL SURVEYOR
DSS

Ronald J. Eidson 09/07/2010
10.11.1006
Certificate No. GARY G. 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
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'
Blinbry	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

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 } *see*
and/or a change to this program, COG Operating LLC personnel will always react } *COA*
to protect the wellbore and/or the environment.

4. Casing Program

Hole Size	Interval	OD Casing	Weight	Grade	Jt., Condition	burst/collapse/tension
17 1/2"	0-650'8 1/2"	13 3/8"	48#	H-40orJ-55	ST&C/New	6.03/2.578/10.32
11"	0-2100'2 1/2"	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 *See COA*

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, 700' (50' below the surface casing). Cement volumes will be adjusted proportionately for depth changes of multi stage tool.

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; 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.

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 nipped 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 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. 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:

DEPTH	TYPE	WEIGHT	VISCOSITY	WATERLOSS
0-650' 810'	Fresh Water	8.5	28	N.C.
650-2100' 2015'	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)

BC Federal #62

BC Federal #62

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

SHL = 1105' FNL & 2015' FWL

BHL = 1660' FNL & 2300' FWL

Top of Paddock = 465' South of Surface & 242' East of Surface @ 5375' TVD

Standard Planning Report

28 September, 2010



Scientific Drilling
Directional Drilling Operations



Scientific Drilling
Planning Report



Database: EDM-Julio
Company: COG Operating LLC
Project: Lea County, NM (NAD27 NME)
Site: BC Federal #62
Well: BC Federal #62
Wellbore: OH
Design: Plan #1 - 7-7/8" Hole

Local Co-ordinate Reference: Well BC Federal #62
TVD Reference: GL Elev @ 3988.00usft
MD Reference: GL Elev @ 3988.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Project: Lea County, NM (NAD27 NME)
Map System: US State Plane 1927 (Exact solution)
Geo Datum: NAD 1927 (NADCON CONUS)
Map Zone: New Mexico East 3001
System Datum: Mean Sea Level

Site: BC Federal #62
Site Position: Northing: 664,003.60 usft Latitude: 32° 49' 27.316 N
From: Map Easting: 666,865.00 usft Longitude: 103° 47' 24.497 W
Position Uncertainty: 0.00 usft Slot Radius: 13-3/16 " Grid Convergence: 0.29 °

Well: BC Federal #62
Well Position: +N/-S 0.00 usft Northing: 664,003.60 usft Latitude: 32° 49' 27.316 N
+E/-W 0.00 usft Easting: 666,865.00 usft Longitude: 103° 47' 24.497 W
Position Uncertainty: 0.00 usft Wellhead Elevation: Ground Level: 3,988.00 usft

Wellbore: OH
Magnetics: Model Name Sample Date Declination Dip Angle Field Strength
(°) (°) (nT)
BGGM2010 2010/09/28 7.88 60.73 49,061

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 Direction
(usft) (usft) (usft) (°)
0.00 0.00 0.00 152.52

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	
2,733.70	10.67	152.52	2,730.61	-43.98	22.87	2.00	2.00	0.00	152.52	
5,053.40	10.67	152.52	5,010.18	-425.17	221.11	0.00	0.00	0.00	0.00	
5,421.21	3.32	152.52	5,375.00	-464.88	241.76	2.00	-2.00	0.00	180.00	
7,149.10	3.32	152.52	7,100.00	-553.60	287.90	0.00	0.00	0.00	0.00	



Scientific Drilling
Planning Report



Database: EDM-Julio
Company: COG Operating LLC
Project: Lea County, NM (NAD27 NME)
Site: BC Federal #62
Well: BC Federal #62
Wellbore: OH
Design: Plan #1 - 7-7/8" Hole

Local Co-ordinate Reference: Well BC Federal #62
TVD Reference: GL Elev @ 3988.00usft
MD Reference: GL Elev @ 3988.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

