

OCD Hobbs

HOBBS OCD

MAR 07 2016

RECEIVED

FORM APPROVED
OMB No. 1004-0137
Expires October 31, 2014

15-469

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: ☒ DRILL ☐ REENTER		5. Lease Serial No. NMLC-0061842
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 (229137)		7. If Unit or CA Agreement, Name and No. N/A
3a. Address One Concho Center, 600 W. Illinois Ave Midland, TX 79701	3b. Phone No. (include area code) 432-685-4384	8. Lease Name and Well No. (40481) FLAT HEAD FEDERAL COM #25H
4. Location of Well (Report location clearly and in accordance with any State requirements.) At surface SHL: 1015' FNL & 2310' FEL, Unit B, Sec 14 At proposed prod. zone BHL: 330' FNL & 2310' FEL, Unit B, Sec 11		9. API Well No. 30-025-43109
14. Distance in miles and direction from nearest town or post office* 2 miles from Loco Hills, NM		10. Field and Pool, or Exploratory Maljamar, Yeso, West 44500 ✓
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 1015'		11. Sec., T. R. M. or Blk. and Survey or Area Sec 11 & 14 T17S R32E
16. No. of acres in lease 320		12. County or Parish LEA
17. Spacing Unit dedicated to this well 200		13. State NM
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 347'		19. Proposed Depth TVD: 6550' MD: 12296' EOC: 6550' TVD
20. BLM/BIA Bond No. on file NMB000740; NMB000215		21. Elevations (Show whether DF, KDB, RT, GL, etc.) 4088' GL
22. Approximate date work will start* 08/30/2015		23. Estimated duration 15 Days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No.1, must 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 must be filed with the appropriate Forest Service Office). | 6. Such other site specific information and/or plans as may be required by the BLM. |

25. Signature 	Name (Printed/Typed) Kelly J. Holly	Date 03/03/2015
---	--	--------------------

Title
Permitting Tech

Approved by (Signature) 	Name (Printed/Typed) Steve Caffey	Date FEB 29 2016
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.

(Continued on page 2)

(Instructions on page 2)

Roswell Controlled Water Basin

Approval Subject to General Requirements
& Special Stipulations Attached

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

**COG Operating LLC
Flat Head Federal Com #25H**

HOBBS OCD
MAR 07 2016
RECEIVED

1. Geologic Formations

TVD of target	6550	Pilot hole depth	NA
MD at TD:	12296	Deepest expected fresh water:	144'

Back Reef

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
Quaternary Fill	Surface	Fresh Water	
Rustler	1000'	Brackish Water	
Top of Salt	1180'	Salt	
Tansill	2215'	Barren	
Yates	2340'	Oil/Gas	
Queen	3300'	Oil/Gas	
Grayburg	3760'	Oil/Gas	
San Andres	4075'	Oil/Gas	
Glorieta	5515'	Oil/Gas	
Paddock	5600'	Oil/Gas	
Blaine	6050'	Target	
Tubb	7025'	Will not penetrate	

*H₂S, water flows, loss of circulation, abnormal pressures, etc.

2. Casing Program

See COA

Hole Size	Casing Interval		Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
	From	To							
17.5"	0	1000 1025	13.375"	48	H40	STC	1.58	1.49	6.54
12.25"	0	2370 2335	9.625"	40	J55	STC	2.21	1.29	5.82
8.75"	0	6050'	7.0"	29	L80	LTC	2.48	1.43	2.08
8.75"	6050'	6847	5.5"	17	L80	LTC	2.05	1.43	3.18
7.875"	6847	12296	5.5"	17	L80	LTC	2.05	1.43	6.34
BLM Minimum Safety Factor							1.125	1	1.6 Dry 1.8 Wet

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h
BLM standard formulas where used on all SF calculations

COG Operating LLC
Flat Head Federal Com #25H

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Is casing API approved? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	N
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	
Is well within the designated 4 string boundary.	N
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3 rd string cement tied back 500' into previous casing?	
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2 nd string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	N
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	NA
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	N

COG Operating LLC
Flat Head Federal Com #25H

3. Cementing Program *See COA*

Casing	# Sks	Wt. lb/ gal	Yld ft ³ / sack	H ₂ O gal/s k	500# Comp. Strengt h (hours)	Slurry Description
Surf.	600	13.5	1.75	9.2	13	Lead: Class C + 4.0% Bentonite + 2% Cacl ₂ + .25 pps Cello flake
	200	14.8	1.32	6.3	6	Tail: Class C + 2% Cacl ₂ + .25 pps Celloflake
Inter.	375	11.8	2.45	14. 4	72	1 st stage Lead: 50:50:10 C: Poz:Gel w/ 5% Salt + 5 pps Lcm + 0.25 pps Cello flake
	200	14.8	1.32	6.3	6	1 st stage Tail: Class C w/ 2% Cacl ₂
	IF DV Tool +/- 1075' 1150' <i>See COA</i>					
	375	11.8	2.45	14. 4	72	1 st stage Lead: 50:50:10 C: Poz:Gel w/ 5% Salt + 5 pps Lcm + 0.25 pps Cello flake
	200	14.8	1.32	6.3	6	1 st stage Tail: Class C w/ 2% Cacl ₂
	<u>200</u>	11.8	<u>2.45</u>	14. 4	72	2nd stage Lead: 50:50:10 C: Poz:Gel w/ 5% Salt + 5 pps Lcm + 0.25 pps Cello flake
Prod.	600	12.5	2.01	11. 4	22	1st stage Lead: 35:65:6 C:Poz Gel w/5% salt + 5 pps LCM + 0.2% SMS + 1% FL-25 + 1% Ba-58+0.3% FL-52A + 0.125 pps CF
	500	14	1.37	6.4	10	1st stage Tail: 50:50:2 C:Pox Gel w/5% salt+3 pps LCM + 0.6% SMS + 1% FL-25 +1% BA-58+ 0.125 pps CF
	DV/ECP Tool +/- 4175'					
	<u>250</u>	12.5	<u>2.01</u>	11. 4	22	2 nd Stage Lead: 35:65;6 C:Poz Gel w/5% salt+5 pps LCM+0.2% SMS + 1% FL-25+1% BA-58+0.3% FL-52A+ 0.125 pps CF
	<u>150</u>	16.8	<u>.99</u>	4.8	6	2 nd Stage Tail: Class"C" w/0.3% R-3 + 1.5% CD-32

