

OCD-ARTESIA

ATS-12-380

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

1a. Type of Work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. NMNM114979
1b. Type of Well: <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other <input checked="" type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		6. If Indian, Allottee or Tribe Name 7. If Unit or CA Agreement, Name and
2. Name of Operator COG Production LLC.		8. Lease Name and Well No. Canvasback 13 Federal #2H
3a. Address 2208 West Main Street Artesia, NM 88210	3b. Phone No. (include area code) 575-748-6940	9. API Well No. 30-015-40538
4. Location of Well (Report location clearly and in accordance with any State requirements.*) At surface 330' FNL & 480' FEL Unit Letter A NENE Section 13-T24S-R31E At proposed prod. Zone 330' FSL & 480' FEL Unit Letter P SESE Section 13-T24S-R31E		10. Field and Pool, or Exploratory Cotton Draw; B.S. < 13867 > Brushy Canyon Sand
14. Distance in miles and direction from nearest town or post office* About 20 miles to Malaga		11. Sec., T.R.M. or Blk and Survey or Area Section 13-T24S-R31E
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 640	17. Spacing Unit dedicated to this well 160
18. Distance from location* to nearest well, drilling, completed, applied for, on this lease, ft. 1170'	TVD: 8405' MD: 12809'	20. BLM/BIA Bond No. on file NMB006976
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3580'	22. Approximate date work will start* 4/1/2011	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 2/17/2012
Title Regulatory Analyst		
Approved by (Signature) <i>Aden L. Seidlitz</i>	Name (Printed/Typed) Aden L. Seidlitz	Date JUL 23 2012
Title STATE DIRECTOR		
Office NM STATE 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

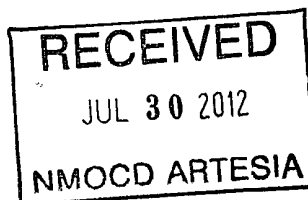
Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Continued on page 2)

*(Instructions on page 2)

CARLSBAD CONTROLLED WATER BASIN

SEE ATTACHED FOR
CONDITIONS OF APPROVAL



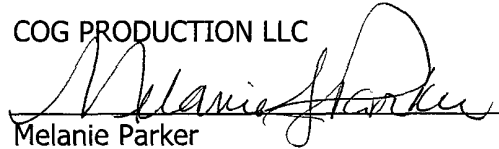
APPROVAL SUBJECT TO
GENERAL REQUIREMENTS
AND SPECIAL STIPULATIONS
ATTACHED

CERTIFICATION:

I hereby certify that I, or persons under my direct supervision, have inspected the proposed drillsite and access route, that I am familiar with the conditions which presently exist; that the statements made in this plan are to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed by COG Production LLC and its contractors and subcontractors in conformity with this plan and the terms and conditions under which it is approved. This statement is subject to the provisions of 18 U.S.C. 1001 for the filing of a false statement.

02/17/2012
Date

COG PRODUCTION LLC


Melanie Parker
Regulatory Coordinator

DISTRICT I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720

DISTRICT II
811 S First St., Artesia, NM 88210
Phone: (505) 748-1283 Fax: (505) 748-9720

DISTRICT III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170

DISTRICT IV
1220 S St Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

Form C-102
Revised August 1, 2011
Submit one copy to appropriate
District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-015-40538	Pool Code 13367	Pool Name Brushy Canyon Sand Cotton Draw; B.S.
Property Code 39372	Property Name CANVASBACK "13" FEDERAL	Well Number 2H
OGRID No. 229137	Operator Name COG PRODUCTION LLC	Elevation 3580'

Surface Location

UL or lot No	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	13	24-S	31-E		330	NORTH	480	EAST	EDDY

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	13	24-S	31-E		330	SOUTH	480	EAST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No
160			

