HOBBS OCD

12-786

Form 3160-3
(August 2007)

APR 08 2013

RECEIVED

OCD Hobbs

FORM APPROVED
OMB No. 1004-013
Expires July 31, 2010

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.: SHL: NMNM0309376, BHL: NMNM114980

6. If Indian, Allotee or Tribe Name:

1a. Type of Work: [✓] DRILL [ ] REENTER

7. If Unit or CA Agreement, Name and No.:

1b. Type of Well: [✓] Oil Well [ ] Gas Well [ ] Other [✓] Single Zone [ ] Multiple Zone

8. Lease Name and Well No.: <39802> Haas 6 Federal Com #1H

2. Name of Operator: COG Operating LLC. <229137>

9. API Well No.: 30-025-41097

3a. Address: 2208 West Main Street, Artesia, NM 88210

3b. Phone No. *(include area code)*: 575-748-6940

10. Field and Pool, or Exploratory: Lusk; Bone Spring, North 41450

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*

At surface: 330' FNL & 380' FEL Unit Letter A (NENE) SHL Sec 6-T19S-R32E

At proposed prod. Zone: 380' FNL & 330' FWL Unit ~~Letter D~~ LOT 1 (NWNW) BHL Sec 6-T19S-R32E

11. Sec., T.R.M. or Blk and Survey or Area: Sec. 6 - T19S - R32E

14. Distance in miles and direction from nearest town or post office*: About 19 miles from Carlsbad

12. County or Parish: Lea County

13. State: NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. Unit line, if any): 330'

16. No. of acres in lease: Total - 402.68; SHL: ~~120~~; BHL: ~~200~~

17. Spacing Unit dedicated to this well: 161.41

18. Distance from location* to nearest well, drilling, completed, applied for, on this lease, ft.: SHL: 1044' BHL: 433'

TVD: 9320' MD: 13,662'

NMB000740 & NMB00215

21. Elevations (Show whether DF, KDB, RT, GL, etc.): 3675'

22. Approximate date work will start*:

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.
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
Mayte Reyes	Mayte Reyes	6/1/2012

Title: Regulatory Analyst

Approved by *(Signature)*	Name *(Printed/Typed)*	Date
/s/ James A. Amos		APR 3 2013

Title	Office
FIELD MANAGER	CARLSBAD FIELD OFFICE

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 theron.

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)

Capitan Controlled Water Basin

KZ 04/09/13

Approval Subject to General Requirements & Special Stipulations Attached

SEE ATTACHED FOR CONDITIONS OF APPROVAL

APR 10 2013

COG Operating LLC
DRILLING AND OPERATIONS PROGRAM
Haas 6 Federal Com #1H
SHL: 330' FNL & 380' FEL
BHL: 380' FNL & 330' FWL
Section 6 T19S R32E
Lea County, New Mexico

In conjunction with Form 3160-3, Application for Permit to Drill subject well, COG Operating 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	~ 223'	
Rustler	1089'	
Top of Salt	1188'	
Base of Salt	2849'	
Yates	2875'	
Seven Rivers	3157'	
Queen	3689'	
Grayburg	4120'	
Delaware	4507'	Oil
Bone Spring	6857'	Oil
TD TVD	9230'	
TD MD	13,662'	

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 1120' and circulating cement back to surface. All intervals will be isolated by setting 5 ½" casing to total depth and tying back cement to a minimum of 500' into 9-5/8" csg.

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 ½"	0' - ~~1120'~~ 1160'	Surface	13 3/8"	New	54.5#	STC	J-55	1.125	1.125	1.6
12 ¼"	0' – 3200'	Intrmd	9 5/8"	New	36#	BTC	J-55	1.125	1.125	1.6
7 7/8"	0' – 13,662'	Production Curve & Lateral	5 ½"	New	17#	LTC	P-110	1.125	1.125	1.6

- 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: 500 sx Class C + 4% Gel + 2% $CaCl_2$
(13.5 ppg /1.75 cuft/sx)
Tail: 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: 550 sx Class C + 4% Gel
(13.5 ppg /1.75 cuft/sx)
Tail: 250 sx Class C + 1% $CaCl_2$
(14.8 ppg / 1.35 cuft/sx)
**Calculated w/35% excess on OH volumes

d. 5 ½" Production
Lead: 800 sx 35:65:6 H + Salt+Gilsonite+CFR-3+ HR601
(12.7 ppg / 1.89 cuft/sx)
Tail: 950 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 measurement from the open hole logs.
- The 9-5/8" intermediate string is designed to circulate to surface.
- The production string will tie back a minimum of 500' into 9-5/8" shoe

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 3M system tested 3000 psi to 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 3000 psi WP rating.

6. Estimated BHP:

Lateral TD = 4003 psi

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

Depth	Type System	Mud Weight	Viscosity (sec)	Waterloss (cc)
0' – ~~1120'~~ 1160	Fresh Water	8.4	29	N.C.
~~1120'~~ – 3200'	Brine	10	29	N.C.
3200' – 13,662' (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.

8. Auxiliary Well Control and Monitoring Equipment:

a. A Kelly cock will be in the drill string at all times.
b. A full opening drill pipe stabbing valve having the appropriate connections will be on the rig floor at all times.
c. Hydrogen Sulfide detection equipment will be in operation after drilling out the 13 3/8" casing shoe until the 5 ½" casing is cemented. Breathing equipment will be on location upon drilling the 13 3/8" shoe until total depth is reached.

9. Testing, Logging and Coring Program:

a. Drill stem tests will be based on geological sample shows.
b. If open hole electrical logging is performed, the program will be:
   i. Total Depth to Intermediate Casing: Dual Laterolog-Micro Laterolog and Gamma Ray. Compensated Neutron – Z Density log with Gamma Ray and Caliper.
   ii. Total Depth to Surface: Compensated Neutron with Gamma Ray
   iii. No coring program is planned
   iv. Additional testing will be initiated subsequent to setting the 5 ½" production casing. Specific intervals will be targeted based on log evaluation, geological sample shows and drill stem tests.

10. Potential Hazards:

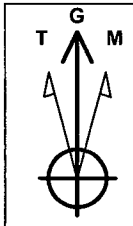
a. No abnormal pressures or temperatures are expected. There is no known presence of H2S in this area. If H2S is encountered the operator will comply with the provisions of Onshore Oil and Gas Order No. 6. All personnel will be familiar with all aspects of safe operation of equipment being used to drill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

CONCHO

Project: Lea County(NAD27)
Site: HAAS 6 Federal Com
Well: #1H
Wellbore: OH
Plan: Plan #3 (#1H/OH)



Azimuths to Grid North
True North: -0.29°
Magnetic North: 7.31°

Magnetic Field
Strength: 48819.7snT
Dip Angle: 60.59°
Date: 5/21/2012
Model: IGRF200510