Casing String	TOC	% Excess
Surface	0'	88%
Intermediate	0'	51%
Production	0'	1-26%

**COG Operating LLC
Flat Head Federal Com #25H**

4. Pressure Control Equipment * See attachment for further details*****

See COB

No	A variance is requested for the use of a diverter on the surface casing. See attached for schematic.
----	--

BOP installed and tested before drilling which hole?	Size?	Min Required WP	Type	✓	Tested to:
12-1/4"	13-5/8"	2M	Annular	X	2000 psi
			Blind Ram		2000 psi
			Pipe Ram		
			Double Ram	X	
			Other*		
8-3/4" & 7 7/8"	13-5/8"	2M	Annular	X	2000 psi
			Blind Ram		2000 psi
			Pipe Ram		
			Double Ram	X	
			Other*		
			Annular		
			Blind Ram		
			Pipe Ram		
			Double Ram		
			Other*		

*Per Operator,
See email*

*Specify if additional ram is utilized.

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

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 will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. See attached schematics.

NA	Formation integrity test will be performed per Onshore Order #2. On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i.
NA	A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.
NA	Are anchors required by manufacturer?

COG Operating LLC
Flat Head Federal Com #25H

NA	A multibowl wellhead is being used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested. • Provide description here See attached schematic.
----	---

5. Mud Program

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From	To				
0	Surf. shoe	FW Gel	8.6-8.8	28-34	N/C
Surf shoe	Int shoe	Saturated Brine	10.0-10.2	28-34	N/C
Int shoe	TD	FW-Cut Brine	8.5-9.2	28-34	N/C

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times.

What will be used to monitor the loss or gain of fluid?	PVT/Pason/Visual Monitoring
---	-----------------------------

6. Logging and Testing Procedures

See COR

Logging, Coring and Testing.	
X	Will run Cased hole GR/CNL from KOP to surface. Stated logs run will be in the Completion Report and submitted to the BLM.
X	Open hole logs are planned from KOP to Intermediate casing shoe.
No	Drill stem test? If yes, explain
No	Coring? If yes, explain

Additional logs planned	Interval
Resistivity	Int. shoe to KOP
Density	Int. shoe to KOP
CBL	Production casing
X Mud log	Intermediate shoe to TD
X PEX/HRLA/HNGS	Intermediate shoe to KOP

COG Operating LLC
Flat Head Federal Com #25H

7. Drilling Conditions

See COA

Condition	Specify what type and where?
BH Pressure at deepest TVD	2882 psi
Abnormal Temperature	No

Mitigation measure for abnormal conditions.

Hydrogen Sulfide (H2S) monitors will be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM.

Yes H2S is present

Yes H2S Plan attached

8. Other facets of operation

Is this a walking operation? No.

Will be pre-setting casing? No

Attachments:

Directional Plan

Multi-stage Cement details

Multi-stage Cement details:

Discussion of DV Tool cement options:

9 5/8" DV tool cement option is proposed for approval. This may become necessary if lost circulation occurs while drilling the 12 1/4" intermediate hole. DV tool depth will be based on hole conditions. Cement volumes will be adjusted proportionally. DV Tool will be set a minimum of 50 feet below previous casing and a minimum of 200 feet above current shoe.

8 3/4" per drilling program

* DV tool cement option is proposed for approval. This may become necessary if water flows in the San Andres are encountered. These water flows normally occur in areas where produced water disposal is happening. This dense cement is used to combat water flows. This cement recipe also has a right angle set time and is mixed a little under saturated so the water flow will be absorbed by cement. DV tool depth will be based on hole conditions. Cement volumes will be adjusted proportionally. DV tool will be set a minimum of 50 feet below previous casing and a minimum of 200 feet above current shoe.

COG Operating LLC
Flat Head Federal Com #25H

Discussion of Pressure Control Equipment:

does not apply
A ~~13 5/8" 3000 psi Double ram BOP~~ or 13 5/8" ~~3000~~ ²⁰⁰⁰ psi Hydril type annular preventor will be used depending on the rig selected. *per operator see email*

does not apply
The majority of the rigs currently in use by COG have 13 5/8" 3000 psi BOPs (double ram or hydril type) but due to the vagaries of rig scheduling ~~one of the few rigs with 11" BOPs might be used if the intermediate hole size is 11"; therefore, COG Operating LLC requests variance to the requirement of 13 5/8" BOPS on 13 3/8" casing.~~ When the circumstance occurs that a 11" BOP is used on 13 3/8" casing a 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 return to full-open capability if desired.

In every case COG Operating LLC will use BOP equipment which will meet or exceed well control requirements of Onshore Oil and Gas Order No. 2.