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

<p>GEODETIC COORDINATES NAD 27 NME</p> <p>SURFACE LOCATION Y=445596.9 N X=688413.9 E</p> <p>LAT.= 32 223595" N LONG.= 103 724058" W</p> <p>BOTTOM HOLE LOCATION Y=440978.3 N X=688442.5 E</p> <p>CORNER COORDINATES TABLE</p> <table> <tr> <td>(A) - Y=445922.1 N, X=687571.7 E</td> <td rowspan="4"> </td> </tr> <tr> <td>(B) - Y=445929.6 N, X=688892.0 E</td> </tr> <tr> <td>(C) - Y=440643.8 N, X=687602.9 E</td> </tr> <tr> <td>(D) - Y=440651.4 N, X=688924.7 E</td> </tr> </table>	(A) - Y=445922.1 N, X=687571.7 E		(B) - Y=445929.6 N, X=688892.0 E	(C) - Y=440643.8 N, X=687602.9 E	(D) - Y=440651.4 N, X=688924.7 E	<p>OPERATOR CERTIFICATION</p> <p>I hereby certify that the information herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.</p> <p>Signature: <i>Melanie Parker</i> Date: 2/17/12</p> <p>Printed Name: Melanie J Parker</p> <p>E-mail Address: _____</p> <p>SURVEYOR CERTIFICATION</p> <p>I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.</p> <p>NOVEMBER 5, 2010</p> <p>Date of Survey: _____ Signature of Seal of Professional Surveyor: <i>Ronald J. Eidson</i> Professional Surveyor: Ronald J. Eidson Certificate Number: 12641 Professional: 3239</p> <p>DSS: _____ JWSC W.O. 12.13.0241</p>
(A) - Y=445922.1 N, X=687571.7 E						
(B) - Y=445929.6 N, X=688892.0 E						
(C) - Y=440643.8 N, X=687602.9 E						
(D) - Y=440651.4 N, X=688924.7 E						

COG Production LLC
DRILLING AND OPERATIONS PROGRAM
Canvasback 13 Federal #2H
SHL: 330' FNL & 480' FEL
BHL: 330' FSL & 480' FEL
Section 13 T24S R31E
Eddy 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	~ 182'	
Rustler	911'	
Top of Salt	1158'	
Base of Salt	4406'	
Delaware	4625'	Oil
Bone Spring	8427'	Oil
TD TVD	8405'	
TD MD	12,809'	

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 950' and circulating cement back to surface. Production string cement will tie back a minimum of 500' inside 9-5/8" casing. All intervals will be isolated by setting 5 1/2" casing.

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' - 950'	Surface	13 3/8"	New	54.5#	STC	J-55	1.125		
12 1/4"	0' - 3500'	Intrmd	9 5/8"	New	36#	BTC	J-55	1.125		
12 1/4"	3500' - 4500'	Intrmd	9 5/8"	New	40#	BTC	J-55	1.125		
7 7/8"	0' - 12,809'	Production Curve & Lateral	5 1/2"	New	17#	LTC	P-110	1.125		

895
4500
12809M
8405V

- 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: 400 sx Class C + 4% Gel + 2% CaCl₂
(13.5 ppg / 1.75 cuft/sx)
- Tail: 250 sx Class C + 2% CaCl₂
(14.8 ppg / 1.35 cuft/sx)
- **Calculated w/50% excess on OH volumes
- b. 9 5/8" Intermediate
- Lead: 900 sx Class C + 4% Gel
(13.5 ppg / 1.75 cuft/sx)
- Tail: 250 sx Class C + 1% CaCl₂
(14.8 ppg / 1.35 cuft/sx)
- **Calculated w/35% excess on OH volumes
- d. 5 1/2" Production
- Lead: 1100 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.
 - Production string cement will tie back a minimum of 500' inside 9-5/8" casing.

5. Minimum Specifications for Pressure Control:

Nipple up on 13 3/8 with annular preventer tested to 50% of rating 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 to 3000 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 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 = 3645 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' – 950'	Fresh Water	8.4	29	N.C.
950' – 4500'	Brine	10	29	N.C.
4500' – 12,809' (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 1/2" 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 preformed, 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 1/2" 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 possible after BLM approval and as soon as a rig will be available. Move in operations and drilling is expected to take 30 days.



Project: Eddy County(NAD27)
 Site: Canvasback 13 Federal
 Well: #2H
 Wellbore: OH
 Plan: Plan #1 (#2H/OH)



