

HOBBS OCD

SEP 19 2013

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UNITED STATES

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DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

ATS-13-913

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

1a. Type of Work: ☒ DRILL ☐ REENTER		5. Lease Serial No. NMNM120908
1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone		6. If Indian, Allottee or Tribe Name
2. Name of Operator COG Production LLC.		7. If Unit or CA Agreement, Name and No.
3a. Address 2208 West Main Street Artesia, NM 88210		8. Lease Name and Well No. <40143> Windward Federal #1H
3b. Phone No. (include area code) 575-748-6940		9. API Well No. 30-025-4144
4. Location of Well (Report location clearly and in accordance with any State requirements.) At surface 190' FNL & 430' FWL Lot #1 (NWNW) SHL Sec. 30 - T24S - R32E At proposed prod. Zone 330' FSL & 380' FWL Lot #4 (SWSW) BHL Sec. 30 - T24S - R32E		10. Field and Pool, or Exploratory WC025-06-5253206m; Windward Federal #1H; Bone Spring <47899>
14. Distance in miles and direction from nearest town or post office* Approximately 20 miles from Malaga		11. Sec., T.R.M. or Blk and Survey or Area Sec. 30 - T24S - R32E
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. Unit line, if any) 190'	16. No. of acres in lease 1891.72	17. Spacing Unit dedicated to this well 184.88
18. Distance from location* to nearest well, drilling, completed, applied for, on this lease, ft. SHL: 1320' (Windward Federal #2H) BHL: 899'	19. Proposed Depth TVD: 10,330' MD: 14,883'	20. BLM/BIA Bond No. on file NMB000845 & NMB000860
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3539.1' GL	22. Approximate date work will start* 10/1/2013	23. Estimated duration 30 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 <i>Mayte Reyes</i>	Name (Printed/Typed) Mayte Reyes	Date 8/5/2013
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Regulatory Analyst	
Approved by (Signature) /S/ STEPHEN J. CAFFEY	Name (Printed/Typed) Office CARLSBAD FIELD OFFICE
Title FIELD MANAGER	Date SEP 17 2013

Application approval does not warrant or certify that the applicant holds legan 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)

Carlsbad Controlled Water Basin

Ka
9/20/13 SEE ATTACHED FOR
CONDITIONS OF APPROVAL

Approval Subject to General Requirements
& Special Stipulations Attached
SEP 23 2013

Sm

COG Production LLC
DRILLING AND OPERATIONS PROGRAM

Windward Federal 1H
SHL: 190' FNL & 430' FWL
BHL: 330' FSL & 380' FWL
Section 30 T24S R32E
Lea County, New Mexico

In conjunction with Form 3160-3, Application for Permit to Drill subject well, COG Production LLC submits the following eleven items of pertinent information in accordance with BLM requirements.

1. Geological surface formation: Permian
2. The estimated tops of geologic markers & estimated depths at which anticipated water, oil or gas formations are expected to be encountered are as follows:

Fresh Water	~ 371'	
Rustler	750'	
Top of Salt	1083'	
Base of Salt	4357'	
Delaware	4598'	Oil
Bone Spring	8472'	Oil
Wolfcamp	11,396'	
PHTD	11,500'	
TD TVD	10,330'	
TD MD	14,883'	

No other formations are expected to give up oil, gas or fresh water in measurable quantities. The surface fresh water sands will be protected by setting 13-3/8" casing at 775' and circulating cement back to surface. All intervals will be isolated by setting 5 1/2" casing to total depth and tying back cement to a minimum of 500' into 9-5/8" csg shoe.

3. Proposed Casing Program: All casing is new and API approved

Hole Size	Depths	Section	OD Casing	New/Used	Wt	Collar	Grade	Collapse Design Factor	Burst Design Factor	Tension Design Factor
17 1/2"	0' - 775'	Surface	13 3/8"	New	54.5#	STC	J-55	1.125	1.125	1.6
12 1/4"	0' - 4550'	Intrmd	9 5/8"	New	40#	LTC	J-55	1.125	1.125	1.6
8 3/4"	0' - 14,883'	Production Curve & Lateral	5 1/2"	New	17#	LTC	P-110	1.125	1.125	1.6

See COA

- While running all casing strings, the pipe will be kept a minimum of 1/3 full at all times to avoid approaching the collapse pressure of casing.

4. Proposed Cement Program

- | | |
|-------------------------|--|
| a. 13-3/8" Surface | Lead: 350 sx Class C + 4% Gel + 2% CaCl ₂
(13.5 ppg / 1.75 cuft/sx)
Cmt: 250 sx Class C + 2% CaCl ₂
(14.8 ppg / 1.35 cuft/sx)
**Calculated w/50% excess on OH volumes |
| b. 9 5/8" Intermediate: | Lead: 1050 sx 35:65:6 C +Salt+Gilsonite+CFR-3+ HR601
(12.8 ppg / 1.89 cuft/sx)
Tail: 250 sx Class C
(14.8 ppg / 1.35 cuft/sx)
**Calculated w/35% excess on OH volumes |
| d. 5 1/2" Production | Lead: 1250 sx 50:50:10 C +Salt+Gilsonite+CFR-3+ HR601
(11.9 ppg / 2.5 cuft/sx)
Tail: 1000 sx 50:50:2 H +Salt+GasStop +HR601 +CFR-3
(14.4 ppg / 1.25 cuft/sx)
**Calculated w/35% excess on OH volumes |

- The above cement volumes could be revised pending the caliper measurements.
- The 9-5/8" intermediate cement is designed to circulate cement to surface.
- The production TOC will tie back a minimum 500' into previous shoe
- Pilot hole will be plugged back with the following cmt plugs:

See COA

- PHTD – 10,550' with 300 sx Class H @ 17.2 ppg/0.98 yeild
- 10,550' – 9850' with 300 sx Class H @ 17.2 ppg/0.98 yeild

5. Minimum Specifications for Pressure Control:

Nipple up on 13 3/8 with annular preventer tested to 50% of rated working pressure by independent tester and the rest of the 2M system tested to 2000 psi.

Nipple up on 9 5/8 with 5M system tested to 5000 psi by independent tester.

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. A 2" kill line and a minimum 3" choke line will be included in the drilling spool located below the ram-type BOP. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold with 5000 psi WP rating.

6. Estimated BHP & BHT:

Lateral TD = 4512 psi

Lateral TD = 152°F

PHTD = 4914 psi

$$\text{PHTD} = 160^{\circ}\text{F}$$

7. Mud Program: The applicable depths and properties of this system are as follows:

Depth	Type System	Mud Weight	Viscosity (sec)	Waterloss (cc)
0' – 775'	Fresh Water	8.4	29	N.C.
775' – 4550'	Brine	10	29	N.C.
4550' – 11,500'	Cut Brine	8.9 – 9.2	29	N.C.
4550' – 14,883' (Lateral)	Cut Brine	8.9 – 9.2	29	N.C.

- The necessary mud products for weight addition and fluid loss control will be on location at all times.
- A visual and electronic mud monitoring system will be rigged up prior to spud to detect changes in the volume of mud system. The electronic system consists of a pit volume totalizer, stroke counter and flow sensor at flow line.
- If weight and/or viscosity are introduced to the mud system a daily mud check will be performed by mud contractor, along with tourly check by rig personnel.
- After setting intermediate casing, a third party gas unit detection system will be installed at the flow line.