GEG 2/04/15



COG Operating LLC

Lea County, New Mexico

Flat Head Federal Com

Flat Head Federal Com Well 25H

Original Hole

SHL: 1015 FNL 2310 FEL Sect 14-T17S-R32E Unit B

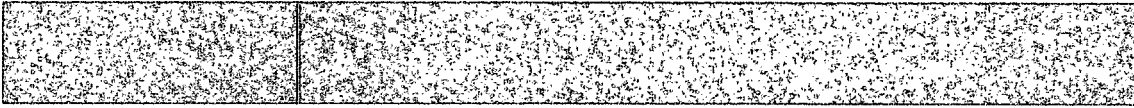
POE: 990 FNL 2310 FEL Sect 14-T17S-R32E Unit B

BHL: 330 FNL 2310 FEL Sect 11-T17S-R32E Unit B

Plan: rev0

Standard_report

12 February, 2015





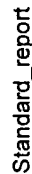
Standard_report

Company: COG Operating LLC		Local Co-ordinate Reference:		Well Flat Head Federal Com Well 25H:	
Project: Lea County, New Mexico		TVD Reference:		RKB=4088+12 @ 4100.00usft (United #43)	
Site: Flat Head Federal Com.		MD Reference:		RKB=4088+12 @ 4100.00usft (United #43)	
Well: Flat Head Federal Com Well 25H		North Reference:		Grid:	
Wellbore: Original Hole		Survey Calculation Method:		Minimum Curvature	
Design: rev0		Database:		Dbase Nov0914	
Project: Lea County, New Mexico					
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: Flat Head Federal Com.					
Site Position:		Northing:		Latitude:	
From: Map		Easting:		Longitude:	
Position Uncertainty:		Slot Radius:		Grid Convergence:	
		0.00 usft		0.33 °	
Well: Flat Head Federal Com Well 25H, Surf Loc: 1015 FNL 2310 FEL Sect 14-T17S-R32E Unit-B					
Well Position		Northing:		Latitude:	
+N/-S		0.00 usft		32.83889214	
+E/-W		0.00 usft		Longitude:	
		0.00 usft		-103.73551383	
Position Uncertainty		Wellhead Elevation:		Ground Level:	
		0.00 usft		4,088.00 usft	
Wellbore: Original Hole					
Magnetics:					
Model Name		Sample Date		Field Strength	
IGRF2010		2/12/2015		(nT)	
		7.26		60.63	
				48.596	
Design: rev0					
Audit Notes:					
Version:					
Phase:		PLAN		Tie On Depth:	
				0.00	
Vertical Section:		Depth From (TVD)		Direction	
		(usft)		(°)	
		0.00		359.84	
Survey Tool Program:					
From		To		Date	
(usft)		(usft)		2/12/2015	
Survey (Wellbore)		Tool Name		Description	
0.00		12,296.06 rev0 (Original Hole)		MWD - Standard	



Standard_report

Company: COG Operating LLC		Local Co-ordinate Reference:		Well Flat Head Federal Com Well 25H					
Project: Lea County, New Mexico		TVD Reference:		RKB=4088+12 @ 4100.00usft (United #43)					
Site: Flat Head Federal Com		MD Reference:		RKB=4088+12 @ 4100.00usft (United #43)					
Well: Flat Head Federal Com Well 25H		North Reference:		Grid:					
Wellbore: Original Hole		Survey Calculation Method:		Minimum Curvature					
Design: rev0		Database:		Dbase Nov0914					
Planned Survey									
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	EW (usft)	D/Lag (ft/100usft)	V. Sec (usft)	Northing (usft)	Easting (usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	669,419.60	683,615.20
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	669,419.60	683,615.20
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	669,419.60	683,615.20
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	669,419.60	683,615.20
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	669,419.60	683,615.20
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	669,419.60	683,615.20
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	669,419.60	683,615.20
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	669,419.60	683,615.20
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	669,419.60	683,615.20
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	669,419.60	683,615.20
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	669,419.60	683,615.20
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	669,419.60	683,615.20
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	669,419.60	683,615.20
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	669,419.60	683,615.20
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	669,419.60	683,615.20
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	669,419.60	683,615.20
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	669,419.60	683,615.20
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	669,419.60	683,615.20
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	669,419.60	683,615.20
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	669,419.60	683,615.20
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	669,419.60	683,615.20
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	669,419.60	683,615.20
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	669,419.60	683,615.20
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	669,419.60	683,615.20
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	669,419.60	683,615.20
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	669,419.60	683,615.20
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	669,419.60	683,615.20