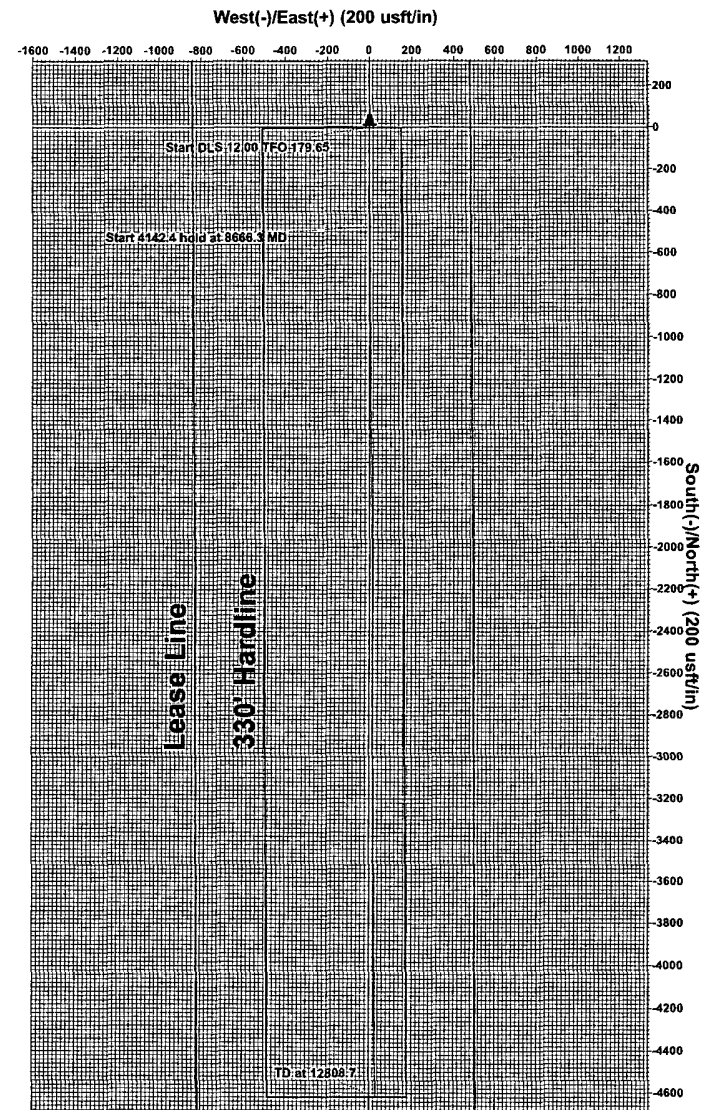
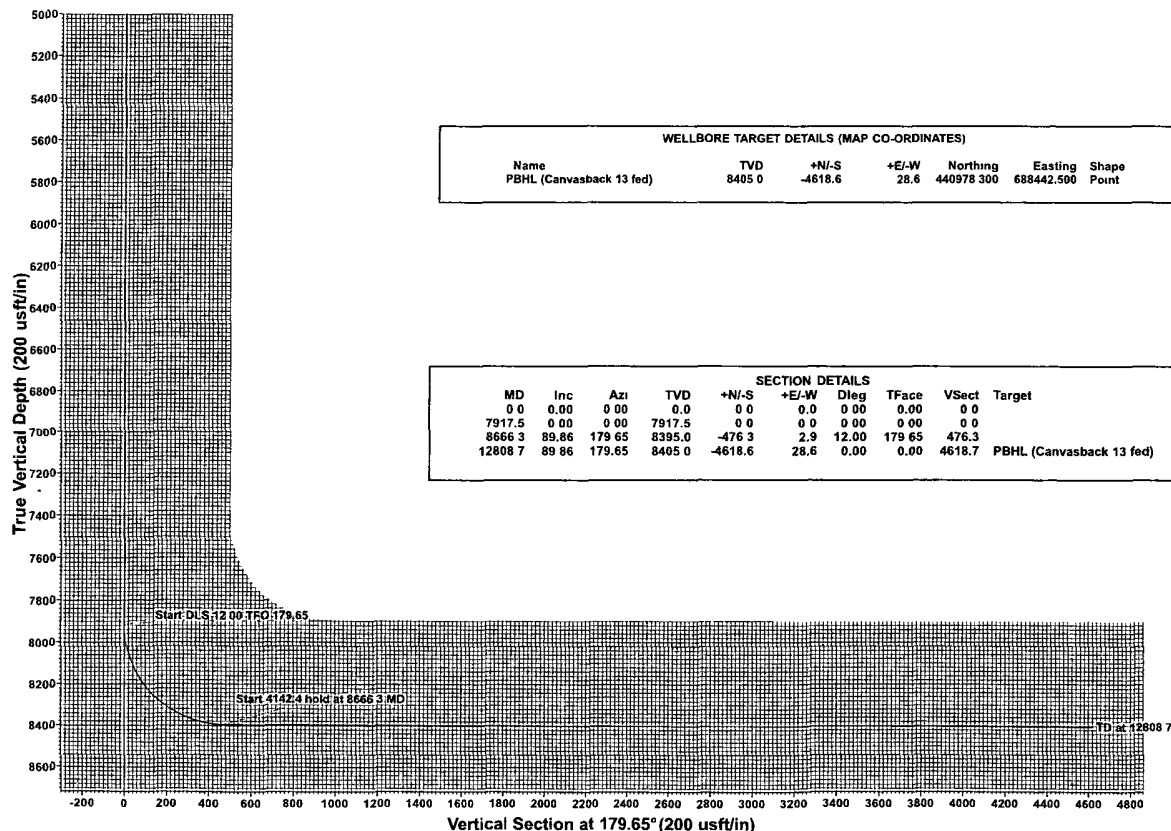
Azimuths to Grid North
 True North: -0.33°
 Magnetic North: 7.25°
 Magnetic Field
 Strength: 48534.7snT
 Dip Angle: 60.14°
 Date: 2/2/2012
 Model: IGRF2010