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-BC Fed #62 - West HL-BC Fed #62									
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	152.52	2,299.98	-1.55	0.81	1.75	2.00	2.00	0.00
2,400.00	4.00	152.52	2,399.84	-6.19	3.22	6.98	2.00	2.00	0.00
2,500.00	6.00	152.52	2,499.45	-13.92	7.24	15.69	2.00	2.00	0.00
2,600.00	8.00	152.52	2,598.70	-24.74	12.86	27.88	2.00	2.00	0.00
2,700.00	10.00	152.52	2,697.47	-38.61	20.08	43.52	2.00	2.00	0.00
2,733.70	10.67	152.52	2,730.62	-43.98	22.87	49.57	2.00	2.00	0.00
EOC hold 10.67°									
2,800.00	10.67	152.52	2,795.77	-54.87	28.54	61.85	0.00	0.00	0.00
2,900.00	10.67	152.52	2,894.04	-71.31	37.08	80.37	0.00	0.00	0.00
3,000.00	10.67	152.52	2,992.31	-87.74	45.63	98.89	0.00	0.00	0.00
3,100.00	10.67	152.52	3,090.58	-104.17	54.17	117.42	0.00	0.00	0.00
3,200.00	10.67	152.52	3,188.85	-120.60	62.72	135.94	0.00	0.00	0.00
3,300.00	10.67	152.52	3,287.12	-137.04	71.27	154.46	0.00	0.00	0.00
3,400.00	10.67	152.52	3,385.39	-153.47	79.81	172.98	0.00	0.00	0.00
3,500.00	10.67	152.52	3,483.66	-169.90	88.36	191.50	0.00	0.00	0.00
3,600.00	10.67	152.52	3,581.93	-186.33	96.90	210.03	0.00	0.00	0.00
3,700.00	10.67	152.52	3,680.20	-202.77	105.45	228.55	0.00	0.00	0.00
3,800.00	10.67	152.52	3,778.47	-219.20	113.99	247.07	0.00	0.00	0.00
3,900.00	10.67	152.52	3,876.74	-235.63	122.54	265.59	0.00	0.00	0.00
4,000.00	10.67	152.52	3,975.01	-252.06	131.09	284.11	0.00	0.00	0.00
4,100.00	10.67	152.52	4,073.28	-268.50	139.63	302.64	0.00	0.00	0.00
4,200.00	10.67	152.52	4,171.55	-284.93	148.18	321.16	0.00	0.00	0.00
4,300.00	10.67	152.52	4,269.82	-301.36	156.72	339.68	0.00	0.00	0.00
4,400.00	10.67	152.52	4,368.09	-317.80	165.27	358.20	0.00	0.00	0.00
4,500.00	10.67	152.52	4,466.36	-334.23	173.82	376.72	0.00	0.00	0.00
4,600.00	10.67	152.52	4,564.63	-350.66	182.36	395.24	0.00	0.00	0.00
4,700.00	10.67	152.52	4,662.90	-367.09	190.91	413.77	0.00	0.00	0.00
4,800.00	10.67	152.52	4,761.17	-383.53	199.45	432.29	0.00	0.00	0.00
4,900.00	10.67	152.52	4,859.44	-399.96	208.00	450.81	0.00	0.00	0.00
5,000.00	10.67	152.52	4,957.70	-416.39	216.54	469.33	0.00	0.00	0.00
5,053.40	10.67	152.52	5,010.18	-425.17	221.11	479.22	0.00	0.00	0.00
Start DLS 2.00°/100'									
5,100.00	9.74	152.52	5,056.04	-432.49	224.92	487.48	2.00	-2.00	0.00
5,200.00	7.74	152.52	5,154.88	-445.98	231.93	502.68	2.00	-2.00	0.00
5,300.00	5.74	152.52	5,254.18	-456.39	237.35	514.42	2.00	-2.00	0.00
5,400.00	3.74	152.52	5,353.83	-463.72	241.16	522.68	2.00	-2.00	0.00
5,421.21	3.32	152.52	5,375.00	-464.88	241.76	523.99	2.00	-2.00	0.00
EOC hold 3.32° - Top of Paddock - TG1-BC Fed #62									
5,500.00	3.32	152.52	5,453.66	-468.93	243.87	528.55	0.00	0.00	0.00
5,600.00	3.32	152.52	5,553.49	-474.06	246.54	534.34	0.00	0.00	0.00
5,700.00	3.32	152.52	5,653.32	-479.20	249.21	540.12	0.00	0.00	0.00
5,800.00	3.32	152.52	5,753.16	-484.33	251.88	545.91	0.00	0.00	0.00
5,900.00	3.32	152.52	5,852.99	-489.47	254.55	551.70	0.00	0.00	0.00
6,000.00	3.32	152.52	5,952.82	-494.60	257.22	557.49	0.00	0.00	0.00
6,100.00	3.32	152.52	6,052.65	-499.73	259.89	563.27	0.00	0.00	0.00
6,200.00	3.32	152.52	6,152.49	-504.87	262.56	569.06	0.00	0.00	0.00
6,300.00	3.32	152.52	6,252.32	-510.00	265.23	574.85	0.00	0.00	0.00