2/12/2015 3:56:54PM Page 4 COMPASS 5000.1 Build 65



Standard_report

Company: COG Operating LLC Lea County, New Mexico		Local Co-ordinate Reference: TVD Reference: MD Reference: North Reference: Survey Calculation Method: Database:								Well Flat Head Federal Com Well 25H RKB=4088+12 @ 4100.00ust (United #43) RKB=4088+12 @ 4100.00ust (United #43) Grid: Minimum Curvature Dbase Nov0914	
Project: Flat Head Federal Com											
Well: Flat Head Federal Com Well 25H.											
Wellbore: Original Hole											
Design: rev0											
Planned Survey											
MD (ust)	Inc (°)	Azi (azimuth) (°)	TVD (ust)	N/S (ust)	EW (ust)	D/Leg (°/100ust)	V. Sec (ust)	Northing (ust)	Easting (ust)		
5,400.00	0.00	0.00	5,400.00	0.00	0.00	0.00	0.00	669,419.60	683,615.20		
5,500.00	0.00	0.00	5,500.00	0.00	0.00	0.00	0.00	669,419.60	683,615.20		
5,600.00	0.00	0.00	5,600.00	0.00	0.00	0.00	0.00	669,419.60	683,615.20		
5,700.00	0.00	0.00	5,700.00	0.00	0.00	0.00	0.00	669,419.60	683,615.20		
5,800.00	0.00	0.00	5,800.00	0.00	0.00	0.00	0.00	669,419.60	683,615.20		
5,900.00	0.00	0.00	5,900.00	0.00	0.00	0.00	0.00	669,419.60	683,615.20		
6,000.00	0.00	0.00	6,000.00	0.00	0.00	0.00	0.00	669,419.60	683,615.20		
6,029.13	0.00	0.00	6,029.13	0.00	0.00	0.00	0.00	669,419.60	683,615.20		
KOP Begin 11°/100' build											
6,100.00	7.80	359.64	6,099.78	4.81	-0.03	11.00	4.81	669,424.41	683,615.17		
6,191.16	17.82	359.64	6,188.56	25.00	-0.16	11.00	25.00	669,444.60	683,615.04		
330 Hard line intercept @ 6191 MD											
6,200.00	18.80	359.64	6,196.95	27.78	-0.18	11.00	27.78	669,447.38	683,615.02		
6,300.00	29.80	359.64	6,287.96	68.86	-0.44	11.00	68.86	669,488.46	683,614.76		
6,400.00	40.80	359.64	6,369.45	126.55	-0.80	11.00	126.55	669,546.15	683,614.40		
6,500.00	51.80	359.64	6,438.44	198.73	-1.26	11.00	198.73	669,618.33	683,613.94		
6,600.00	62.80	359.64	6,492.38	282.74	-1.79	11.00	282.75	669,702.34	683,613.41		
6,700.00	73.80	359.64	6,529.31	375.51	-2.38	11.00	375.51	669,795.11	683,612.82		
6,800.00	84.80	359.64	6,547.85	473.61	-3.00	11.00	473.62	669,893.21	683,612.20		
6,847.31	90.00	359.64	6,550.00	520.86	-3.30	11.00	520.87	669,940.46	683,611.90		
Begin 90.00 lateral section											
6,900.00	90.00	359.64	6,550.00	573.55	-3.63	0.00	573.56	669,993.15	683,611.57		
7,000.00	90.00	359.64	6,550.00	673.55	-4.27	0.00	673.56	670,093.15	683,610.93		
7,100.00	90.00	359.64	6,550.00	773.54	-4.90	0.00	773.56	670,193.14	683,610.30		
7,200.00	90.00	359.64	6,550.00	873.54	-5.53	0.00	873.56	670,293.14	683,609.67		
7,300.00	90.00	359.64	6,550.00	973.54	-6.16	0.00	973.56	670,393.14	683,609.04		
7,400.00	90.00	359.64	6,550.00	1,073.54	-6.80	0.00	1,073.56	670,493.14	683,608.40		



Standard_report

Company: COG Operating LLC Lea County, New Mexico Flat Head Federal Com Well: Flat Head Federal Com Well 25H Wellbore: Original Hole Design: rev0			Local Co-ordinate Reference: TVD Reference: MD Reference: North Reference: Survey Calculation Method: Database:										Well Flat Head Federal Com Well 25H RKB=4088+12 @ 4100.00usft (United #43) RKB=4088+12 @ 4100.00usft (United #43) Grid Minimum Curvature Dbase Nov0914	
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	EW (usft)	D/Leg (°/100usft)	V. Sec (usft)	Northing (usft)	Easting (usft)					
7,500.00	90.00	359.64	6,550.00	1,173.54	-7.43	0.00	1,173.56	670,593.14	683,607.77					
7,600.00	90.00	359.64	6,550.00	1,273.53	-8.06	0.00	1,273.56	670,693.13	683,607.14					
7,700.00	90.00	359.64	6,550.00	1,373.53	-8.70	0.00	1,373.56	670,793.13	683,606.50					
7,800.00	90.00	359.64	6,550.00	1,473.53	-9.33	0.00	1,473.56	670,893.13	683,605.87					
7,900.00	90.00	359.64	6,550.00	1,573.53	-9.96	0.00	1,573.56	670,993.13	683,605.24					
8,000.00	90.00	359.64	6,550.00	1,673.53	-10.60	0.00	1,673.56	671,093.13	683,604.60					
8,100.00	90.00	359.64	6,550.00	1,773.52	-11.23	0.00	1,773.56	671,193.12	683,603.97					
8,200.00	90.00	359.64	6,550.00	1,873.52	-11.86	0.00	1,873.56	671,293.12	683,603.34					
8,300.00	90.00	359.64	6,550.00	1,973.52	-12.50	0.00	1,973.56	671,393.12	683,602.70					
8,400.00	90.00	359.64	6,550.00	2,073.52	-13.13	0.00	2,073.56	671,493.12	683,602.07					
8,500.00	90.00	359.64	6,550.00	2,173.52	-13.76	0.00	2,173.56	671,593.12	683,601.44					
8,600.00	90.00	359.64	6,550.00	2,273.51	-14.40	0.00	2,273.56	671,693.11	683,600.80					
8,700.00	90.00	359.64	6,550.00	2,373.51	-15.03	0.00	2,373.56	671,793.11	683,600.17					
8,800.00	90.00	359.64	6,550.00	2,473.51	-15.66	0.00	2,473.56	671,893.11	683,599.54					
8,900.00	90.00	359.64	6,550.00	2,573.51	-16.30	0.00	2,573.56	671,993.11	683,598.90					
9,000.00	90.00	359.64	6,550.00	2,673.51	-16.93	0.00	2,673.56	672,093.11	683,598.27					
9,100.00	90.00	359.64	6,550.00	2,773.50	-17.56	0.00	2,773.56	672,193.10	683,597.64					
9,200.00	90.00	359.64	6,550.00	2,873.50	-18.20	0.00	2,873.56	672,293.10	683,597.00					
9,300.00	90.00	359.64	6,550.00	2,973.50	-18.83	0.00	2,973.56	672,393.10	683,596.37					
9,400.00	90.00	359.64	6,550.00	3,073.50	-19.46	0.00	3,073.56	672,493.10	683,595.74					
9,500.00	90.00	359.64	6,550.00	3,173.50	-20.10	0.00	3,173.56	672,593.10	683,595.10					
9,600.00	90.00	359.64	6,550.00	3,273.49	-20.73	0.00	3,273.56	672,693.09	683,594.47					
9,700.00	90.00	359.64	6,550.00	3,373.49	-21.36	0.00	3,373.56	672,793.09	683,593.84					
9,800.00	90.00	359.64	6,550.00	3,473.49	-21.99	0.00	3,473.56	672,893.09	683,593.21					
9,900.00	90.00	359.64	6,550.00	3,573.49	-22.63	0.00	3,573.56	672,993.09	683,592.57					
10,000.00	90.00	359.64	6,550.00	3,673.49	-23.26	0.00	3,673.56	673,093.09	683,591.94					
10,100.00	90.00	359.64	6,550.00	3,773.48	-23.89	0.00	3,773.56	673,193.08	683,591.31					