PATHFINDER®
A Schlumberger Company

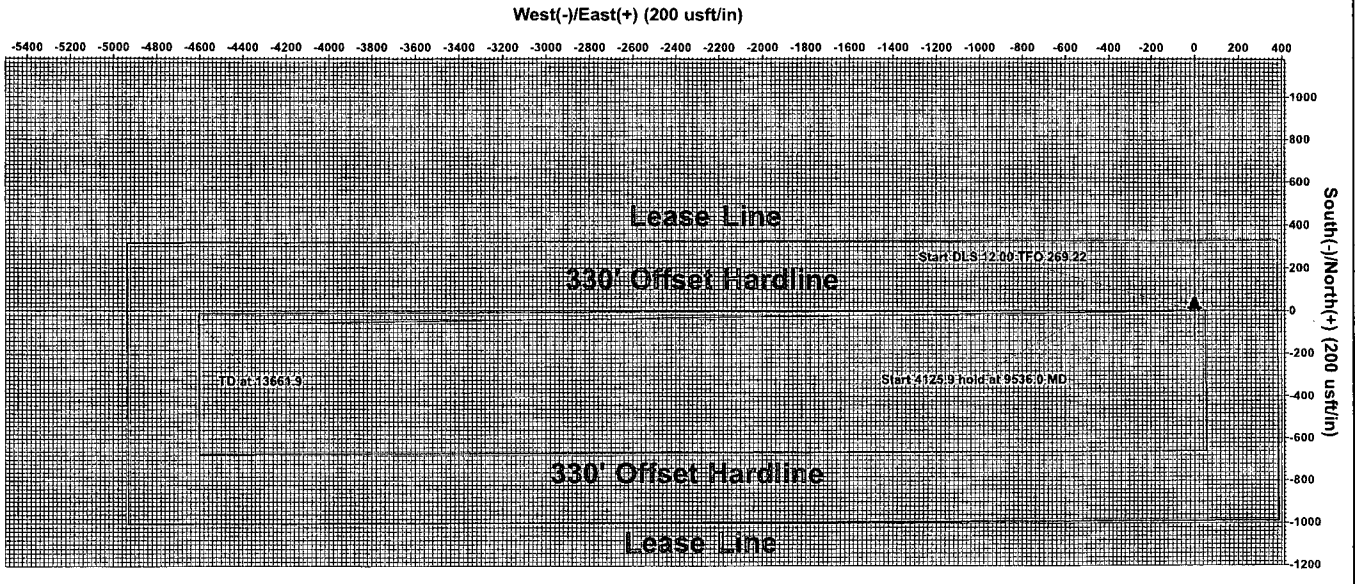
WELL DETAILS: #1H

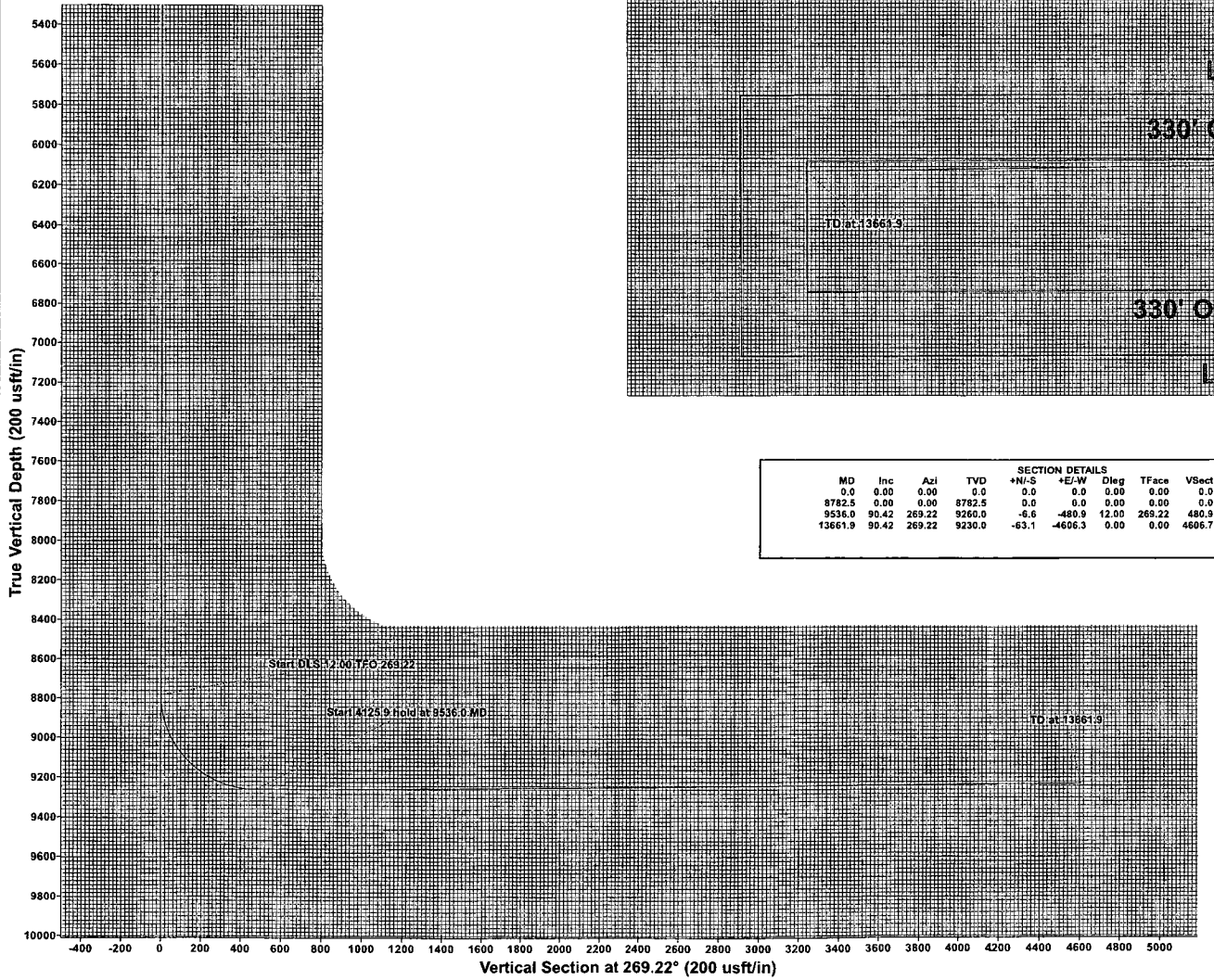
Ground Elevation:: 3675.0
RKB Elevation: KB = 18' @ 3693.0usft (Original Well Elev)
Rig Name: Original Well Elev

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	617242.700	664751.500	32.695755	-103.797788	

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting
PBHL (HAAS #1H)	9230.0	-63.1	-4606.3	617179.600	660145.200





SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
8782.5	0.00	0.00	8782.5	0.0	0.0	0.00	0.00	0.0	
9536.0	90.42	269.22	9260.0	-6.6	-480.9	12.00	269.22	480.9	
13661.9	90.42	269.22	9230.0	-63.1	-4606.3	0.00	0.00	4606.7	PBHL (HAAS #1H)

PROJECT DETAILS: Lea County(NAD27)
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

Plan: Plan #3 (#1H/OH)
Created By: Michael Trout Date: 12:43, September 19 2012
Checked: _____ Date:

COG Operating LLC
Lea County(NAD27)
HAAS 6 Federal Com
#1H
Original Well Elev
OH
Plan #3