Scientific Drilling

Planning Report



Database: EDM-Julio
Company: COG Operating LLC
Project: Lea County, NM (NAD27 NME)
Site: BC Federal #62
Well: BC Federal #62
Wellbore: OH
Design: Plan #1 - 7-7/8" Hole

Local Co-ordinate Reference: Well BC Federal #62
TVD Reference: GL Elev @ 3988.00usft
MD Reference: GL Elev @ 3988.00usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature

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	3.32	152.52	6,352.15	-515.14	267.90	580.63	0.00	0.00	0.00
6,500.00	3.32	152.52	6,451.98	-520.27	270.57	586.42	0.00	0.00	0.00
6,600.00	3.32	152.52	6,551.82	-525.41	273.24	592.21	0.00	0.00	0.00
6,700.00	3.32	152.52	6,651.65	-530.54	275.91	598.00	0.00	0.00	0.00
6,800.00	3.32	152.52	6,751.48	-535.68	278.58	603.78	0.00	0.00	0.00
6,900.00	3.32	152.52	6,851.31	-540.81	281.25	609.57	0.00	0.00	0.00
7,000.00	3.32	152.52	6,951.15	-545.94	283.92	615.36	0.00	0.00	0.00
7,100.00	3.32	152.52	7,050.98	-551.08	286.59	621.14	0.00	0.00	0.00
7,149.10	3.32	152.52	7,100.00	-553.60	287.90	623.99	0.00	0.00	0.00

PBHL-BC Fed #62

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-BC Fed #62			0.00	0.00	0.00	-543.60	297.90	663,460.00	667,162.90	32° 49' 21.922 N	103° 47' 21.039 W
- plan misses target center by 619.88usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)											
- Rectangle (sides W200.00 H0.00 D0.00)											
West HL-BC Fed #62			0.00	0.00	0.00	-543.60	297.90	663,460.00	667,162.90	32° 49' 21.922 N	103° 47' 21.039 W
- plan misses target center by 619.88usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)											
- Rectangle (sides W0.00 H200.00 D0.00)											
TG1-BC Fed #62			0.00	0.00	5,375.00	-464.88	241.76	663,538.72	667,106.77	32° 49' 22.703 N	103° 47' 21.692 W
- plan hits target center											
- Point											
PBHL-BC Fed #62			0.00	0.00	7,100.00	-553.60	287.90	663,450.00	667,152.90	32° 49' 21.823 N	103° 47' 21.156 W
- plan hits target center											
- Circle (radius 10.00)											

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	12-1/4

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
5,421.21	5,375.00	Top of Paddock		0.00	