8. Auxiliary Well Control and Monitoring Equipment:

- A Kelly cock will be in the drill string at all times.
- A full opening drill pipe stabbing valve having the appropriate connections will be on the rig floor at all times.
- Hydrogen Sulfide detection equipment will be in operation after drilling out the 13 3/8" casing shoe until the 5 1/2" casing is cemented. Breathing equipment will be on location upon drilling the 13 3/8" shoe until total depth is reached.

*See
COA*

9. Testing, Logging and Coring Program:

- Drill stem tests will be based on geological sample shows.
- If open hole electrical logging is performed, the program will be:
 - Total Depth to Intermediate Casing: Dual Laterolog-Micro Laterolog and Gamma Ray. Compensated Neutron – Z Density log with Gamma Ray and Caliper.
 - Total Depth to Surface: Compensated Neutron with Gamma Ray
 - No coring program is planned
 - Additional testing will be initiated subsequent to setting the 5 1/2" production casing. Specific intervals will be targeted based on log evaluation, geological sample shows and drill stem tests.

10. Potential Hazards:

- No abnormal pressures or temperatures are expected. There is no known presence of H₂S in this area. If H₂S is encountered the operator will comply with the provisions of Onshore Oil and Gas Order No. 6. All personnel will be familiar with all aspects of safe operation of equipment being used to drill this well. No H₂S is anticipated to be encountered.

11. Anticipated starting date and Duration of Operations:

a. Road and location construction will begin after the BLM has approved the APD. Anticipated spud date will be as soon as possible after BLM approval and as soon as a rig will be available. Move in operations and drilling is expected to take 30 days.



COG Production LLC

**Lea County, NM
Windward Federal
#1H**

OH

Plan: Design #1

Standard Survey Report

01 August, 2013

Project	Lea County, NM		
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	Windward Federal		
Site Position:		Northing:	435,194.10 usft
From:	Map	Easting:	690,707.10 usft
Position Uncertainty:	3.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 11' 41.866 N
		Longitude:	103° 43' 0.609 W
		Grid Convergence:	0.33 °

Well	#1H		
Well Position	+N/-S	0.0 usft	Northing: 435,184.60 usft
	+E/-W	0.0 usft	Easting: 689,387.40 usft
Position Uncertainty	3.0 usft	Wellhead Elevation:	usft
		Latitude:	32° 11' 41.847 N
		Longitude:	103° 43' 15.967 W
		Ground Level:	3,539.1 usft

Wellbore	OH		
Magnetics	Model Name	Sample Date	Declination
			(°)
	IGRF2010	8/1/2013	7.39
			(°)
			60.08
			48,369

Design	Design #1		
Audit Notes:			
Version:	Phase:	PLAN	Tie On Depth: 0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W
	(usft)	(usft)	(usft)
	0.0	0.0	0.0
			180.26

Survey Tool Program	Date 8/1/2013		
From	To	Survey (Wellbore)	Tool Name
(usft)	(usft)		Description
0.0	14,883.9	Design #1 (OH)	

Planned Survey										
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Vertical	Dogleg	Build	Turn	
Depth	(°)	(°)	Depth	(usft)	(usft)	Section	Rate	Rate	Rate	
(usft)			(usft)			(usft)	(°/100usft)	(°/100usft)	(°/100usft)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00	
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00	
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00	
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00	
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00	
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00	
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00	
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00	
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00	
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00	
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00	
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00	
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00	
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00	

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)
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	0.00
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	0.00
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	0.00
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	0.00
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	0.00
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	0.00
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	0.00
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	0.00
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	0.00
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	0.00
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	0.00
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	0.00
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	0.00
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	0.00
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	0.00	0.00
4,600.0	0.00	0.00	4,600.0	0.0	0.0	0.0	0.00	0.00	0.00
4,700.0	0.00	0.00	4,700.0	0.0	0.0	0.0	0.00	0.00	0.00
4,800.0	0.00	0.00	4,800.0	0.0	0.0	0.0	0.00	0.00	0.00
4,900.0	0.00	0.00	4,900.0	0.0	0.0	0.0	0.00	0.00	0.00
5,000.0	0.00	0.00	5,000.0	0.0	0.0	0.0	0.00	0.00	0.00
5,100.0	0.00	0.00	5,100.0	0.0	0.0	0.0	0.00	0.00	0.00
5,200.0	0.00	0.00	5,200.0	0.0	0.0	0.0	0.00	0.00	0.00
5,300.0	0.00	0.00	5,300.0	0.0	0.0	0.0	0.00	0.00	0.00
5,400.0	0.00	0.00	5,400.0	0.0	0.0	0.0	0.00	0.00	0.00
5,500.0	0.00	0.00	5,500.0	0.0	0.0	0.0	0.00	0.00	0.00
5,600.0	0.00	0.00	5,600.0	0.0	0.0	0.0	0.00	0.00	0.00
5,700.0	0.00	0.00	5,700.0	0.0	0.0	0.0	0.00	0.00	0.00
5,800.0	0.00	0.00	5,800.0	0.0	0.0	0.0	0.00	0.00	0.00
5,900.0	0.00	0.00	5,900.0	0.0	0.0	0.0	0.00	0.00	0.00
6,000.0	0.00	0.00	6,000.0	0.0	0.0	0.0	0.00	0.00	0.00
6,100.0	0.00	0.00	6,100.0	0.0	0.0	0.0	0.00	0.00	0.00
6,200.0	0.00	0.00	6,200.0	0.0	0.0	0.0	0.00	0.00	0.00
6,300.0	0.00	0.00	6,300.0	0.0	0.0	0.0	0.00	0.00	0.00
6,400.0	0.00	0.00	6,400.0	0.0	0.0	0.0	0.00	0.00	0.00
6,500.0	0.00	0.00	6,500.0	0.0	0.0	0.0	0.00	0.00	0.00
6,600.0	0.00	0.00	6,600.0	0.0	0.0	0.0	0.00	0.00	0.00
6,700.0	0.00	0.00	6,700.0	0.0	0.0	0.0	0.00	0.00	0.00
6,800.0	0.00	0.00	6,800.0	0.0	0.0	0.0	0.00	0.00	0.00
6,900.0	0.00	0.00	6,900.0	0.0	0.0	0.0	0.00	0.00	0.00
7,000.0	0.00	0.00	7,000.0	0.0	0.0	0.0	0.00	0.00	0.00
7,100.0	0.00	0.00	7,100.0	0.0	0.0	0.0	0.00	0.00	0.00
7,200.0	0.00	0.00	7,200.0	0.0	0.0	0.0	0.00	0.00	0.00
7,300.0	0.00	0.00	7,300.0	0.0	0.0	0.0	0.00	0.00	0.00