PATHFINDER®

A Schlumberger Company

COG Operating LLC

Lea County(NAD27)
HAAS 6 Federal Com
#1H
OH

Plan: Plan #3

Pathfinder X&Y Report

19 September, 2012

CONCHO

PATHFINDER
A Schlumberger Company

Pathfinder

Pathfinder X&Y Report

CONCHO

Company:	COG Operating LLC	**Local Co-ordinate Reference:**	Well #1H
Project:	Lea County(NAD27)	**TVD Reference:**	KB = 18' @ 3693.0usft (Original Well Elev)
Site:	HAAS 6 Federal Com	**MD Reference:**	KB = 18' @ 3693.0usft (Original Well Elev)
Well:	#1H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #3	**Database:**	EDM 5000.1 Single User Db

Project Lea County(NAD27)

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 HAAS 6 Federal Com

Site Position:		**Northing:**	617,242.700 usft	**Latitude:**	32.695755
From:	Map	**Easting:**	664,751.500 usft	**Longitude:**	-103.797788
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.29 °

Well #1H

Well Position	**+N/-S**	0.0 usft	**Northing:**	617,242.700 usft	**Latitude:**	32.695755
	+E/-W	0.0 usft	**Easting:**	664,751.500 usft	**Longitude:**	-103.797788
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	usft	**Ground Level:**	3,675.0 usft

Wellbore OH

Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF200510	5/21/2012	7.60	60.59	48,820

Design Plan #3

Audit Notes:

Version:		**Phase:**	PLAN	**Tie On Depth:**	0.0

Vertical Section:	**Depth From (TVD) (usft)**	**+N/-S (usft)**	**+E/-W (usft)**	**Direction (°)**
	0.0	0.0	0.0	269.22

Survey Tool Program **Date** 9/19/2012

From (usft)	**To (usft)**	**Survey (Wellbore)**	**Tool Name**	**Description**
0.0	13,661.9	Plan #3 (OH)	MWD	MWD - Standard

Company:	COG Operating LLC	**Local Co-ordinate Reference:**	Well #1H
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Well:	#1H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #3	**Database:**	EDM 5000.1 Single User Db

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Latitude (°)	Longitude (°)
0.0	0.00	0.00	0.0	-3,693.0	0.0	0.0	0.0	0.00	32.70	-103.80
100.0	0.00	0.00	100.0	-3,593.0	0.0	0.0	0.0	0.00	32.70	-103.80
200.0	0.00	0.00	200.0	-3,493.0	0.0	0.0	0.0	0.00	32.70	-103.80
300.0	0.00	0.00	300.0	-3,393.0	0.0	0.0	0.0	0.00	32.70	-103.80
400.0	0.00	0.00	400.0	-3,293.0	0.0	0.0	0.0	0.00	32.70	-103.80
500.0	0.00	0.00	500.0	-3,193.0	0.0	0.0	0.0	0.00	32.70	-103.80
600.0	0.00	0.00	600.0	-3,093.0	0.0	0.0	0.0	0.00	32.70	-103.80
700.0	0.00	0.00	700.0	-2,993.0	0.0	0.0	0.0	0.00	32.70	-103.80
800.0	0.00	0.00	800.0	-2,893.0	0.0	0.0	0.0	0.00	32.70	-103.80
900.0	0.00	0.00	900.0	-2,793.0	0.0	0.0	0.0	0.00	32.70	-103.80
1,000.0	0.00	0.00	1,000.0	-2,693.0	0.0	0.0	0.0	0.00	32.70	-103.80
1,100.0	0.00	0.00	1,100.0	-2,593.0	0.0	0.0	0.0	0.00	32.70	-103.80
1,200.0	0.00	0.00	1,200.0	-2,493.0	0.0	0.0	0.0	0.00	32.70	-103.80
1,300.0	0.00	0.00	1,300.0	-2,393.0	0.0	0.0	0.0	0.00	32.70	-103.80
1,400.0	0.00	0.00	1,400.0	-2,293.0	0.0	0.0	0.0	0.00	32.70	-103.80
1,500.0	0.00	0.00	1,500.0	-2,193.0	0.0	0.0	0.0	0.00	32.70	-103.80
1,600.0	0.00	0.00	1,600.0	-2,093.0	0.0	0.0	0.0	0.00	32.70	-103.80
1,700.0	0.00	0.00	1,700.0	-1,993.0	0.0	0.0	0.0	0.00	32.70	-103.80
1,800.0	0.00	0.00	1,800.0	-1,893.0	0.0	0.0	0.0	0.00	32.70	-103.80
1,900.0	0.00	0.00	1,900.0	-1,793.0	0.0	0.0	0.0	0.00	32.70	-103.80
2,000.0	0.00	0.00	2,000.0	-1,693.0	0.0	0.0	0.0	0.00	32.70	-103.80
2,100.0	0.00	0.00	2,100.0	-1,593.0	0.0	0.0	0.0	0.00	32.70	-103.80
2,200.0	0.00	0.00	2,200.0	-1,493.0	0.0	0.0	0.0	0.00	32.70	-103.80
2,300.0	0.00	0.00	2,300.0	-1,393.0	0.0	0.0	0.0	0.00	32.70	-103.80
2,400.0	0.00	0.00	2,400.0	-1,293.0	0.0	0.0	0.0	0.00	32.70	-103.80
2,500.0	0.00	0.00	2,500.0	-1,193.0	0.0	0.0	0.0	0.00	32.70	-103.80
2,600.0	0.00	0.00	2,600.0	-1,093.0	0.0	0.0	0.0	0.00	32.70	-103.80

Company:	COG Operating LLC	**Local Co-ordinate Reference:**	Well #1H
Project:	Lea County(NAD27)	**TVD Reference:**	KB = 18' @ 3693.0usft (Original Well Elev)
Site:	HAAS 6 Federal Com	**MD Reference:**	KB = 18' @ 3693.0usft (Original Well Elev)
Well:	#1H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #3	**Database:**	EDM 5000.1 Single User Db