Scientific Drilling
Planning Report

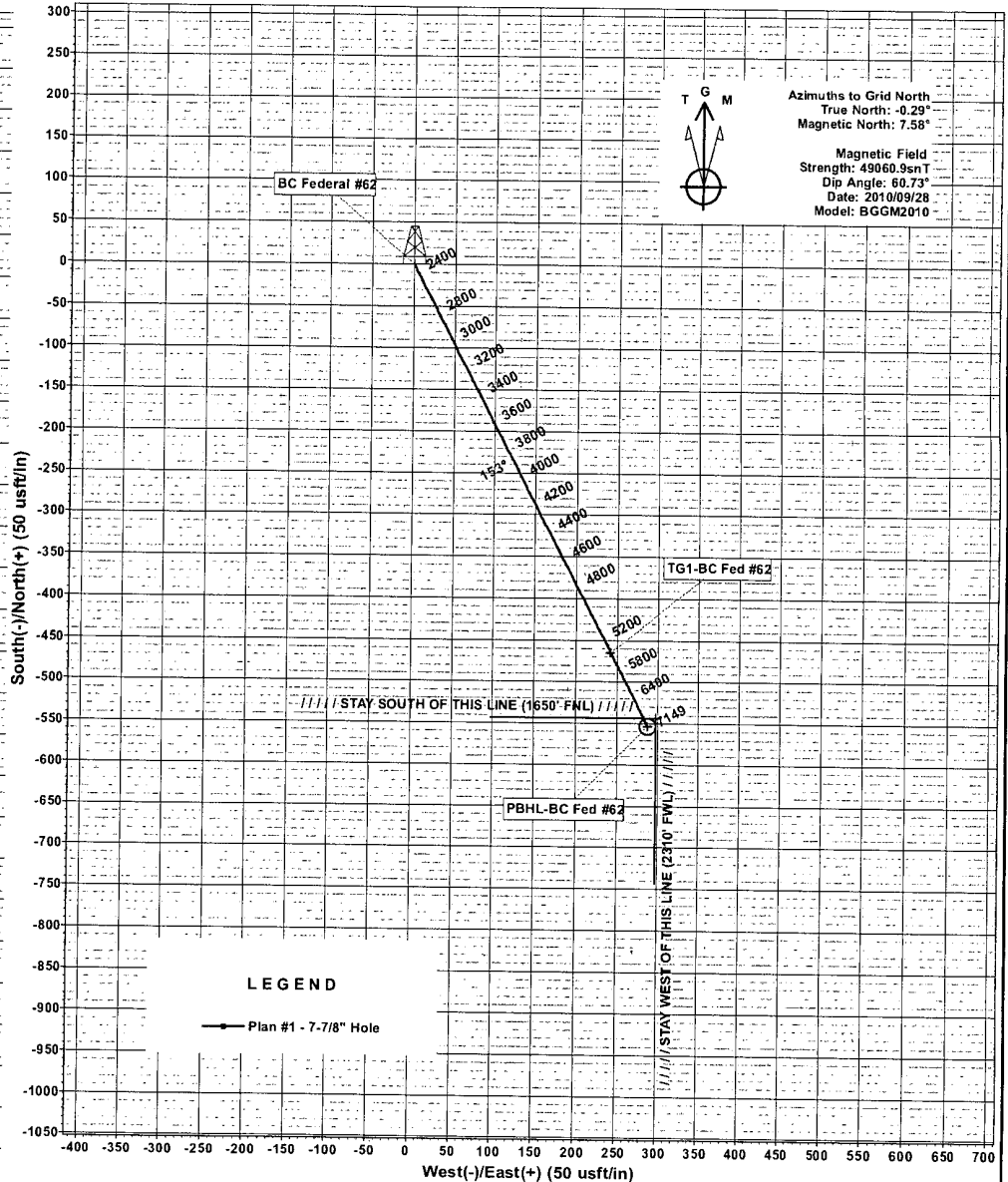