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)
7,400.0	0.00	0.00	7,400.0	0.0	0.0	0.0	0.00	0.00	0.00
7,500.0	0.00	0.00	7,500.0	0.0	0.0	0.0	0.00	0.00	0.00
7,600.0	0.00	0.00	7,600.0	0.0	0.0	0.0	0.00	0.00	0.00
7,700.0	0.00	0.00	7,700.0	0.0	0.0	0.0	0.00	0.00	0.00
7,800.0	0.00	0.00	7,800.0	0.0	0.0	0.0	0.00	0.00	0.00
7,900.0	0.00	0.00	7,900.0	0.0	0.0	0.0	0.00	0.00	0.00
8,000.0	0.00	0.00	8,000.0	0.0	0.0	0.0	0.00	0.00	0.00
8,100.0	0.00	0.00	8,100.0	0.0	0.0	0.0	0.00	0.00	0.00
8,200.0	0.00	0.00	8,200.0	0.0	0.0	0.0	0.00	0.00	0.00
8,300.0	0.00	0.00	8,300.0	0.0	0.0	0.0	0.00	0.00	0.00
8,400.0	0.00	0.00	8,400.0	0.0	0.0	0.0	0.00	0.00	0.00
8,500.0	0.00	0.00	8,500.0	0.0	0.0	0.0	0.00	0.00	0.00
8,600.0	0.00	0.00	8,600.0	0.0	0.0	0.0	0.00	0.00	0.00
8,700.0	0.00	0.00	8,700.0	0.0	0.0	0.0	0.00	0.00	0.00
8,800.0	0.00	0.00	8,800.0	0.0	0.0	0.0	0.00	0.00	0.00
8,900.0	0.00	0.00	8,900.0	0.0	0.0	0.0	0.00	0.00	0.00
9,000.0	0.00	0.00	9,000.0	0.0	0.0	0.0	0.00	0.00	0.00
9,100.0	0.00	0.00	9,100.0	0.0	0.0	0.0	0.00	0.00	0.00
9,200.0	0.00	0.00	9,200.0	0.0	0.0	0.0	0.00	0.00	0.00
9,300.0	0.00	0.00	9,300.0	0.0	0.0	0.0	0.00	0.00	0.00
9,400.0	0.00	0.00	9,400.0	0.0	0.0	0.0	0.00	0.00	0.00
9,500.0	0.00	0.00	9,500.0	0.0	0.0	0.0	0.00	0.00	0.00
9,600.0	0.00	0.00	9,600.0	0.0	0.0	0.0	0.00	0.00	0.00
9,700.0	0.00	0.00	9,700.0	0.0	0.0	0.0	0.00	0.00	0.00
9,800.0	0.00	0.00	9,800.0	0.0	0.0	0.0	0.00	0.00	0.00
9,852.5	0.00	0.00	9,852.5	0.0	0.0	0.0	0.00	0.00	0.00
KOP - 9852.5 'MD, 0.00° INC, 0.00° AZI									
9,875.0	2.70	180.26	9,875.0	-0.5	0.0	0.5	12.00	12.00	0.00
9,900.0	5.70	180.26	9,899.9	-2.4	0.0	2.4	12.00	12.00	0.00
9,925.0	8.70	180.26	9,924.7	-5.5	0.0	5.5	12.00	12.00	0.00
9,950.0	11.70	180.26	9,949.3	-9.9	0.0	9.9	12.00	12.00	0.00
9,975.0	14.70	180.26	9,973.7	-15.6	-0.1	15.6	12.00	12.00	0.00
10,000.0	17.70	180.26	9,997.7	-22.6	-0.1	22.6	12.00	12.00	0.00
10,025.0	20.70	180.26	10,021.3	-30.8	-0.1	30.8	12.00	12.00	0.00
10,050.0	23.70	180.26	10,044.4	-40.3	-0.2	40.3	12.00	12.00	0.00
10,075.0	26.70	180.26	10,067.0	-50.9	-0.2	50.9	12.00	12.00	0.00
10,100.0	29.70	180.26	10,089.1	-62.7	-0.3	62.7	12.00	12.00	0.00
10,125.0	32.70	180.26	10,110.4	-75.7	-0.3	75.7	12.00	12.00	0.00
10,150.0	35.70	180.26	10,131.1	-89.7	-0.4	89.7	12.00	12.00	0.00
10,175.0	38.70	180.26	10,151.0	-104.8	-0.5	104.8	12.00	12.00	0.00
10,200.0	41.70	180.26	10,170.1	-121.0	-0.5	121.0	12.00	12.00	0.00
10,225.0	44.70	180.26	10,188.4	-138.1	-0.6	138.1	12.00	12.00	0.00
10,250.0	47.70	180.26	10,205.7	-156.1	-0.7	156.1	12.00	12.00	0.00
10,275.0	50.70	180.26	10,222.0	-175.0	-0.8	175.0	12.00	12.00	0.00
10,300.0	53.70	180.26	10,237.3	-194.8	-0.9	194.8	12.00	12.00	0.00
10,325.0	56.70	180.26	10,251.6	-215.3	-1.0	215.3	12.00	12.00	0.00
10,350.0	59.70	180.26	10,264.8	-236.6	-1.1	236.6	12.00	12.00	0.00
10,375.0	62.70	180.26	10,276.8	-258.5	-1.2	258.5	12.00	12.00	0.00
10,400.0	65.70	180.26	10,287.7	-281.0	-1.3	281.0	12.00	12.00	0.00
10,425.0	68.69	180.26	10,297.4	-304.0	-1.4	304.0	12.00	12.00	0.00
10,450.0	71.69	180.26	10,305.8	-327.5	-1.5	327.5	12.00	12.00	0.00
10,475.0	74.69	180.26	10,313.1	-351.5	-1.6	351.5	12.00	12.00	0.00
10,500.0	77.69	180.26	10,319.0	-375.7	-1.7	375.7	12.00	12.00	0.00