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Latitude (°)	Longitude (°)
2,700.0	0.00	0.00	2,700.0	-993.0	0.0	0.0	0.0	0.00	32.70	-103.80
2,800.0	0.00	0.00	2,800.0	-893.0	0.0	0.0	0.0	0.00	32.70	-103.80
2,900.0	0.00	0.00	2,900.0	-793.0	0.0	0.0	0.0	0.00	32.70	-103.80
3,000.0	0.00	0.00	3,000.0	-693.0	0.0	0.0	0.0	0.00	32.70	-103.80
3,100.0	0.00	0.00	3,100.0	-593.0	0.0	0.0	0.0	0.00	32.70	-103.80
3,200.0	0.00	0.00	3,200.0	-493.0	0.0	0.0	0.0	0.00	32.70	-103.80
3,300.0	0.00	0.00	3,300.0	-393.0	0.0	0.0	0.0	0.00	32.70	-103.80
3,400.0	0.00	0.00	3,400.0	-293.0	0.0	0.0	0.0	0.00	32.70	-103.80
3,500.0	0.00	0.00	3,500.0	-193.0	0.0	0.0	0.0	0.00	32.70	-103.80
3,600.0	0.00	0.00	3,600.0	-93.0	0.0	0.0	0.0	0.00	32.70	-103.80
3,700.0	0.00	0.00	3,700.0	7.0	0.0	0.0	0.0	0.00	32.70	-103.80
3,800.0	0.00	0.00	3,800.0	107.0	0.0	0.0	0.0	0.00	32.70	-103.80
3,900.0	0.00	0.00	3,900.0	207.0	0.0	0.0	0.0	0.00	32.70	-103.80
4,000.0	0.00	0.00	4,000.0	307.0	0.0	0.0	0.0	0.00	32.70	-103.80
4,100.0	0.00	0.00	4,100.0	407.0	0.0	0.0	0.0	0.00	32.70	-103.80
4,200.0	0.00	0.00	4,200.0	507.0	0.0	0.0	0.0	0.00	32.70	-103.80
4,300.0	0.00	0.00	4,300.0	607.0	0.0	0.0	0.0	0.00	32.70	-103.80
4,400.0	0.00	0.00	4,400.0	707.0	0.0	0.0	0.0	0.00	32.70	-103.80
4,500.0	0.00	0.00	4,500.0	807.0	0.0	0.0	0.0	0.00	32.70	-103.80
4,600.0	0.00	0.00	4,600.0	907.0	0.0	0.0	0.0	0.00	32.70	-103.80
4,700.0	0.00	0.00	4,700.0	1,007.0	0.0	0.0	0.0	0.00	32.70	-103.80
4,800.0	0.00	0.00	4,800.0	1,107.0	0.0	0.0	0.0	0.00	32.70	-103.80
4,900.0	0.00	0.00	4,900.0	1,207.0	0.0	0.0	0.0	0.00	32.70	-103.80
5,000.0	0.00	0.00	5,000.0	1,307.0	0.0	0.0	0.0	0.00	32.70	-103.80
5,100.0	0.00	0.00	5,100.0	1,407.0	0.0	0.0	0.0	0.00	32.70	-103.80
5,200.0	0.00	0.00	5,200.0	1,507.0	0.0	0.0	0.0	0.00	32.70	-103.80
5,300.0	0.00	0.00	5,300.0	1,607.0	0.0	0.0	0.0	0.00	32.70	-103.80

Company:	COG Operating LLC	**Local Co-ordinate Reference:**	Well #1H
Project:	Lea County(NAD27)	**TVD Reference:**	KB = 18' @ 3693.0usft (Original Well Elev)
Site:	HAAS 6 Federal Com	**MD Reference:**	KB = 18' @ 3693.0usft (Original Well Elev)
Well:	#1H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #3	**Database:**	EDM 5000.1 Single User Db

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Latitude (°)	Longitude (°)
5,400.0	0.00	0.00	5,400.0	1,707.0	0.0	0.0	0.0	0.00	32.70	-103.80
5,500.0	0.00	0.00	5,500.0	1,807.0	0.0	0.0	0.0	0.00	32.70	-103.80
5,600.0	0.00	0.00	5,600.0	1,907.0	0.0	0.0	0.0	0.00	32.70	-103.80
5,700.0	0.00	0.00	5,700.0	2,007.0	0.0	0.0	0.0	0.00	32.70	-103.80
5,800.0	0.00	0.00	5,800.0	2,107.0	0.0	0.0	0.0	0.00	32.70	-103.80
5,900.0	0.00	0.00	5,900.0	2,207.0	0.0	0.0	0.0	0.00	32.70	-103.80
6,000.0	0.00	0.00	6,000.0	2,307.0	0.0	0.0	0.0	0.00	32.70	-103.80
6,100.0	0.00	0.00	6,100.0	2,407.0	0.0	0.0	0.0	0.00	32.70	-103.80
6,200.0	0.00	0.00	6,200.0	2,507.0	0.0	0.0	0.0	0.00	32.70	-103.80
6,300.0	0.00	0.00	6,300.0	2,607.0	0.0	0.0	0.0	0.00	32.70	-103.80
6,400.0	0.00	0.00	6,400.0	2,707.0	0.0	0.0	0.0	0.00	32.70	-103.80
6,500.0	0.00	0.00	6,500.0	2,807.0	0.0	0.0	0.0	0.00	32.70	-103.80
6,600.0	0.00	0.00	6,600.0	2,907.0	0.0	0.0	0.0	0.00	32.70	-103.80
6,700.0	0.00	0.00	6,700.0	3,007.0	0.0	0.0	0.0	0.00	32.70	-103.80
6,800.0	0.00	0.00	6,800.0	3,107.0	0.0	0.0	0.0	0.00	32.70	-103.80
6,900.0	0.00	0.00	6,900.0	3,207.0	0.0	0.0	0.0	0.00	32.70	-103.80
7,000.0	0.00	0.00	7,000.0	3,307.0	0.0	0.0	0.0	0.00	32.70	-103.80
7,100.0	0.00	0.00	7,100.0	3,407.0	0.0	0.0	0.0	0.00	32.70	-103.80
7,200.0	0.00	0.00	7,200.0	3,507.0	0.0	0.0	0.0	0.00	32.70	-103.80
7,300.0	0.00	0.00	7,300.0	3,607.0	0.0	0.0	0.0	0.00	32.70	-103.80
7,400.0	0.00	0.00	7,400.0	3,707.0	0.0	0.0	0.0	0.00	32.70	-103.80
7,500.0	0.00	0.00	7,500.0	3,807.0	0.0	0.0	0.0	0.00	32.70	-103.80
7,600.0	0.00	0.00	7,600.0	3,907.0	0.0	0.0	0.0	0.00	32.70	-103.80
7,700.0	0.00	0.00	7,700.0	4,007.0	0.0	0.0	0.0	0.00	32.70	-103.80
7,800.0	0.00	0.00	7,800.0	4,107.0	0.0	0.0	0.0	0.00	32.70	-103.80
7,900.0	0.00	0.00	7,900.0	4,207.0	0.0	0.0	0.0	0.00	32.70	-103.80
8,000.0	0.00	0.00	8,000.0	4,307.0	0.0	0.0	0.0	0.00	32.70	-103.80

Company:	COG Operating LLC	**Local Co-ordinate Reference:**	Well #1H
Project:	Lea County(NAD27)	**TVD Reference:**	KB = 18' @ 3693.0usft (Original Well Elev)
Site:	HAAS 6 Federal Com	**MD Reference:**	KB = 18' @ 3693.0usft (Original Well Elev)
Well:	#1H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #3	**Database:**	EDM 5000.1 Single User Db