Standard_report

Company: COG Operating LLC		Local Co-ordinate Reference:		Well Flat Head Federal Com Well 25H.					
Project: Lea County, New Mexico		TVD Reference:		RKB=4088+12 @ 4100.00usft (United #43)					
Site: Flat Head Federal Com		MD Reference:		RKB=4088+12 @ 4100.00usft (United #43)					
Well: Flat Head Federal Com Well 25H		North Reference:		Grid					
Wellbore: Original Hole		Survey Calculation Method:		Minimum Curvature					
Design: rev0		Database:		Dbase Nov0914					
Planned Survey									
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	EW (usft)	D Leg (°/100usft)	V. Sec (usft)	Northing (usft)	Easting (usft)
10,200.00	90.00	359.64	6,550.00	3,873.48	-24.53	0.00	3,873.56	673,293.08	683,590.67
10,300.00	90.00	359.64	6,550.00	3,973.48	-25.16	0.00	3,973.56	673,393.08	683,590.04
10,400.00	90.00	359.64	6,550.00	4,073.48	-25.79	0.00	4,073.56	673,493.08	683,589.41
10,500.00	90.00	359.64	6,550.00	4,173.48	-26.43	0.00	4,173.56	673,593.08	683,588.77
10,600.00	90.00	359.64	6,550.00	4,273.47	-27.06	0.00	4,273.56	673,693.07	683,588.14
10,700.00	90.00	359.64	6,550.00	4,373.47	-27.69	0.00	4,373.56	673,793.07	683,587.51
10,800.00	90.00	359.64	6,550.00	4,473.47	-28.33	0.00	4,473.56	673,893.07	683,586.87
10,900.00	90.00	359.64	6,550.00	4,573.47	-28.96	0.00	4,573.56	673,993.07	683,586.24
11,000.00	90.00	359.64	6,550.00	4,673.47	-29.59	0.00	4,673.56	674,093.07	683,585.61
11,100.00	90.00	359.64	6,550.00	4,773.46	-30.23	0.00	4,773.56	674,193.06	683,584.97
11,200.00	90.00	359.64	6,550.00	4,873.46	-30.86	0.00	4,873.56	674,293.06	683,584.34
11,300.00	90.00	359.64	6,550.00	4,973.46	-31.49	0.00	4,973.56	674,393.06	683,583.71
11,400.00	90.00	359.64	6,550.00	5,073.46	-32.13	0.00	5,073.56	674,493.06	683,583.07
11,500.00	90.00	359.64	6,550.00	5,173.46	-32.76	0.00	5,173.56	674,593.06	683,582.44
11,600.00	90.00	359.64	6,550.00	5,273.45	-33.39	0.00	5,273.56	674,693.05	683,581.81
11,700.00	90.00	359.64	6,550.00	5,373.45	-34.03	0.00	5,373.56	674,793.05	683,581.17
11,800.00	90.00	359.64	6,550.00	5,473.45	-34.66	0.00	5,473.56	674,893.05	683,580.54
11,900.00	90.00	359.64	6,550.00	5,573.45	-35.29	0.00	5,573.56	674,993.05	683,579.91
12,000.00	90.00	359.64	6,550.00	5,673.45	-35.93	0.00	5,673.56	675,093.05	683,579.27
12,100.00	90.00	359.64	6,550.00	5,773.44	-36.56	0.00	5,773.56	675,193.04	683,578.64
12,200.00	90.00	359.64	6,550.00	5,873.44	-37.19	0.00	5,873.56	675,293.04	683,578.01
12,296.06	90.00	359.64	6,550.00	5,969.50	-37.80	0.00	5,969.62	675,389.10	683,577.40
PBHL/TD									