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)
10,525.0	80.69	180.26	10,323.7	-400.3	-1.8	400.3	12.00	12.00	0.00
10,550.0	83.69	180.26	10,327.1	-425.0	-1.9	425.1	12.00	12.00	0.00
10,575.0	86.69	180.26	10,329.2	-450.0	-2.0	450.0	12.00	12.00	0.00
10,600.0	89.69	180.26	10,330.0	-474.9	-2.2	474.9	12.00	12.00	0.00
10,602.6	90.00	180.26	10,330.0	-477.5	-2.2	477.5	12.00	12.00	0.00
EOC-10602.6 'MD, 90.00° INC, 180.26° AZI									
10,700.0	90.00	180.26	10,330.0	-574.9	-2.6	574.9	0.00	0.00	0.00
10,800.0	90.00	180.26	10,330.0	-674.9	-3.1	674.9	0.00	0.00	0.00
10,900.0	90.00	180.26	10,330.0	-774.9	-3.5	774.9	0.00	0.00	0.00
11,000.0	90.00	180.26	10,330.0	-874.9	-4.0	874.9	0.00	0.00	0.00
11,100.0	90.00	180.26	10,330.0	-974.9	-4.4	974.9	0.00	0.00	0.00
11,200.0	90.00	180.26	10,330.0	-1,074.9	-4.9	1,074.9	0.00	0.00	0.00
11,300.0	90.00	180.26	10,330.0	-1,174.9	-5.3	1,174.9	0.00	0.00	0.00
11,400.0	90.00	180.26	10,330.0	-1,274.9	-5.8	1,274.9	0.00	0.00	0.00
11,500.0	90.00	180.26	10,330.0	-1,374.9	-6.2	1,374.9	0.00	0.00	0.00
11,600.0	90.00	180.26	10,330.0	-1,474.9	-6.7	1,474.9	0.00	0.00	0.00
11,700.0	90.00	180.26	10,330.0	-1,574.9	-7.1	1,574.9	0.00	0.00	0.00
11,800.0	90.00	180.26	10,330.0	-1,674.9	-7.6	1,674.9	0.00	0.00	0.00
11,900.0	90.00	180.26	10,330.0	-1,774.9	-8.1	1,774.9	0.00	0.00	0.00
12,000.0	90.00	180.26	10,330.0	-1,874.9	-8.5	1,874.9	0.00	0.00	0.00
12,100.0	90.00	180.26	10,330.0	-1,974.9	-9.0	1,974.9	0.00	0.00	0.00
12,200.0	90.00	180.26	10,330.0	-2,074.9	-9.4	2,074.9	0.00	0.00	0.00
12,300.0	90.00	180.26	10,330.0	-2,174.9	-9.9	2,174.9	0.00	0.00	0.00
12,400.0	90.00	180.26	10,330.0	-2,274.9	-10.3	2,274.9	0.00	0.00	0.00
12,500.0	90.00	180.26	10,330.0	-2,374.9	-10.8	2,374.9	0.00	0.00	0.00
12,600.0	90.00	180.26	10,330.0	-2,474.9	-11.2	2,474.9	0.00	0.00	0.00
12,700.0	90.00	180.26	10,330.0	-2,574.9	-11.7	2,574.9	0.00	0.00	0.00
12,800.0	90.00	180.26	10,330.0	-2,674.9	-12.1	2,674.9	0.00	0.00	0.00
12,900.0	90.00	180.26	10,330.0	-2,774.9	-12.6	2,774.9	0.00	0.00	0.00
13,000.0	90.00	180.26	10,330.0	-2,874.9	-13.0	2,874.9	0.00	0.00	0.00
13,100.0	90.00	180.26	10,330.0	-2,974.9	-13.5	2,974.9	0.00	0.00	0.00
13,200.0	90.00	180.26	10,330.0	-3,074.9	-14.0	3,074.9	0.00	0.00	0.00
13,300.0	90.00	180.26	10,330.0	-3,174.9	-14.4	3,174.9	0.00	0.00	0.00
13,400.0	90.00	180.26	10,330.0	-3,274.9	-14.9	3,274.9	0.00	0.00	0.00
13,500.0	90.00	180.26	10,330.0	-3,374.9	-15.3	3,374.9	0.00	0.00	0.00
13,600.0	90.00	180.26	10,330.0	-3,474.9	-15.8	3,474.9	0.00	0.00	0.00
13,700.0	90.00	180.26	10,330.0	-3,574.9	-16.2	3,574.9	0.00	0.00	0.00
13,800.0	90.00	180.26	10,330.0	-3,674.9	-16.7	3,674.9	0.00	0.00	0.00
13,900.0	90.00	180.26	10,330.0	-3,774.9	-17.1	3,774.9	0.00	0.00	0.00
14,000.0	90.00	180.26	10,330.0	-3,874.9	-17.6	3,874.9	0.00	0.00	0.00
14,100.0	90.00	180.26	10,330.0	-3,974.9	-18.0	3,974.9	0.00	0.00	0.00
14,200.0	90.00	180.26	10,330.0	-4,074.9	-18.5	4,074.9	0.00	0.00	0.00
14,300.0	90.00	180.26	10,330.0	-4,174.9	-18.9	4,174.9	0.00	0.00	0.00
14,400.0	90.00	180.26	10,330.0	-4,274.9	-19.4	4,274.9	0.00	0.00	0.00
14,500.0	90.00	180.26	10,330.0	-4,374.9	-19.9	4,374.9	0.00	0.00	0.00
14,600.0	90.00	180.26	10,330.0	-4,474.9	-20.3	4,474.9	0.00	0.00	0.00
14,700.0	90.00	180.26	10,330.0	-4,574.9	-20.8	4,574.9	0.00	0.00	0.00
14,800.0	90.00	180.26	10,330.0	-4,674.9	-21.2	4,674.9	0.00	0.00	0.00
14,883.9	90.00	180.26	10,330.0	-4,758.8	-21.6	4,758.8	0.00	0.00	0.00

TD at 14883.9 - PBHL(Windward#1H)

Design Targets**Target Name**

- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- Shape									
PBHL(Windward#1H)	0.00	0.00	10,330.0	-4,758.8	-21.8	430,425.80	689,365.60	32° 10' 54.756 N	103° 43' 16.536 W
- plan misses target center by 0.2usft at 14883.9usft MD (10330.0 TVD, -4758.8 N, -21.6 E)									
- Point									

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
9853	9853	0	0	KOP - 9852.5 'MD, 0.00° INC, 0.00° AZI
10,603	10,330	-477	-2	EOC- 10602.6 'MD, 90.00° INC, 180.26° AZI
14,884	10,330	-4759	-22	TD at 14883.9

Checked By: _____ Approved By: _____ Date: _____



COG Production LLC
Project: Lea County, NM
Site: Windward Federal

Well: #1H
Wellbore: OH
Plan: Design #1 (#1H/OH)

Section Details

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VFace
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0
2	9852.5	0.00	0.00	9852.5	0.0	0.0	0.00	0.00	0.0
3	10602.6	90.00	180.26	10330.0	-477.5	-2.2	12.00	180.26	477.5
4	14883.9	90.00	180.26	10330.0	-4758.8	-21.6	0.00	0.00	4758.8

PBHL(Windward#1H)

WELL DETAILS: #1H

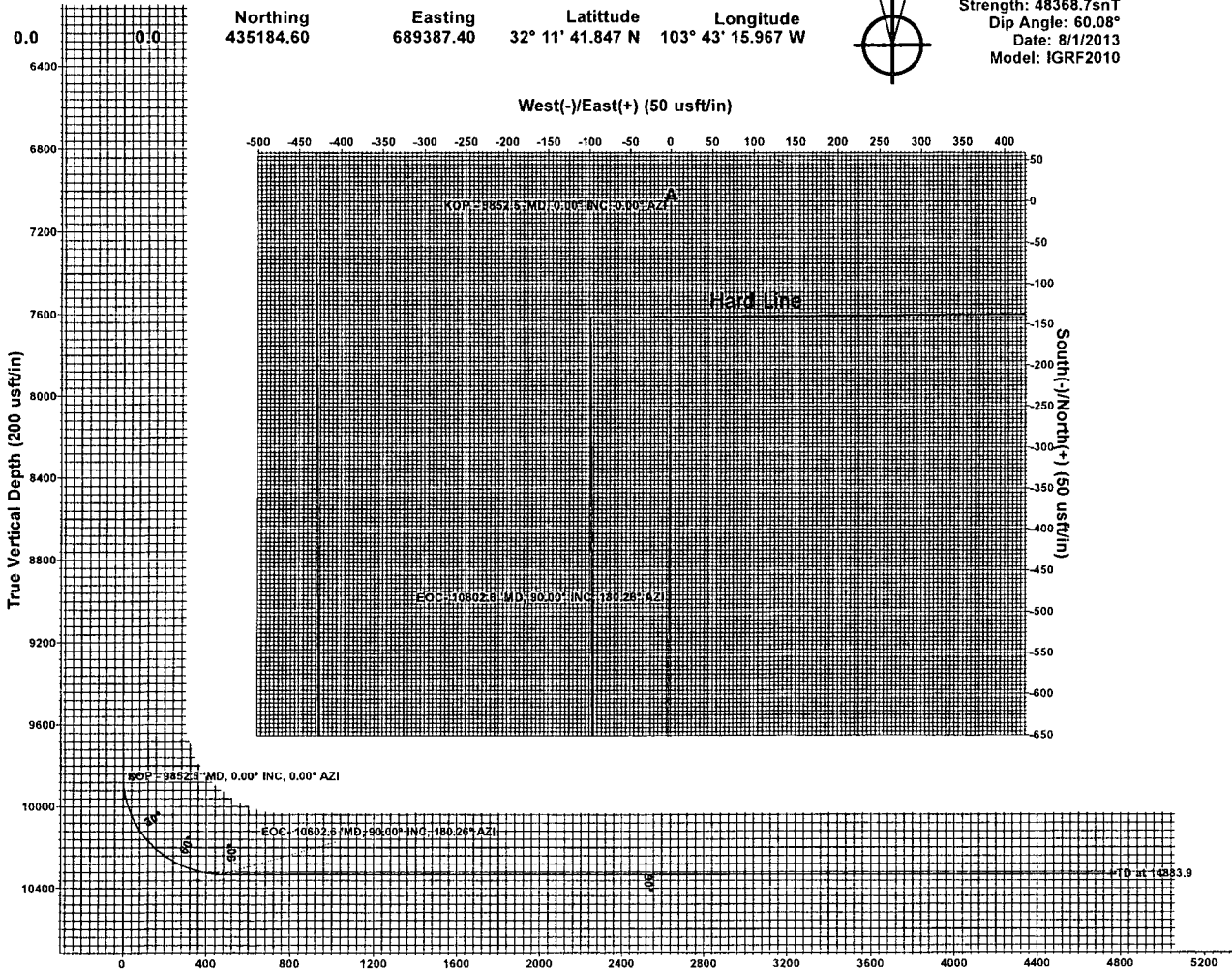
Ground Elevation:: 3539.1
RKB Elevation: WELL @ 3569.1usft (Original Well Elev)
Rig Name: Original Well Elev