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Latitude (°)	Longitude (°)
8,100.0	0.00	0.00	8,100.0	4,407.0	0.0	0.0	0.0	0.00	32.70	-103.80
8,200.0	0.00	0.00	8,200.0	4,507.0	0.0	0.0	0.0	0.00	32.70	-103.80
8,300.0	0.00	0.00	8,300.0	4,607.0	0.0	0.0	0.0	0.00	32.70	-103.80
8,400.0	0.00	0.00	8,400.0	4,707.0	0.0	0.0	0.0	0.00	32.70	-103.80
8,500.0	0.00	0.00	8,500.0	4,807.0	0.0	0.0	0.0	0.00	32.70	-103.80
8,600.0	0.00	0.00	8,600.0	4,907.0	0.0	0.0	0.0	0.00	32.70	-103.80
8,700.0	0.00	0.00	8,700.0	5,007.0	0.0	0.0	0.0	0.00	32.70	-103.80
8,782.5	0.00	0.00	8,782.5	5,089.5	0.0	0.0	0.0	0.00	32.70	-103.80
8,800.0	2.10	269.22	8,800.0	5,107.0	0.0	-0.3	0.3	12.00	32.70	-103.80
8,825.0	5.10	269.22	8,824.9	5,131.9	0.0	-1.9	1.9	12.00	32.70	-103.80
8,850.0	8.10	269.22	8,849.8	5,156.8	-0.1	-4.8	4.8	12.00	32.70	-103.80
8,875.0	11.10	269.22	8,874.4	5,181.4	-0.1	-8.9	8.9	12.00	32.70	-103.80
8,900.0	14.10	269.22	8,898.8	5,205.8	-0.2	-14.4	14.4	12.00	32.70	-103.80
8,925.0	17.10	269.22	8,922.9	5,229.9	-0.3	-21.1	21.1	12.00	32.70	-103.80
8,950.0	20.10	269.22	8,946.6	5,253.6	-0.4	-29.1	29.1	12.00	32.70	-103.80
8,975.0	23.10	269.22	8,969.8	5,276.8	-0.5	-38.3	38.3	12.00	32.70	-103.80
9,000.0	26.10	269.22	8,992.6	5,299.6	-0.7	-48.7	48.7	12.00	32.70	-103.80
9,025.0	29.10	269.22	9,014.7	5,321.7	-0.8	-60.3	60.3	12.00	32.70	-103.80
9,050.0	32.10	269.22	9,036.2	5,343.2	-1.0	-73.0	73.0	12.00	32.70	-103.80
9,075.0	35.10	269.22	9,057.0	5,364.0	-1.2	-86.8	86.8	12.00	32.70	-103.80
9,100.0	38.10	269.22	9,077.1	5,384.1	-1.4	-101.7	101.7	12.00	32.70	-103.80
9,125.0	41.10	269.22	9,096.4	5,403.4	-1.6	-117.7	117.7	12.00	32.70	-103.80
9,150.0	44.10	269.22	9,114.8	5,421.8	-1.8	-134.6	134.6	12.00	32.70	-103.80
9,175.0	47.10	269.22	9,132.3	5,439.3	-2.1	-152.4	152.4	12.00	32.70	-103.80
9,200.0	50.10	269.22	9,148.8	5,455.8	-2.3	-171.2	171.2	12.00	32.70	-103.80
9,225.0	53.10	269.22	9,164.3	5,471.3	-2.6	-190.8	190.8	12.00	32.70	-103.80
9,250.0	56.10	269.22	9,178.8	5,485.8	-2.9	-211.1	211.2	12.00	32.70	-103.80

Company:	COG Operating LLC	**Local Co-ordinate Reference:**	Well #1H
Project:	Lea County(NAD27)	**TVD Reference:**	KB = 18' @ 3693.0usft (Original Well Elev)
Site:	HAAS 6 Federal Com	**MD Reference:**	KB = 18' @ 3693.0usft (Original Well Elev)
Well:	#1H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #3	**Database:**	EDM 5000.1 Single User Db

Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Latitude (°)	Longitude (°)
9,275.0	59.10	269.22	9,192.2	5,499.2	-3.2	-232.2	232.3	12.00	32.70	-103.80
9,300.0	62.10	269.22	9,204.5	5,511.5	-3.5	-254.0	254.0	12.00	32.70	-103.80
9,325.0	65.10	269.22	9,215.6	5,522.6	-3.8	-276.4	276.4	12.00	32.70	-103.80
9,350.0	68.10	269.22	9,225.5	5,532.5	-4.1	-299.3	299.4	12.00	32.70	-103.80
9,375.0	71.10	269.22	9,234.2	5,541.2	-4.4	-322.8	322.8	12.00	32.70	-103.80
9,400.0	74.10	269.22	9,241.7	5,548.7	-4.7	-346.6	346.7	12.00	32.70	-103.80
9,425.0	77.10	269.22	9,247.9	5,554.9	-5.1	-370.8	370.9	12.00	32.70	-103.80
9,450.0	80.10	269.22	9,252.9	5,559.9	-5.4	-395.3	395.4	12.00	32.70	-103.80
9,475.0	83.10	269.22	9,256.5	5,563.5	-5.8	-420.1	420.1	12.00	32.70	-103.80
9,500.0	86.10	269.22	9,258.9	5,565.9	-6.1	-444.9	445.0	12.00	32.70	-103.80
9,525.0	89.10	269.22	9,259.9	5,566.9	-6.4	-469.9	470.0	12.00	32.70	-103.80
9,536.0	90.42	269.22	9,260.0	5,567.0	-6.6	-480.9	480.9	12.00	32.70	-103.80
9,600.0	90.42	269.22	9,259.5	5,566.5	-7.5	-544.9	545.0	0.00	32.70	-103.80
9,700.0	90.42	269.22	9,258.8	5,565.8	-8.8	-644.9	645.0	0.00	32.70	-103.80
9,800.0	90.42	269.22	9,258.0	5,565.0	-10.2	-744.9	745.0	0.00	32.70	-103.80
9,900.0	90.42	269.22	9,257.3	5,564.3	-11.6	-844.9	845.0	0.00	32.70	-103.80
10,000.0	90.42	269.22	9,256.6	5,563.6	-12.9	-944.9	945.0	0.00	32.70	-103.80
10,100.0	90.42	269.22	9,255.9	5,562.9	-14.3	-1,044.9	1,044.9	0.00	32.70	-103.80
10,200.0	90.42	269.22	9,255.1	5,562.1	-15.7	-1,144.8	1,144.9	0.00	32.70	-103.80
10,300.0	90.42	269.22	9,254.4	5,561.4	-17.1	-1,244.8	1,244.9	0.00	32.70	-103.80
10,400.0	90.42	269.22	9,253.7	5,560.7	-18.4	-1,344.8	1,344.9	0.00	32.70	-103.80
10,500.0	90.42	269.22	9,253.0	5,560.0	-19.8	-1,444.8	1,444.9	0.00	32.70	-103.80
10,600.0	90.42	269.22	9,252.2	5,559.2	-21.2	-1,544.8	1,544.9	0.00	32.70	-103.80
10,700.0	90.42	269.22	9,251.5	5,558.5	-22.5	-1,644.8	1,644.9	0.00	32.70	-103.80
10,800.0	90.42	269.22	9,250.8	5,557.8	-23.9	-1,744.8	1,744.9	0.00	32.70	-103.80
10,900.0	90.42	269.22	9,250.0	5,557.0	-25.3	-1,844.8	1,844.9	0.00	32.70	-103.80
11,000.0	90.42	269.22	9,249.3	5,556.3	-26.6	-1,944.7	1,944.9	0.00	32.70	-103.80