Standard_report

Company: COG Operating LLC		Local Co-ordinate Reference: Well Flat Head Federal Com Well 25H	
Project: Lea County, New Mexico		RKB=4088+12 @ 4100.00usft (United #43)	
Site: Flat Head Federal Com		RKB=4088+12 @ 4100.00usft (United #43)	
Well: Flat Head Federal Com Well 25H		Grid:	
Wellbore: Original Hole		Minimum Curvature	
Design: rev0		Database: Dbase Nov0914	

Measured		Vertical		Local Coordinates		Comment
Depth (usft)	Depth (usft)	+N/S (usft)	+E/W (usft)			
6,029.13	6,029.13	0.00	0.00	0.00	KOP Begin 11'100' build	
6,191.16	6,188.56	25.00	-0.16	330	Hard line intercept @ 6191 MD	
6,847.31	6,550.00	520.86	-3.30	Begin 90.00 lateral section		
12,296.06	6,550.00	5,969.50	-37.80	PBHL/TD		



Well: Flat Head Federal Com Well 25H
Site: Flat Head Federal Com
Project: Lea County, New Mexico
Design: rev0
Rig: United #43

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/S	+E/W	Dleg	TFace	Vsect	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	6029.13	0.00	0.00	6029.13	0.00	0.00	0.00	0.00	0.00	KOP Begin 11°/100' build
3	6847.31	90.00	359.64	6550.00	520.86	-3.30	11.00	359.64	520.87	Begin 30.00 lateral section
4	12296.06	90.00	359.64	6550.00	5969.50	-37.80	0.00	0.00	5969.62	PBHL/TD

Surface Location: RKB=4088+12 @ 4100.00usft (United #43)
US State Plane 1927 (Exact solution)

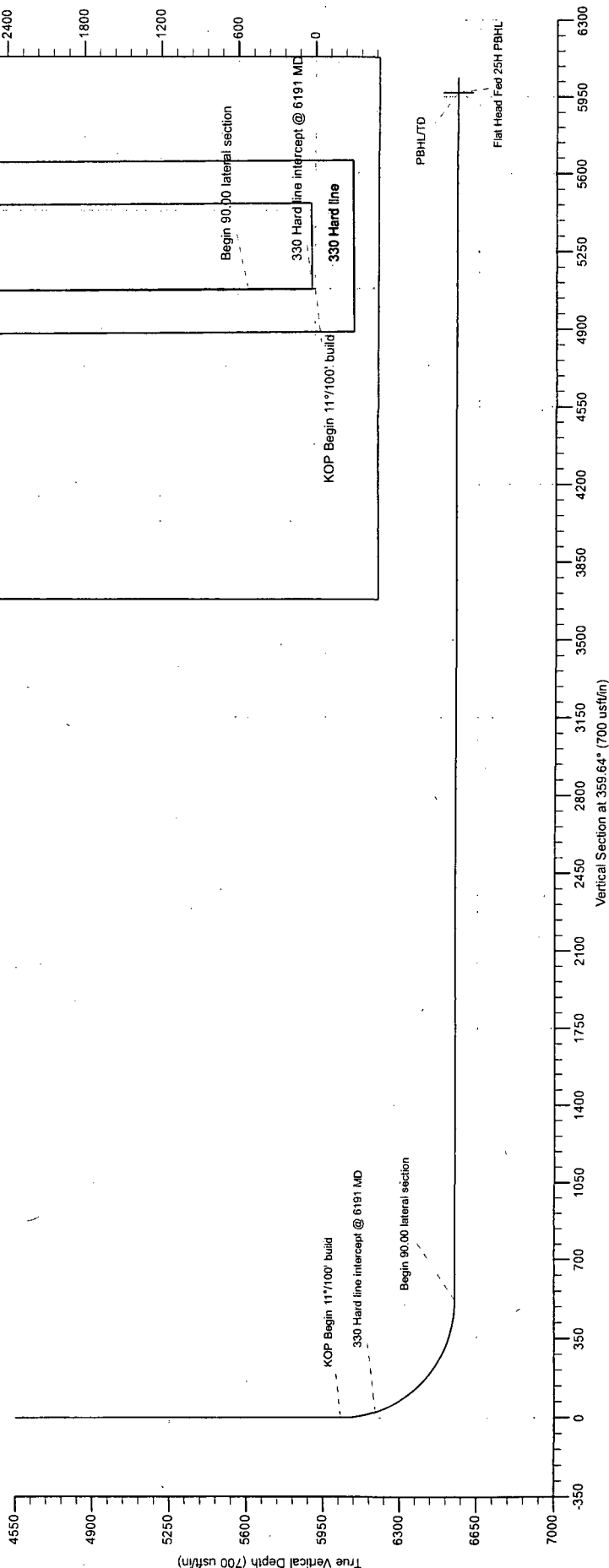
669419.60	Easting	32.83889214	Longitude
683615.20	Latitude	-103.73551383	
New Mexico East 3001			

Total Correction (M => G) To convert a Magnetic Direction to a Grid Direction, Add 6.93°

Azimuths to Grid North
 True North: -0.32°
 Magnetic North: 6.93°
 Magnetic Field
 Strength: 48595.9snT
 Dip Angle: 60.63°
 Date: 2/12/2015
 Model: IGRF2010