Northing 435184.60 Easting 689387.40 Latitude 32° 11' 41.847 N Longitude 103° 43' 15.967 W

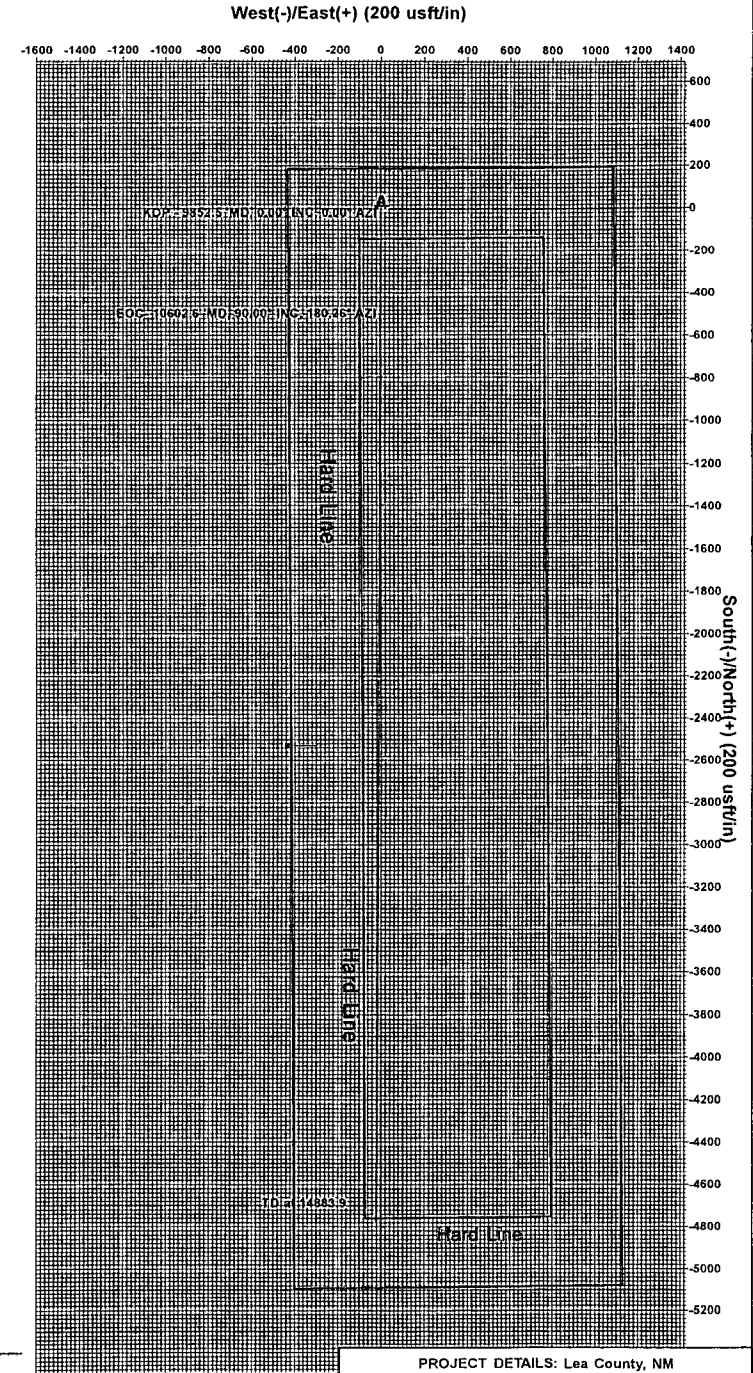


Azimuths to Grid North
True North: -0.33°
Magnetic North: 7.07°

Magnetic Field
Strength: 48368.7snT
Dip Angle: 60.08°
Date: 8/1/2013
Model: IGRF2010



Vertical Section at 180.26° (200 usft/in)



Plan: Design #1 (#1H/OH)
Created By: Well Planner Date: 7:15, August 01 2013

Terra Directional Services
322 Spring Hill Drive, Suite A100, Spring, Texas 77386
432.425.7532

PROJECT DETAILS: Lea County, NM
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
Local North: Grid



New Mexico Office of the State Engineer
Water Column/Average Depth to Water

No records found.

PLSS Search:

Section(s): 30

Township: 24S

Range: 32E

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

8/5/13 10:00 AM

Page 1 of 1

WATER COLUMN/ AVERAGE
DEPTH TO WATER



New Mexico Office of the State Engineer

Water Column/Average Depth to Water

(A CLW##### in the
POD suffix indicates the
POD has been replaced
& no longer serves a
water right file.)

(R=POD has
been replaced,
O=orphaned,
C=the file is
closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)

(quarters are smallest to largest)

(NAD83 UTM in meters)

(In feet)

POD Number	POD Sub-Code	basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
<u>C 01932</u>	C	ED		3	1	12	24S	32E		628633	3567188*	492		
<u>C 02350</u>		ED		4	3	10	24S	32E		625826	3566333*	60		
<u>C 03527 POD1</u>	C	LE		1	2	3	03	24S	32E	625770	3568487	500		
<u>C 03528 POD1</u>	C	LE		1	1	2	15	24S	32E	626040	3566129	541		
<u>C 03530 POD1</u>	C	LE		3	4	3	07	24S	32E	620886	3566156	550		
<u>C 03555 POD1</u>	C	LE		2	2	1	05	24S	32E	622709	3569231	560		

Average Depth to Water: --

Minimum Depth: --

Maximum Depth: --

Record Count: 6

PLSS Search:

Township: 24S

Range: 32E

*UTM location was derived from PLSS - see Help

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

Serial Register Page



n map

DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
CASE RECORDATION
(MASS) Serial Register Page

Run Time: 10:03 AM

Page 1 of 1

Run Date: 08/05/2013

01 12-22-1987;101STAT1330;30USC181 ET SE

Total Acres

Serial Number

Case Type 312021: O&G LSE COMP PD -1987

1,891.720

NMNM-- - 120908

Commodity 459: OIL & GAS L

Case Disposition: AUTHORIZED

Name & Address	Serial Number: NMNM-- - 120908	Int Rel	% Intere
COG PRODUCTION LLC 600 WILLINOIS AVE. ONE CONCHO CENTE MIDLAND TX 79701		LESSEE	100.0000000