Company:	COG Operating LLC	**Local Co-ordinate Reference:**	Well #1H
Project:	Lea County(NAD27)	**TVD Reference:**	KB = 18' @ 3693.0usft (Original Well Elev)
Site:	HAAS 6 Federal Com	**MD Reference:**	KB = 18' @ 3693.0usft (Original Well Elev)
Well:	#1H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #3	**Database:**	EDM 5000.1 Single User Db

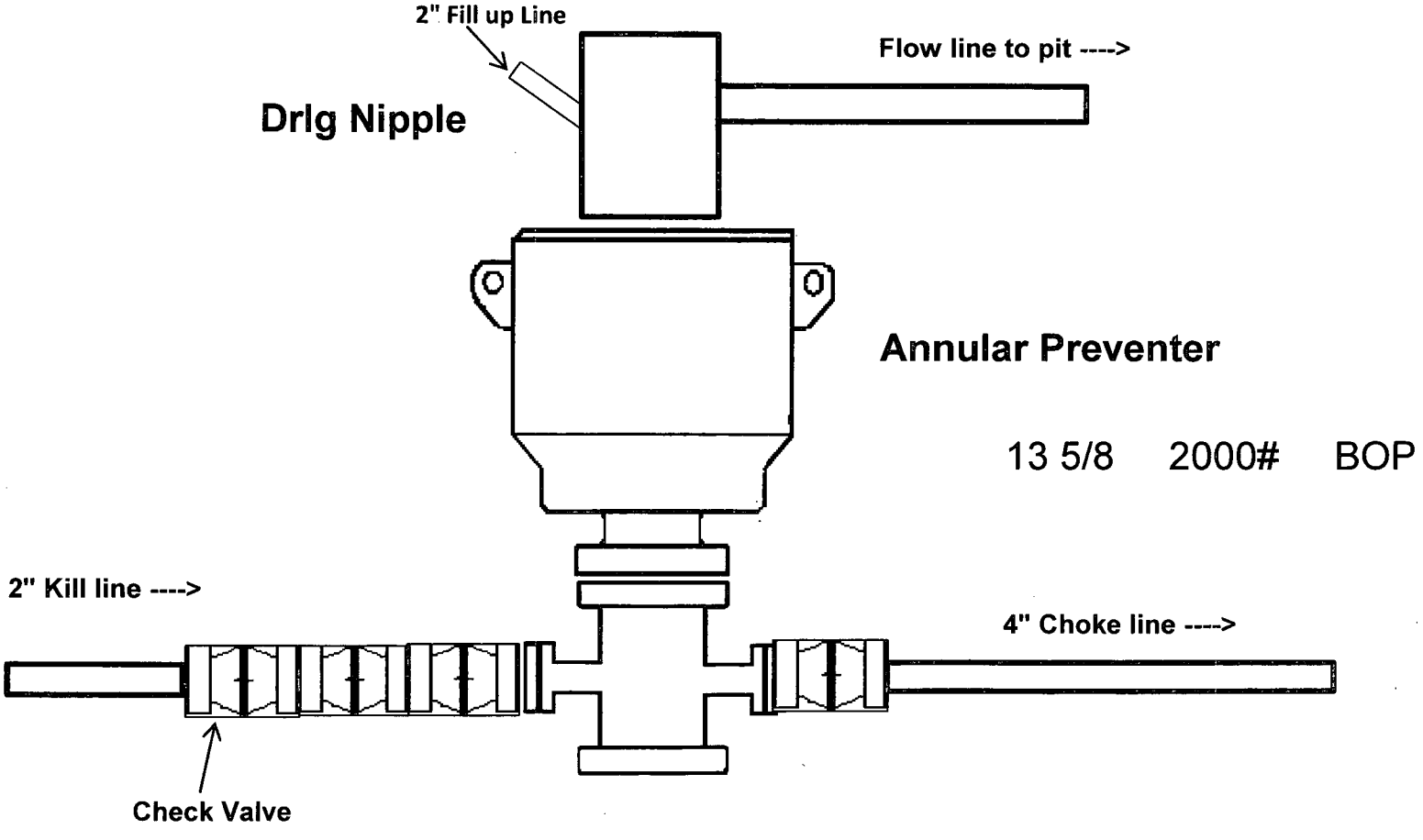
Planned Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Latitude (°)	Longitude (°)
11,100.0	90.42	269.22	9,248.6	5,555.6	-28.0	-2,044.7	2,044.9	0.00	32.70	-103.80
11,200.0	90.42	269.22	9,247.9	5,554.9	-29.4	-2,144.7	2,144.9	0.00	32.70	-103.80
11,300.0	90.42	269.22	9,247.1	5,554.1	-30.7	-2,244.7	2,244.9	0.00	32.70	-103.81
11,400.0	90.42	269.22	9,246.4	5,553.4	-32.1	-2,344.7	2,344.9	0.00	32.70	-103.81
11,500.0	90.42	269.22	9,245.7	5,552.7	-33.5	-2,444.7	2,444.9	0.00	32.70	-103.81
11,600.0	90.42	269.22	9,245.0	5,552.0	-34.9	-2,544.7	2,544.9	0.00	32.70	-103.81
11,700.0	90.42	269.22	9,244.2	5,551.2	-36.2	-2,644.7	2,644.9	0.00	32.70	-103.81
11,800.0	90.42	269.22	9,243.5	5,550.5	-37.6	-2,744.6	2,744.9	0.00	32.70	-103.81
11,900.0	90.42	269.22	9,242.8	5,549.8	-39.0	-2,844.6	2,844.9	0.00	32.70	-103.81
12,000.0	90.42	269.22	9,242.1	5,549.1	-40.3	-2,944.6	2,944.9	0.00	32.70	-103.81
12,100.0	90.42	269.22	9,241.3	5,548.3	-41.7	-3,044.6	3,044.9	0.00	32.70	-103.81
12,200.0	90.42	269.22	9,240.6	5,547.6	-43.1	-3,144.6	3,144.9	0.00	32.70	-103.81
12,300.0	90.42	269.22	9,239.9	5,546.9	-44.4	-3,244.6	3,244.9	0.00	32.70	-103.81
12,400.0	90.42	269.22	9,239.2	5,546.2	-45.8	-3,344.6	3,344.9	0.00	32.70	-103.81
12,500.0	90.42	269.22	9,238.4	5,545.4	-47.2	-3,444.6	3,444.9	0.00	32.70	-103.81
12,600.0	90.42	269.22	9,237.7	5,544.7	-48.6	-3,544.6	3,544.9	0.00	32.70	-103.81
12,700.0	90.42	269.22	9,237.0	5,544.0	-49.9	-3,644.5	3,644.9	0.00	32.70	-103.81
12,800.0	90.42	269.22	9,236.3	5,543.3	-51.3	-3,744.5	3,744.9	0.00	32.70	-103.81
12,900.0	90.42	269.22	9,235.5	5,542.5	-52.7	-3,844.5	3,844.9	0.00	32.70	-103.81
13,000.0	90.42	269.22	9,234.8	5,541.8	-54.0	-3,944.5	3,944.9	0.00	32.70	-103.81
13,100.0	90.42	269.22	9,234.1	5,541.1	-55.4	-4,044.5	4,044.9	0.00	32.70	-103.81
13,200.0	90.42	269.22	9,233.4	5,540.4	-56.8	-4,144.5	4,144.9	0.00	32.70	-103.81
13,300.0	90.42	269.22	9,232.6	5,539.6	-58.1	-4,244.5	4,244.9	0.00	32.70	-103.81
13,400.0	90.42	269.22	9,231.9	5,538.9	-59.5	-4,344.5	4,344.9	0.00	32.70	-103.81
13,500.0	90.42	269.22	9,231.2	5,538.2	-60.9	-4,444.4	4,444.9	0.00	32.70	-103.81
13,600.0	90.42	269.22	9,230.4	5,537.4	-62.3	-4,544.4	4,544.9	0.00	32.70	-103.81
13,661.9	90.42	269.22	9,230.0	5,537.0	-63.1	-4,606.3	4,606.7	0.00	32.70	-103.81