ProDIRECTIONAL

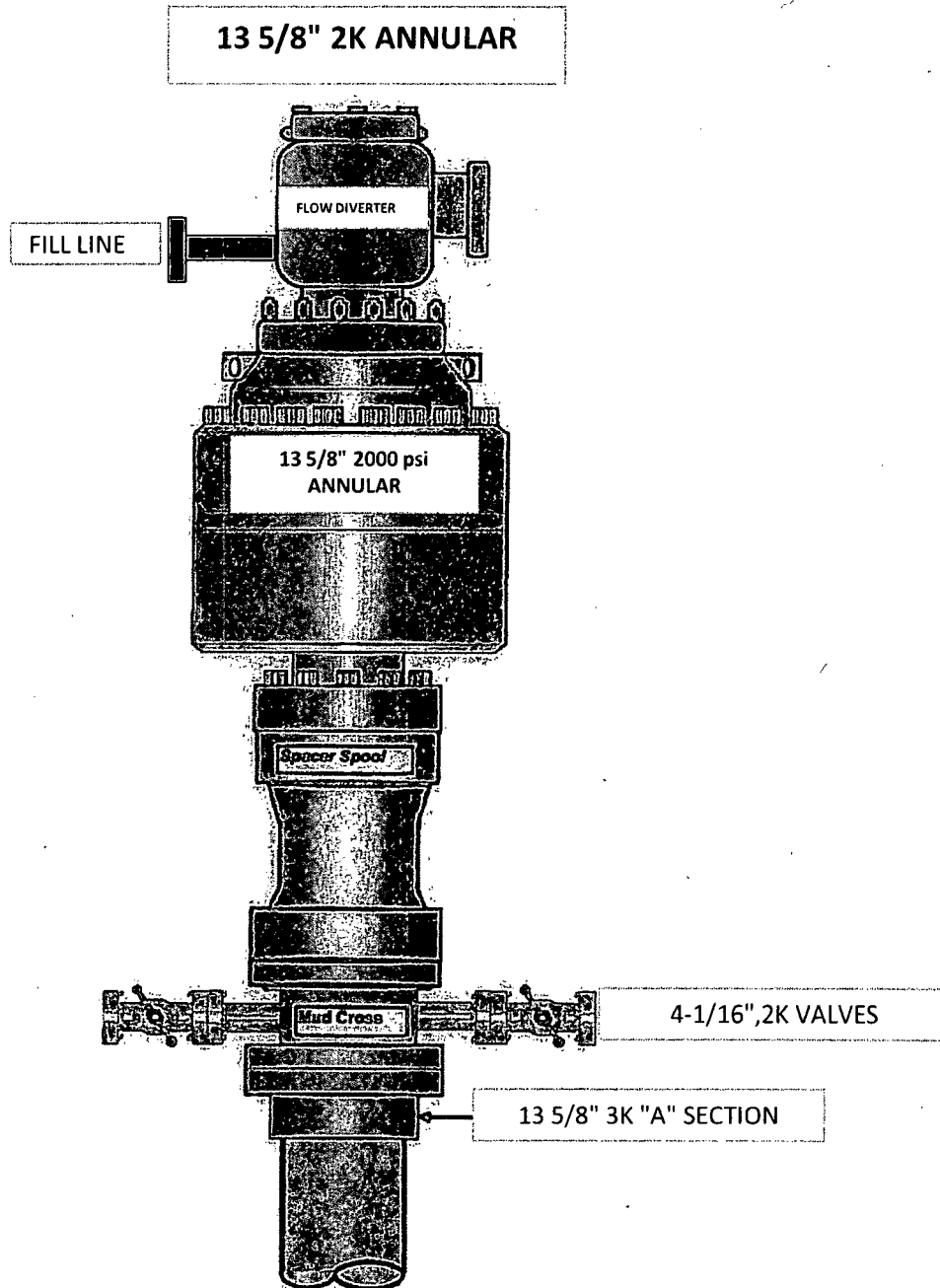


SWD Well List

Well Name	API Number	Section	TwN (S)	Rng (E)	County
Aid State 14 #1 SWD	30-015-29569	14	17	28	Eddy
Bate Federal #3 SWD	30-025-22597	35	19	33	Lea
Big George #3 SWD	30-015-28759	12	17	28	Eddy
Biscuit Hills #1 SWD	30-015-28142	29	17	31	Eddy
Burch Keely Unit #113 SWD	30-015-03068	24	17	29	Eddy
Chase 21 State Com #1 SWD	30-015-30874	21	17	29	Eddy
Curly Fed #2 SWD	30-025-38442	34	17	32	Lea
Delta Wing Fed #1 SWD	30-015-26309	15	17	29	Eddy
Durango 15 State Com #1 SWD	30-015-31557	15	17	29	Eddy
Empire Federal #3 SWD	30-015-37831	10	17	29	Eddy
Empire Fed 10 #5 SWD	30-015-39446	10	17	29	Eddy
Empire State 2 SWD	30-015-37787	9	17	29	Eddy
Empire State 9 #4 SWD	30-015-38972	9	17	29	Eddy
Empire State SWD 15 #1	30-015-39771	15	17	29	Eddy
Empire State SWD 8 #1	30-015-38973	8	17	29	Eddy
Federal 18 #4 SWD	30-025-01674	18	19	33	Lea
Federal BI #1 SWD	30-025-27068	28	17	32	Lea
Loco Hills 33 #4 SWD	30-015-37269	33	17	30	Eddy
Loco Hills 33 #6 SWD	30-015-39478	33	17	30	Eddy
Loco Hills 34 #3 SWD	30-015-37270	34	17	30	Eddy
Loco Hills 34 #5 SWD	30-015-39477	34	17	30	Eddy
Loco Hills 35 #1 SWD	30-015-31635	36	17	30	Eddy
Loco Hills 35 #2 SWD	30-015-37268	35	17	30	Eddy
Maljamar 29 #1 SWD	30-025-39519	29	17	32	Lea
Maljamar SWD 30 #2	30-025-40310	30	17	32	Lea
Mary Dodd A #47 SWD	30-015-20408	22	17	29	Eddy
Mary Dodd B Deep Fed #2 SWD	30-015-31041	14	17	29	Eddy
Muskegon 16 State Com #1	30-015-27108	16	17	29	Eddy
Oxy Spumoni St #1 SWD	30-015-33089	16	17	31	Eddy
Pronghorn SWD #1	30-025-32735	24	19	32	Lea
Saber Fed #1 SWD	30-015-27882	11	17	29	Eddy