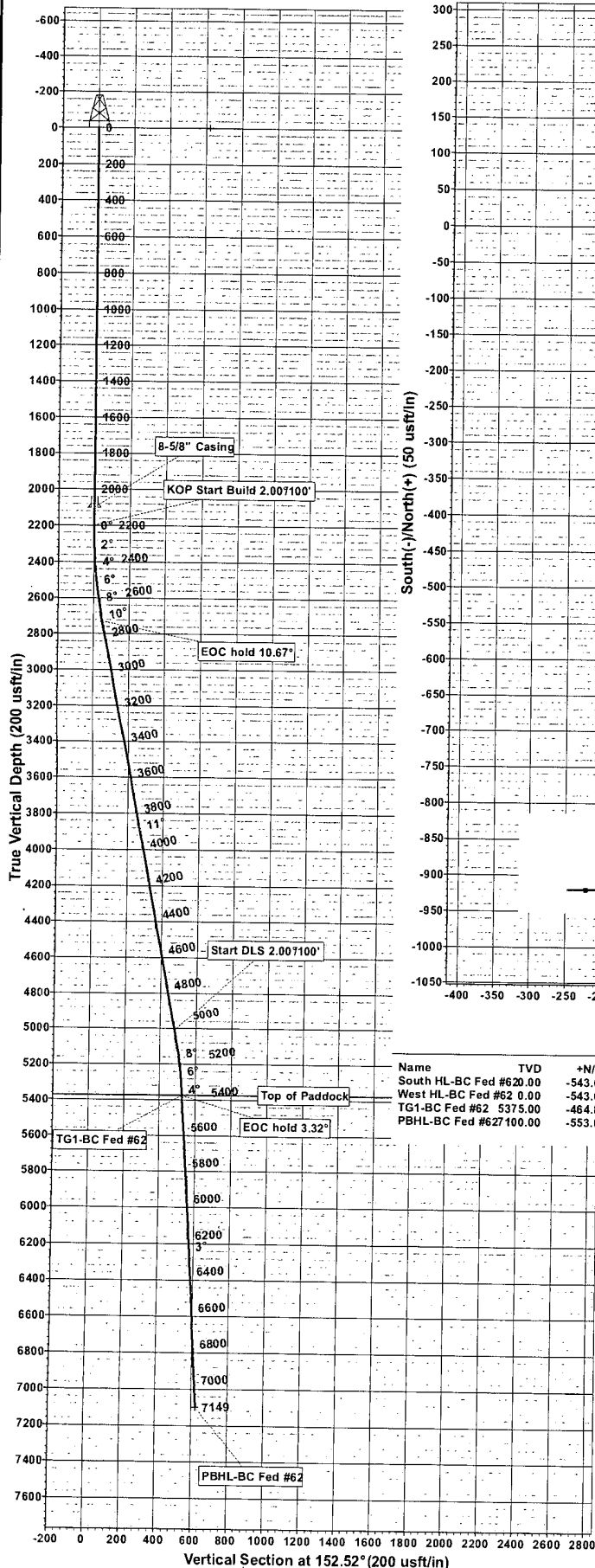