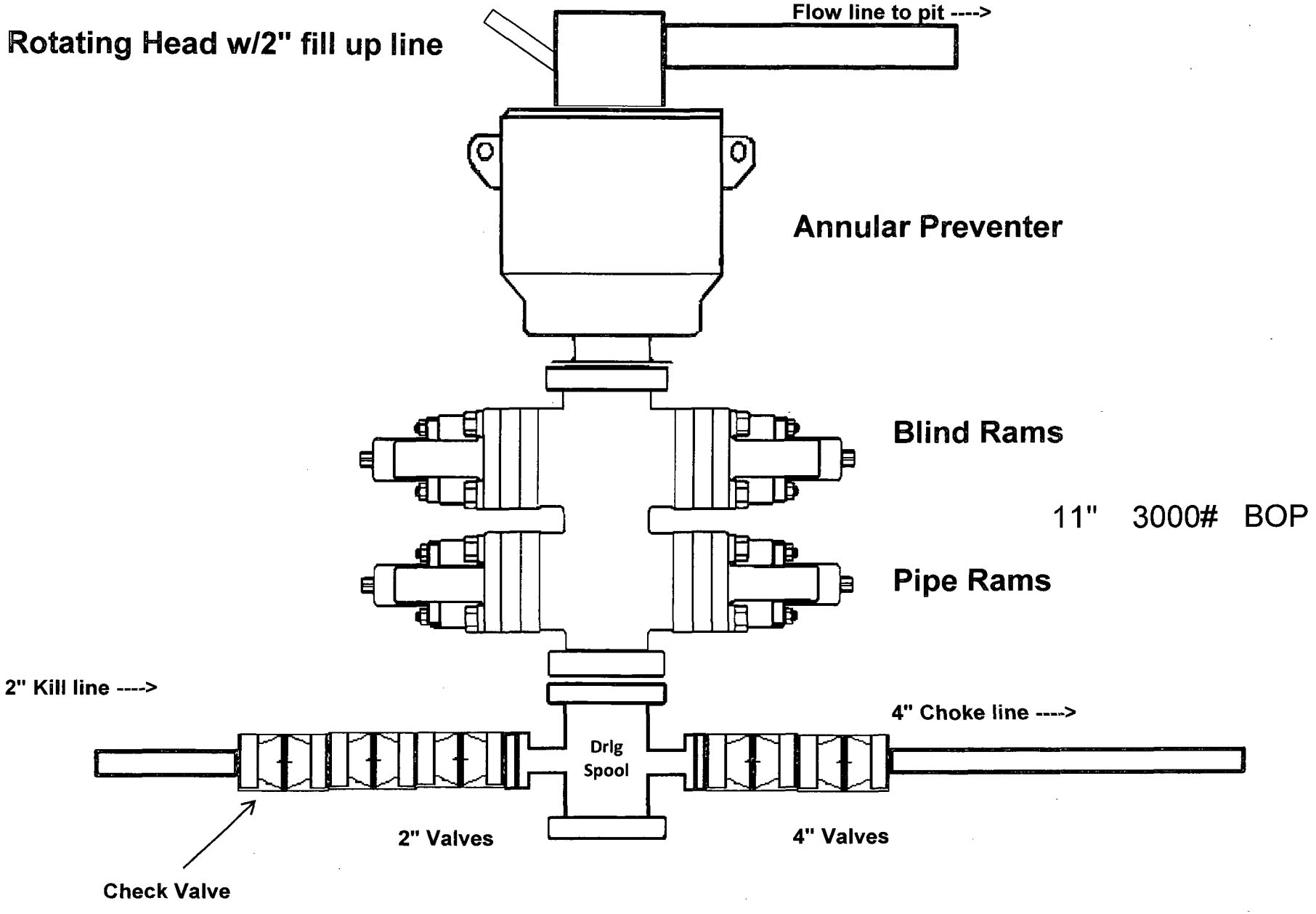
Company:	COG Operating LLC	**Local Co-ordinate Reference:**	Well #1H
Project:	Lea County(NAD27)	**TVD Reference:**	KB = 18' @ 3693.0usft (Original Well Elev)
Site:	HAAS 6 Federal Com	**MD Reference:**	KB = 18' @ 3693.0usft (Original Well Elev)
Well:	#1H	**North Reference:**	Grid
Wellbore:	OH	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #3	**Database:**	EDM 5000.1 Single User Db