Exhibit #10

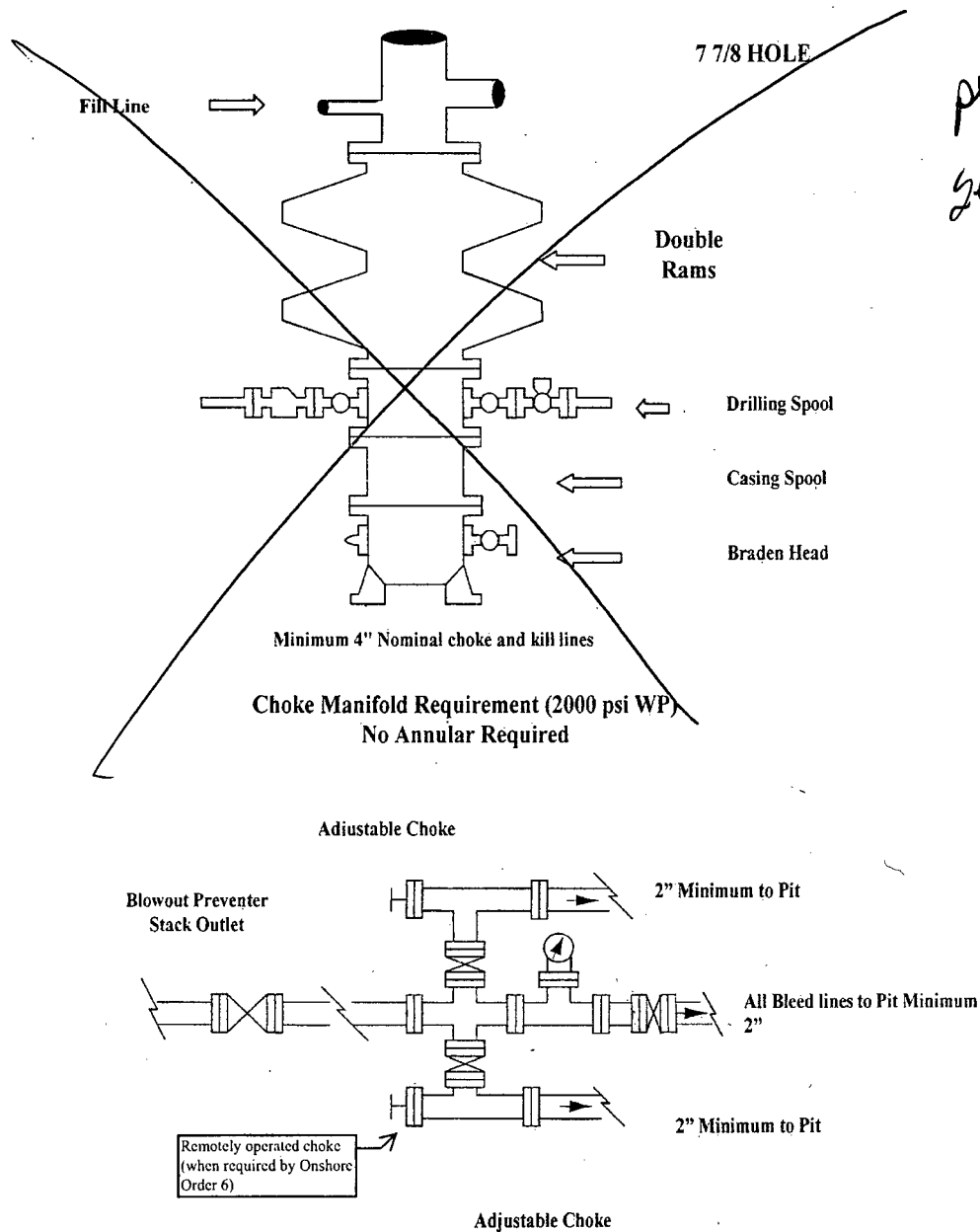
(Choke Manifold Schematic same as Exhibit #9)



COG Operating LLC

Exhibit #9

BOPE and Choke Schematic



*per operator
see email*

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.

Closed Loop Operation & Maintenance Procedure

All drilling fluid circulated over shaker(s) with cuttings discharged into roll off container.

Fluid and fines below shaker(s) are circulated with transfer pump through centrifuge(s) or solids separator with cuttings and fines discharged into roll off container.

Fluid is continuously re-circulated through equipment with polymer added to aid separation of cutting fines.

Roll off containers are lined and de-watered with fluids re-circulated into system.

Additional tank is used to capture unused drilling fluid or cement returns from casing jobs.

This equipment will be maintained 24 hrs./day by solids control personnel and or rig crews that stay on location.

Cuttings will be hauled to either:

CRI (permit number R9166)

or

GMI (permit number 711-019-001)

dependent upon which rig is available to drill this well.

COG Operating LLC

Closed Loop Equipment Diagram