PROJECT DETAILS: Eddy 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

WELL DETAILS #2H						
Ground Elevation: 3580.0						
RKB Elevation KB = 17' @ 3597.0usft (Original Well Elev)						
Rig Name Original Well Elev						
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	445596.900	688413.900	32°13' 24.940 N	103°43' 26.609 W	

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)						
Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
PBHL (Canvasback 13 fed)	8405.0	-4618.6	28.6	440978.300	688442.500	Point

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	
7917.5	0.00	0.00	7917.5	0.0	0.0	0.00	0.00	0.0	
8666.3	89.86	179.65	8395.0	-476.3	2.9	12.00	179.65	476.3	
12808.7	89.86	179.65	8405.0	-4618.6	28.6	0.00	0.00	4618.7	PBHL (Canvasback 13 fed)





COG Operating LLC

**Eddy County(NAD27)
Canvasback 13 Federal
#2H
OH**

Plan: Plan #1

Pathfinder X & Y Report

07 February, 2012



A Schlumberger Company



Pathfinder
Pathfinder X & Y Report

PATHFINDER
A Schlumberger Company

Company: COG Operating LLC
Project: Eddy County(NAD27)
Site: Canvasback 13 Federal
Well: #2H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #2H
TVD Reference: KB = 17' @ 3597.0usft (Original Well Elev)
MD Reference: KB = 17' @ 3597.0usft (Original Well Elev)
North Reference: Grd
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Project Eddy County(NAD27)

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 Canvasback 13 Federal

Site Position:		Northing:	445,577 000 usft	Latitude:	32° 13' 24.983 N
From:	Map	Easting:	684,092.600 usft	Longitude:	103° 44' 16.913 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.32 °

Well #2H

Well Position	+N/-S	0.0 usft	Northing:	445,596.900 usft	Latitude:	32° 13' 24.940 N
	+E/-W	0.0 usft	Easting:	688,413.900 usft	Longitude:	103° 43' 26.609 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	3,580.0 usft

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2/2/2012	7.58	60.14	48,535

Design Plan #1

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	179.65

Survey Tool Program Date 2/7/2012

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	12,808.7	Plan #1 (OH)		