Database:	EDM-Julio	Local Co-ordinate Reference:	Well BC Federal #62
Company:	COG Operating LLC	TVD Reference:	GL Elev @ 3988.00usft
Project:	Lea County, NM (NAD27 NME)	MD Reference:	GL Elev @ 3988.00usft
Site:	BC Federal #62	North Reference:	Grid
Well:	BC Federal #62	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1 - 7-7/8" Hole		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
2,200.00	2,200.00	0.00	0.00	KOP Start Build 2.00°/100'
2,733.70	2,730.62	-43.98	22.87	EOC hold 10.67°
5,053.40	5,010.18	-425.17	221.11	Start DLS 2.00°/100'
5,421.21	5,375.00	-464.88	241.76	EOC hold 3.32°



Scientific Drilling for COG Operating LLC
Site: Lea County, NM (NAD27 NME)
Well: BC Federal #62
Wellbore: OH
Design: Plan #1 - 7-7/8" Hole



Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
South HL-BC Fed #62	0.00	-543.60	297.90	663460.00	667162.90	32°49' 21.922 N	103°47' 21.039 W	Rectangle (Side s: L0.00 W200.00)
West HL-BC Fed #62	0.00	-543.60	297.90	663460.00	667162.90	32°49' 21.922 N	103°47' 21.039 W	Rectangle (Sides : L200.00 W0.00)
TG1-BC Fed #62	5375.00	-464.88	241.76	663538.72	667106.76	32°49' 22.703 N	103°47' 21.692 W	Point
PBHL-BC Fed #62	7100.00	-553.60	287.90	663450.00	667152.90	32°49' 21.823 N	103°47' 21.156 W	Circle (Radius: 10.00)

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VFace	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	2733.70	10.67	152.52	2730.61	-43.98	22.87	2.00	152.52	49.57	
4	5053.40	10.67	152.52	5010.18	-425.17	221.11	0.00	0.00	479.22	
5	55421.21	3.32	152.52	5375.00	-464.88	241.76	2.00	180.00	523.99	
6	7149.10	3.32	152.52	7100.00	-553.60	287.90	0.00	0.00	623.99	

WELL DETAILS: BC Federal #62

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	664003.60	666865.00	32°49' 27.316 N	103°47' 24.497 W	

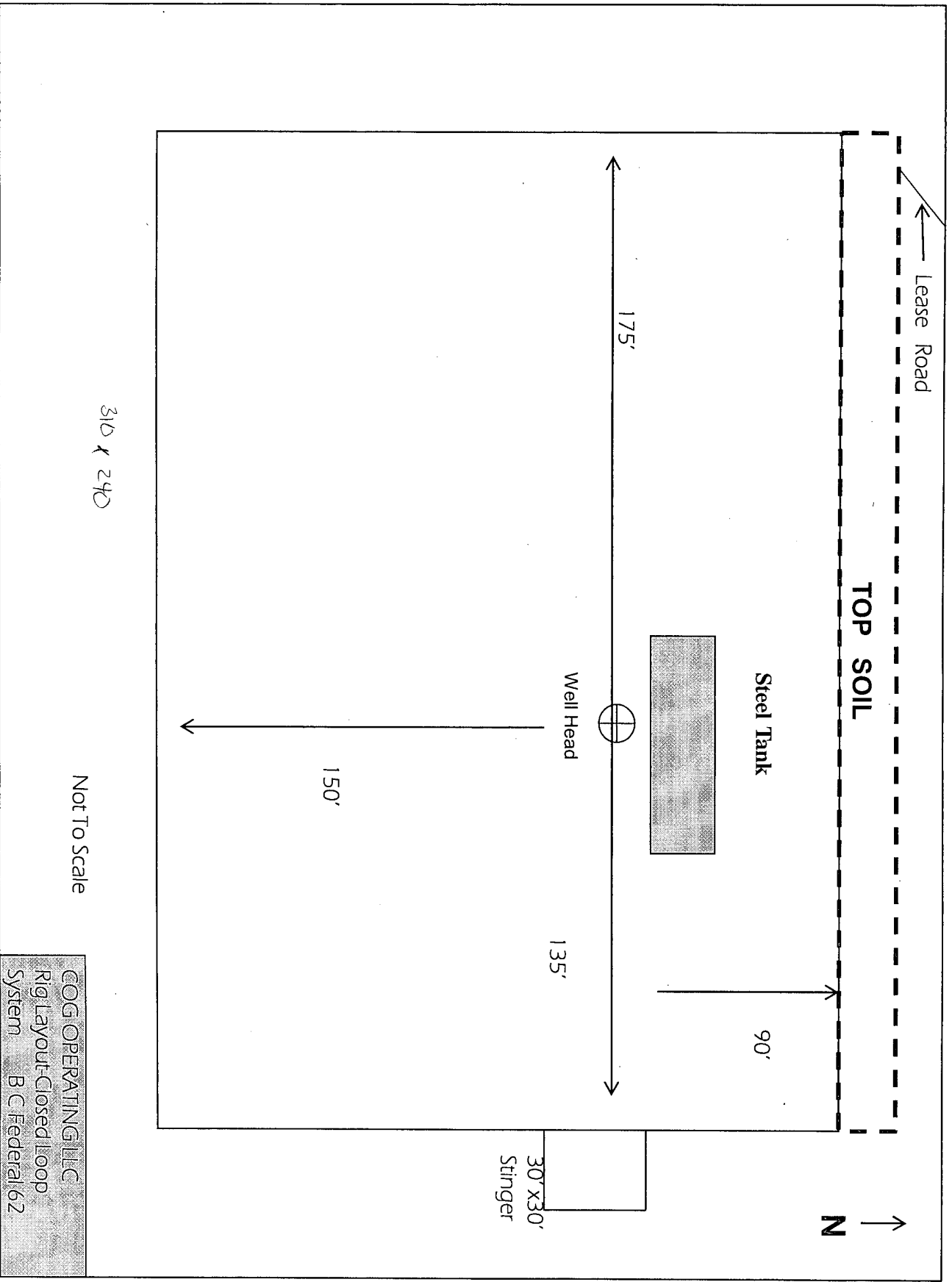
PROJECT DETAILS: Lea County, NM (NAD27 NME)