Serial Number: NMNM-- - 120908

Mer Twp Rng Sec	STyp	Snr Surt	Subdivision	District/Field Office	County	Mgmt Agency	
23 0240S 0320E 029	ALIQ		NE 1/2 W2SE	CARLSBAD FIELD OFFICE	LEA	BUREAU OF LAND MGMT	1 0320E
23 0240S 0320E 030	ALIQ		E2E2W2	CARLSBAD FIELD OFFICE	LEA	BUREAU OF LAND MGMT	1 0320E
23 0240S 0320E 030	LOTS		1-4	CARLSBAD FIELD OFFICE	LEA	BUREAU OF LAND MGMT	1 0320E
23 0240S 0320E 031	ALIQ		E2E2W2	CARLSBAD FIELD OFFICE	LEA	BUREAU OF LAND MGMT	1 0320E
23 0240S 0320E 031	LOTS		1-4	CARLSBAD FIELD OFFICE	LEA	BUREAU OF LAND MGMT	1 0320E

3

0

Serial Number: NMNM-- - 120908

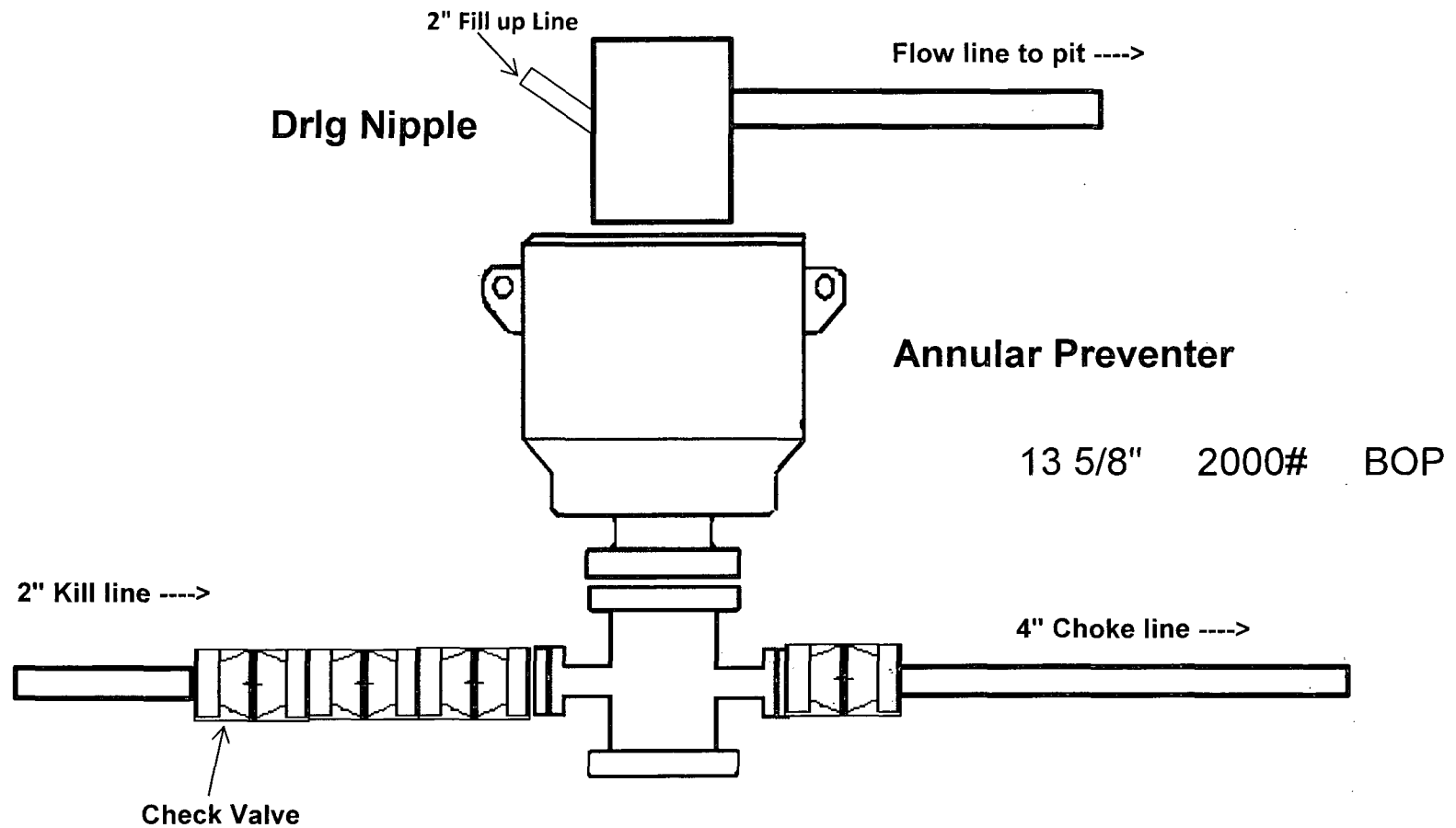
Act Date	Code	Action	Action Remar	Pending Offic	
05/30/2008	387	CASE ESTABLISHED	200807026;		2008 05 30
06/30/2008	299	PROTEST FILED	SUSAN R BELL;		2008 06 30
07/01/2008	299	PROTEST FILED	WESTERN ENVR LAW CTR;		2008 07 01
07/01/2008	299	PROTEST FILED	WILD EARTH GUARDIANS;		2008 07 01
07/16/2008	191	SALE HELD			2008 07 16
07/16/2008	267	BID RECEIVED	\$3027200.00;		2008 07 16
09/08/2008	298	PROTEST DISMISSED	SUSAN R BELL;		2008 09 08
10/24/2008	299	PROTEST DISMISSED	WILD EARTH GUARDIANS;		2008 10 24
10/31/2008	237	LEASE ISSUED			2008 10 31
10/31/2008	298	PROTEST DISMISSED	WESTERN ENVR LAW CTR;		2008 10 31
10/31/2008	974	AUTOMATED RECORD VERIF	BTM		2008 10 31
11/01/2008	496	FUND CODE	05;145003		2008 11 01
11/01/2008	530	RLTY RATE - 12 1/2%			2008 11 01
11/01/2008	868	EFFECTIVE DATE			2008 11 01
11/17/2008	042	CASE SENT TO	RRCMERO;		2008 11 17
09/19/2011	899	TRF OF ORR FILED	1		2011 09 19
11/18/2011	940	NAME CHANGE RECOGNIZED	CGX RES LLC/COG PROD		2011 11 18
04/04/2013	643	PRODUCTION DETERMINATION			2013 04 04
04/04/2013	650	HELD BY PROC - ACTUAL			2013 04 04
06/14/2013	658	MEMO OF 1ST PROD-ACTUAL			2013 06 14