Pathfinder
Pathfinder X & Y Report

PATHFINDER
A Schlumberger Company

Company: COG Operating LLC
Project: Eddy County(NAD27)
Site: Canvasback 13 Federal
Well: #2H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #2H
TVD Reference: KB = 17' @ 3597.0usft (Original Well Elev)
MD Reference: KB = 17' @ 3597.0usft (Original Well Elev)
North Reference: Grd
Survey Calculation Method: Minimum Curvature
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)	Northing (usft)	Easting (usft)
0.0	0.00	0.00	0.0	-3,597.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
100.0	0.00	0.00	100.0	-3,497.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
200.0	0.00	0.00	200.0	-3,397.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
300.0	0.00	0.00	300.0	-3,297.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
400.0	0.00	0.00	400.0	-3,197.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
500.0	0.00	0.00	500.0	-3,097.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
600.0	0.00	0.00	600.0	-2,997.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
700.0	0.00	0.00	700.0	-2,897.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
800.0	0.00	0.00	800.0	-2,797.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
900.0	0.00	0.00	900.0	-2,697.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
1,000.0	0.00	0.00	1,000.0	-2,597.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
1,100.0	0.00	0.00	1,100.0	-2,497.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
1,200.0	0.00	0.00	1,200.0	-2,397.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
1,300.0	0.00	0.00	1,300.0	-2,297.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
1,400.0	0.00	0.00	1,400.0	-2,197.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
1,500.0	0.00	0.00	1,500.0	-2,097.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
1,600.0	0.00	0.00	1,600.0	-1,997.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
1,700.0	0.00	0.00	1,700.0	-1,897.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
1,800.0	0.00	0.00	1,800.0	-1,797.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
1,900.0	0.00	0.00	1,900.0	-1,697.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
2,000.0	0.00	0.00	2,000.0	-1,597.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
2,100.0	0.00	0.00	2,100.0	-1,497.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
2,200.0	0.00	0.00	2,200.0	-1,397.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
2,300.0	0.00	0.00	2,300.0	-1,297.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
2,400.0	0.00	0.00	2,400.0	-1,197.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
2,500.0	0.00	0.00	2,500.0	-1,097.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
2,600.0	0.00	0.00	2,600.0	-997.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90



Pathfinder
Pathfinder X & Y Report

PATHFINDER
A Schlumberger Company

Company: COG Operating LLC
Project: Eddy County(NAD27)
Site: Canvasback 13 Federal
Well: #2H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:
Database:

Well #2H
KB = 17' @ 3597.0usft (Original Well Elev)
KB = 17' @ 3597.0usft (Original Well Elev)
Grd
Minimum Curvature
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)	Northing (usft)	Easting (usft)
2,700.0	0 00	0 00	2,700.0	-897.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
2,800.0	0 00	0.00	2,800.0	-797.0	0.0	0.0	0.0	0 00	445,596.90	688,413.90
2,900.0	0 00	0.00	2,900.0	-697.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
3,000.0	0.00	0 00	3,000.0	-597.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
3,100.0	0.00	0.00	3,100.0	-497.0	0.0	0.0	0.0	0 00	445,596.90	688,413.90
3,200.0	0.00	0.00	3,200.0	-397.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
3,300.0	0 00	0.00	3,300.0	-297.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
3,400.0	0.00	0.00	3,400.0	-197.0	0 0	0.0	0.0	0.00	445,596.90	688,413.90
3,500.0	0.00	0.00	3,500.0	-97.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
3,600.0	0.00	0.00	3,600.0	3 0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
3,700.0	0 00	0 00	3,700.0	103.0	0 0	0.0	0.0	0 00	445,596.90	688,413.90
3,800.0	0.00	0.00	3,800.0	203.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
3,900.0	0 00	0.00	3,900.0	303.0	0.0	0.0	0.0	0 00	445,596.90	688,413.90
4,000.0	0.00	0.00	4,000.0	403.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
4,100.0	0.00	0.00	4,100.0	503.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
4,200.0	0.00	0 00	4,200.0	603.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
4,300.0	0 00	0.00	4,300.0	703.0	0 0	0.0	0.0	0.00	445,596.90	688,413.90
4,400.0	0.00	0 00	4,400.0	803.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
4,500.0	0.00	0.00	4,500.0	903.0	0 0	0.0	0.0	0.00	445,596.90	688,413.90
4,600.0	0 00	0.00	4,600.0	1,003.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
4,700.0	0.00	0.00	4,700.0	1,103.0	0.0	0.0	0.0	0 00	445,596.90	688,413.90
4,800.0	0.00	0 00	4,800.0	1,203.0	0.0	0.0	0.0	0 00	445,596.90	688,413.90
4,900.0	0 00	0.00	4,900.0	1,303.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
5,000.0	0.00	0.00	5,000.0	1,403.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
5,100.0	0 00	0.00	5,100.0	1,503.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
5,200.0	0.00	0.00	5,200.0	1,603.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
5,300.0	0.00	0.00	5,300.0	1,703.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90