Checked By: _____ Approved By: _____ Date: _____

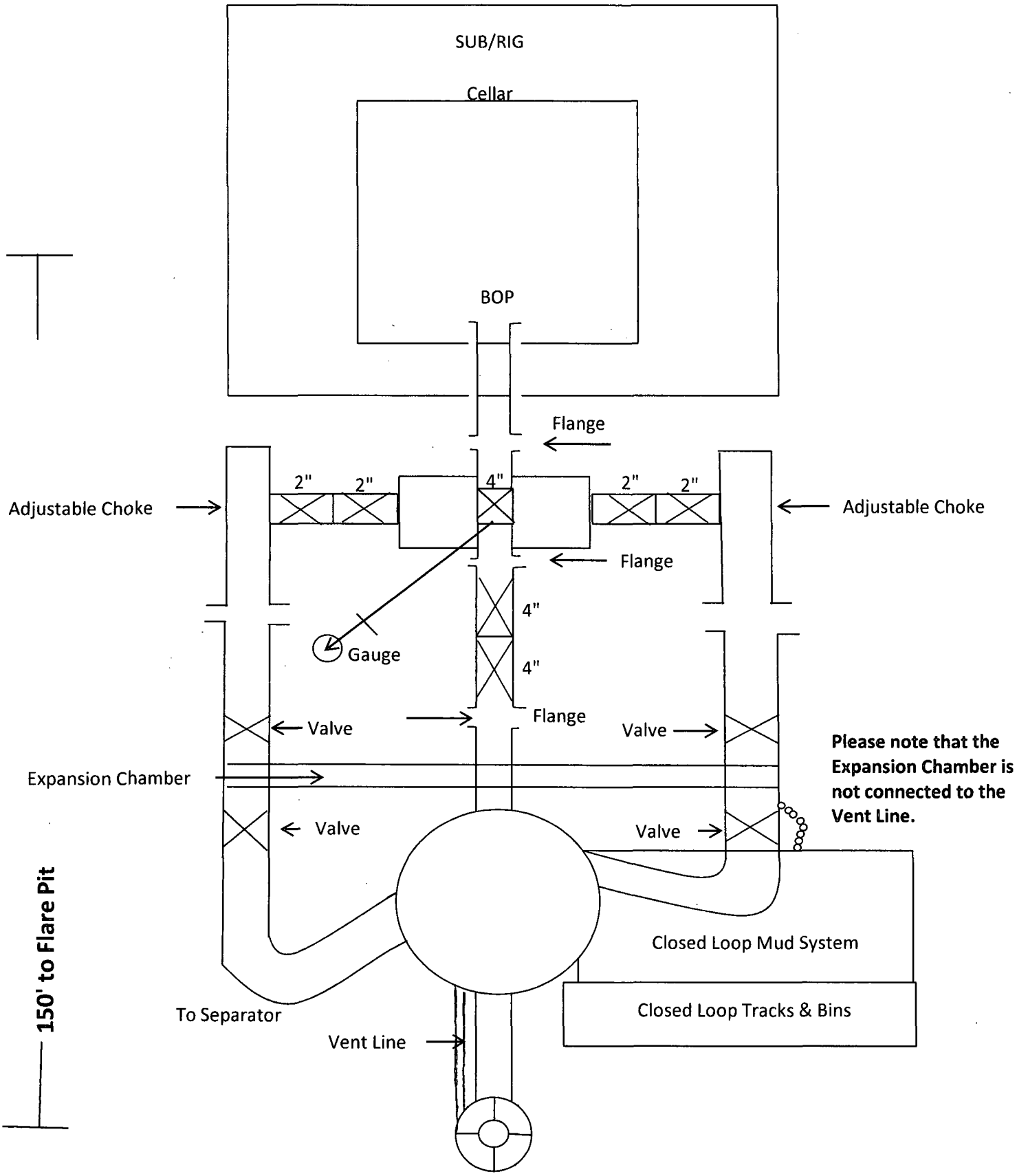
2,000 psi BOP Schematic



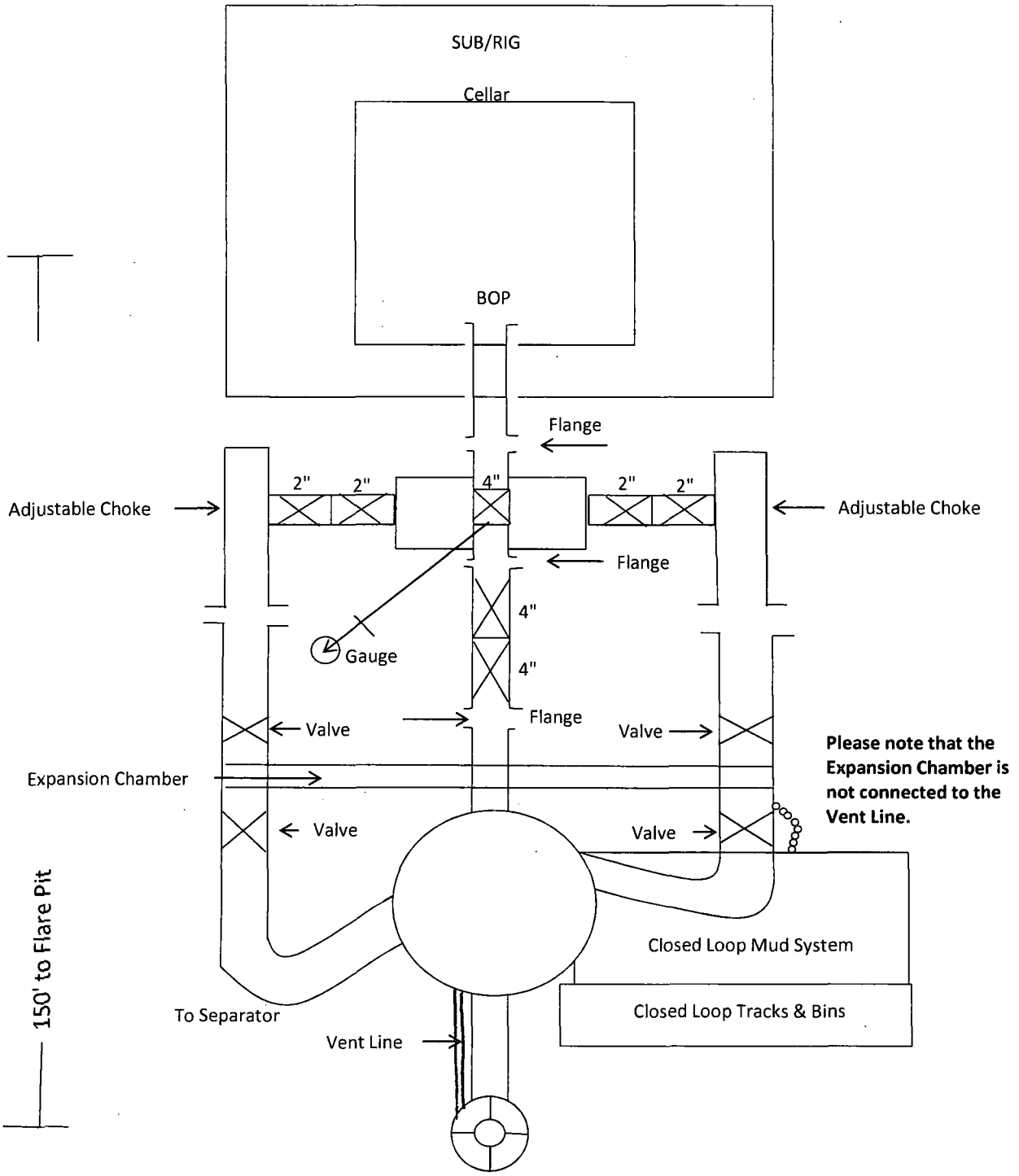
3,000 psi BOP Schematic



2M Choke Manifold Equipment



3M Choke Manifold Equipment



Design Plan
Operating and Maintenance Plan
Closure Plan

Haas 6 Federal Com #1H
SHL: 330' FNL & 380' FEL
BHL: 330' FSL & 380' FEL
Section 6 T19S R32E
Lea County, New Mexico

COG Operating LLC will be using all above ground steel pits for fluid and cuttings while drilling. If any tank develops a leak we will have immediate visual discovery, we would then transfer the fluid to another tank then remove any contaminated soil and dispose of it in the cuttings bins for transportation. All leaks should be kept to less than 5 barrels. Rig crews will monitor the tanks at all times.

Equipment List:
2- Mongoose Shale Shakers
1- 414 Centrifuge
1- 518 Centrifuge
2- Roll Off Bins w/ Tracks
2- 500 BBL Frac Tanks

During drilling operations all liquids, drilling fluids and cuttings will be hauled off via CRI (Controlled Recovery Inc.) Permit R-9166 or any other approved facility.