Line Nr	Remarks	Serial Number: NMNM-- - 120908
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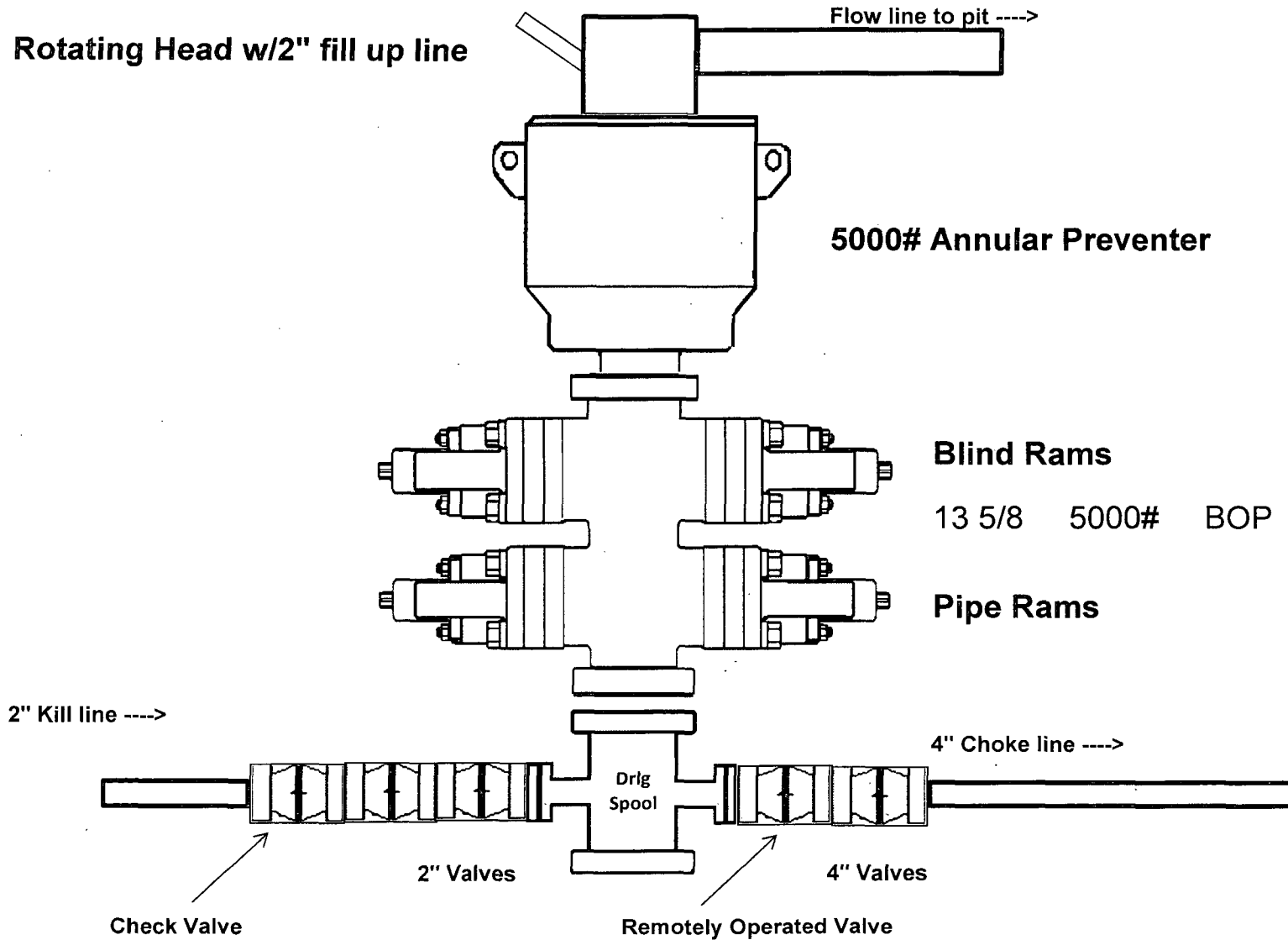
02	STIPULATIONS ATTACHED TO LEASE;	2
03	NM-11-LN SPECIAL CULTURAL RESOURCE	3
04	SENH-S-15 WILDLIFE HABITAT PROJECTS	4
05	SENH-S-19 PLAYAS AND ALKALI LAKES	5
06	SENH-S-22 PRAIRIE CHICKENS	6