Plan: Plan #1 - 7-7/8" Hole (BC Federal #62/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
Checked: _____
Reviewed: _____
Approved: _____
Date: 28-Sep-10
Date: _____
Date: _____

NOTES REGARDING THE BLOWOUT PREVENTERS
Master Drilling Plan
Eddy County, New Mexico

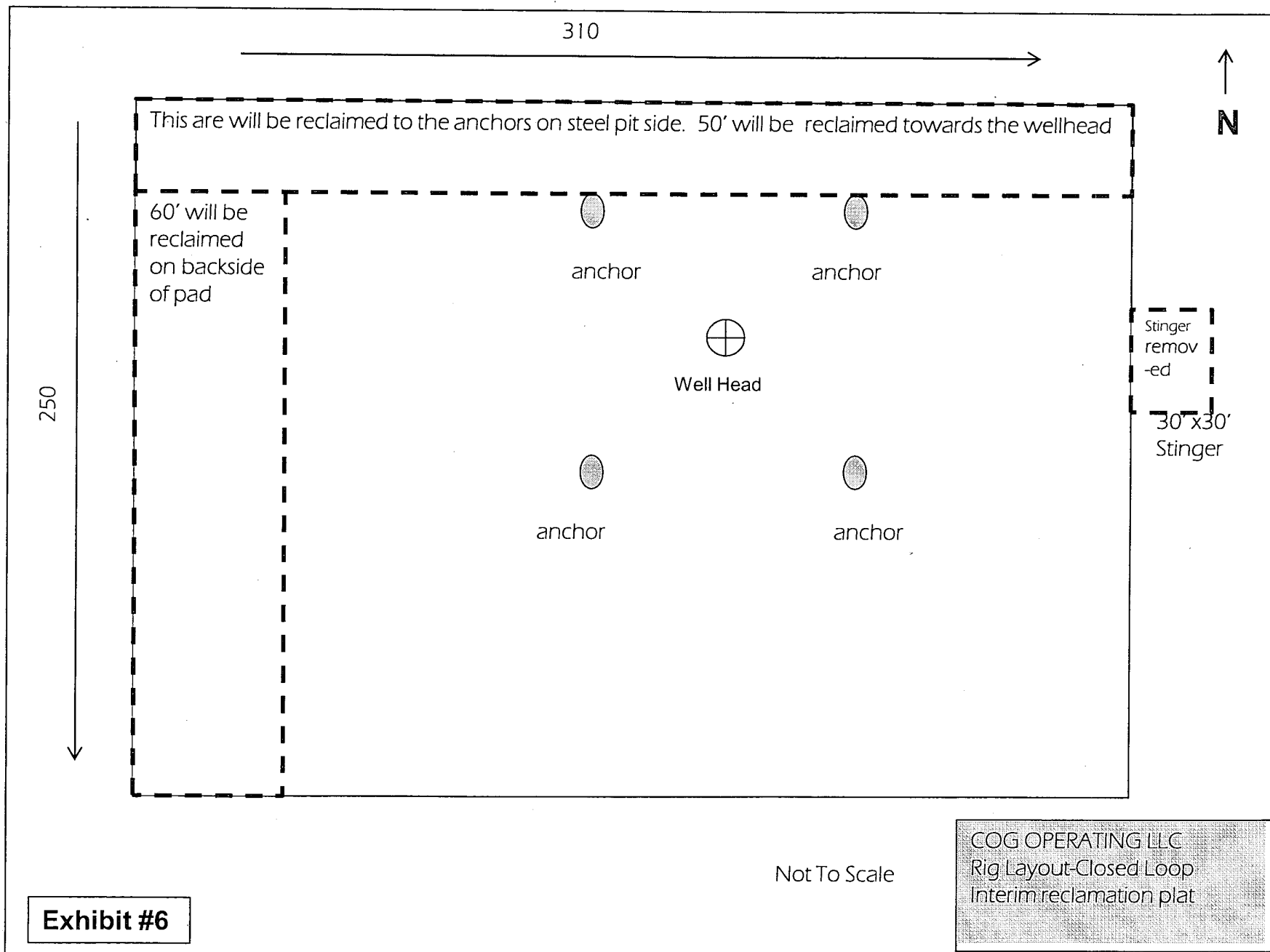
1. Drilling nipple to be so constructed that it can be removed without use of a welder through rotary table opening, with minimum I.D. equal to preventer bore.
2. Wear ring to be properly installed in head.
3. Blow out preventer and all fittings must be in good condition, 2000 psi WP minimum.
4. All fittings to be flanged.
5. Safety valve must be available on rig floor at all times with proper connections, valve to be full 2000 psi WP minimum.
6. All choke and fill lines to be securely anchored especially ends of choke lines.
7. Equipment through which bit must pass shall be at least as large as the diameter of the casing being drilled through.
8. Kelly cock on Kelly.
9. Extension wrenches and hands wheels to be properly installed.
10. Blow out preventer control to be located as close to driller's position as feasible.
11. Blow out preventer closing equipment to include minimum 40-gallon accumulator, two independent sources of pump power on each closing unit installation all API specifications.