NO WARRANTY IS MADE BY BLM FOR USE OF THE DATA FOR PURPOSES NOT INTENDED BY BLM

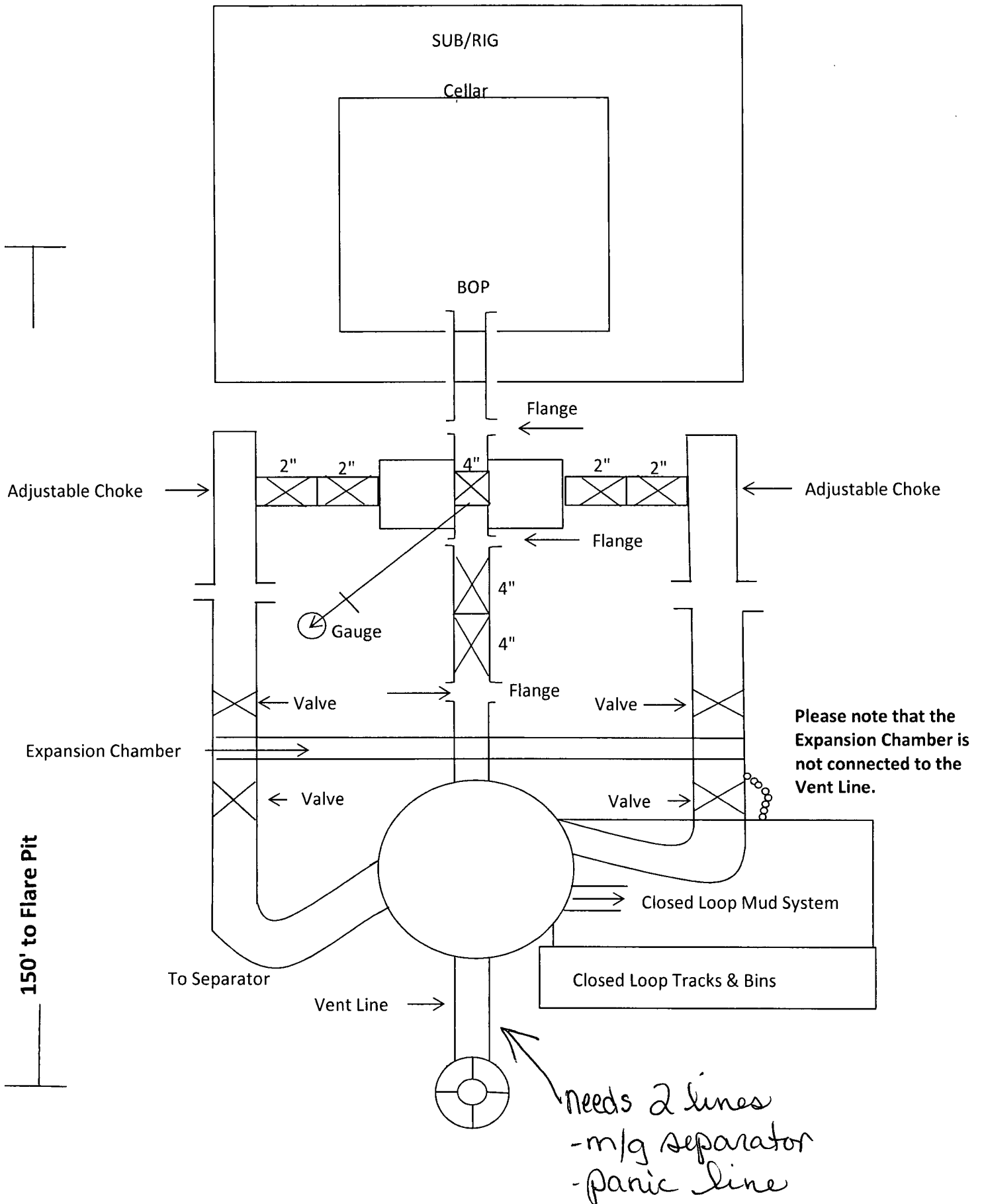
2,000 psi BOP Schematic



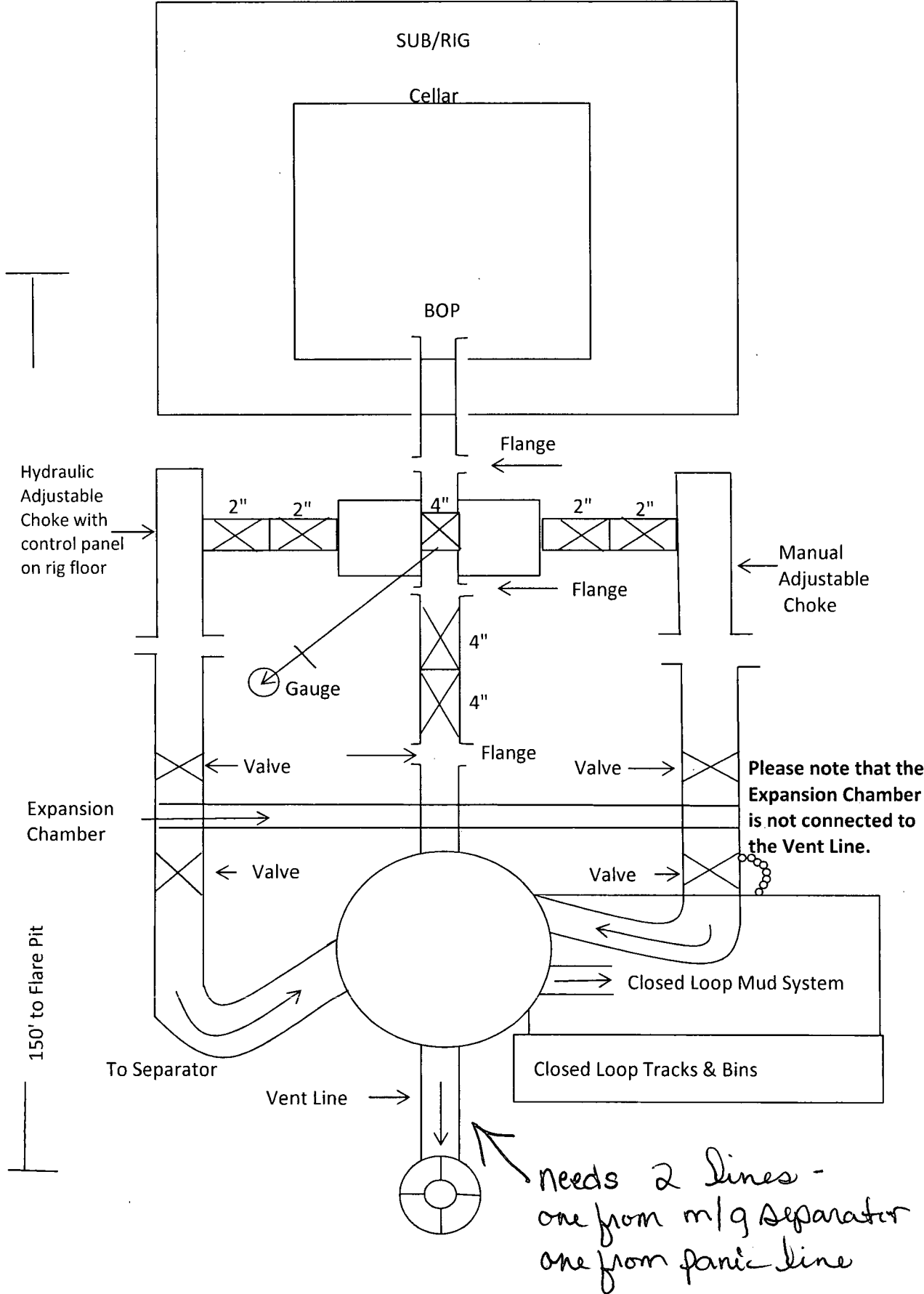
5,000 psi BOP Schematic



2M Choke Manifold Equipment

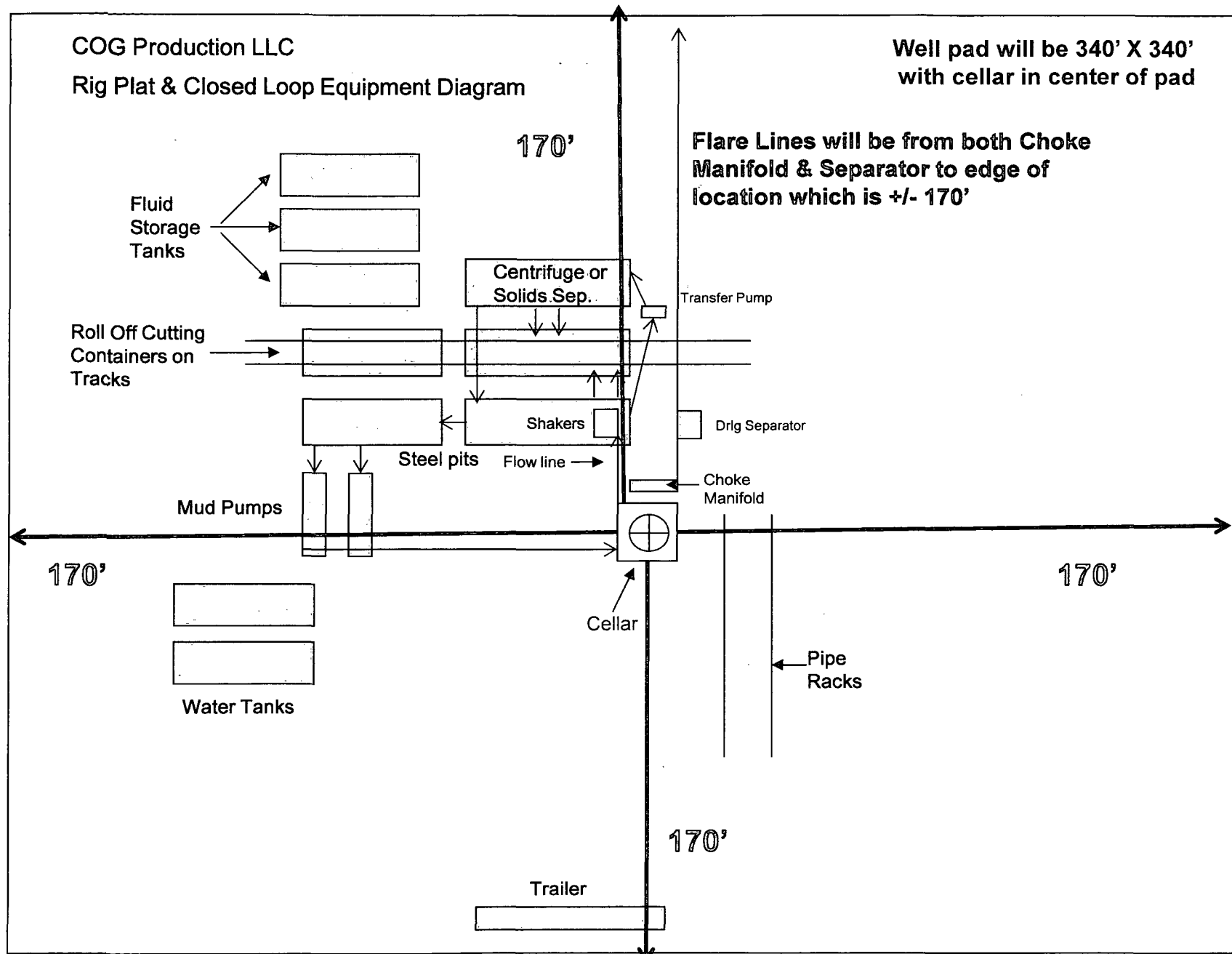


5M Choke Manifold Equipment



COG Production LLC
Rig Plat & Closed Loop Equipment Diagram

Well pad will be 340' X 340'
with cellar in center of pad



4
N
LB
8-12-2013

Exhibit 1

"I further certify that COG will comply with Rule 19.15.17
NMAC by using a Closed Loop System."