310 x 240

Not To Scale

COG OPERATING LLC
Rig Layout-Closed Loop
System B.C Federal 62



COG Operating LLC

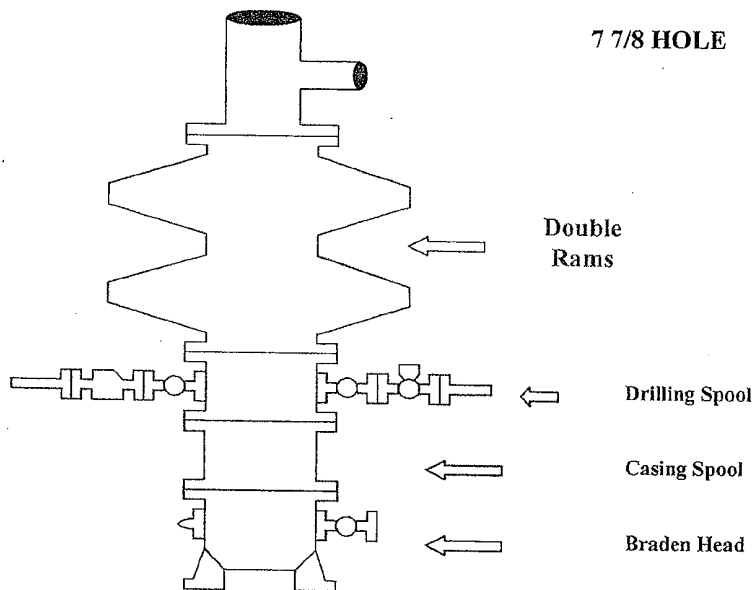
Exhibit #9

BOPE and Choke Schematic

RECEIVED

MAR 28 2011

HOBBSOCD



Minimum 4" Nominal choke and kill lines

Choke Manifold Requirement (2000 psi WP)
No Annular Required