Pathfinder
Pathfinder X & Y Report



Company: COG Operating LLC
Project: Eddy County(NAD27)
Site: Canvasback 13 Federal
Well: #2H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #2H
TVD Reference: KB = 17' @ 3597.0usft (Original Well Elev)
MD Reference: KB = 17' @ 3597.0usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
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)	Northing (usft)	Easting (usft)
5,400.0	0.00	0.00	5,400.0	1,803.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
5,500.0	0.00	0.00	5,500.0	1,903.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
5,600.0	0.00	0.00	5,600.0	2,003.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
5,700.0	0.00	0.00	5,700.0	2,103.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
5,800.0	0.00	0.00	5,800.0	2,203.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
5,900.0	0.00	0.00	5,900.0	2,303.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
6,000.0	0.00	0.00	6,000.0	2,403.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
6,100.0	0.00	0.00	6,100.0	2,503.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
6,200.0	0.00	0.00	6,200.0	2,603.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
6,300.0	0.00	0.00	6,300.0	2,703.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
6,400.0	0.00	0.00	6,400.0	2,803.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
6,500.0	0.00	0.00	6,500.0	2,903.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
6,600.0	0.00	0.00	6,600.0	3,003.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
6,700.0	0.00	0.00	6,700.0	3,103.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
6,800.0	0.00	0.00	6,800.0	3,203.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
6,900.0	0.00	0.00	6,900.0	3,303.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
7,000.0	0.00	0.00	7,000.0	3,403.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
7,100.0	0.00	0.00	7,100.0	3,503.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
7,200.0	0.00	0.00	7,200.0	3,603.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
7,300.0	0.00	0.00	7,300.0	3,703.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
7,400.0	0.00	0.00	7,400.0	3,803.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
7,500.0	0.00	0.00	7,500.0	3,903.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
7,600.0	0.00	0.00	7,600.0	4,003.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
7,700.0	0.00	0.00	7,700.0	4,103.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
7,800.0	0.00	0.00	7,800.0	4,203.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
7,900.0	0.00	0.00	7,900.0	4,303.0	0.0	0.0	0.0	0.00	445,596.90	688,413.90
7,917.5	0.00	0.00	7,917.5	4,320.5	0.0	0.0	0.0	0.00	445,596.90	688,413.90



Pathfinder
Pathfinder X & Y Report



Company: COG Operating LLC
Project: Eddy County(NAD27)
Site: Canvasback 13 Federal
Well: #2H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #2H
TVD Reference: KB = 17' @ 3597.0usft (Original Well Elev)
MD Reference: KB = 17' @ 3597.0usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
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)	Northing (usft)	Easting (usft)
7,925.0	0.90	179.65	7,925.0	4,328.0	-0.1	0.0	0.1	12.00	445,596.84	688,413.90
7,950.0	3.90	179.65	7,950.0	4,353.0	-1.1	0.0	1.1	12.00	445,595.79	688,413.91
7,975.0	6.90	179.65	7,974.9	4,377.9	-3.5	0.0	3.5	12.00	445,593.44	688,413.92
8,000.0	9.90	179.65	7,999.6	4,402.6	-7.1	0.0	7.1	12.00	445,589.79	688,413.94
8,025.0	12.90	179.65	8,024.1	4,427.1	-12.1	0.1	12.1	12.00	445,584.85	688,413.97
8,050.0	15.90	179.65	8,048.3	4,451.3	-18.3	0.1	18.3	12.00	445,578.63	688,414.01
8,075.0	18.90	179.65	8,072.2	4,475.2	-25.7	0.2	25.7	12.00	445,571.16	688,414.06
8,100.0	21.90	179.65	8,095.6	4,498.6	-34.5	0.2	34.5	12.00	445,562.45	688,414.11
8,125.0	24.90	179.65	8,118.5	4,521.5	-44.4	0.3	44.4	12.00	445,552.52	688,414.17
8,150.0	27.90	179.65	8,140.9	4,543.9	-55.5	0.3	55.5	12.00	445,541.40	688,414.24
8,175.0	30.90	179.65	8,162.7	4,565.7	-67.8	0.4	67.8	12.00	445,529.13	688,414.32
8,200.0	33.90	179.65	8,183.8	4,586.8	-81.2	0.5	81.2	12.00	445,515.74	688,414.40
8,225.0	36.90	179.65	8,204.2	4,607.2	-95.6	0.6	95.6	12.00	445,501.26	688,414.49
8,250.0	39.90	179.65	8,223.8	4,626.8	-111.2	0.7	111.2	12.00	445,485.73	688,414.59
8,275.0	42.90	179.65	8,242.5	4,645.5	-127.7	0.8	127.7	12.00	445,469.20	688,414.69
8,300.0	45.90	179.65	8,260.4	4,663.4	-145.2	0.9	145.2	12.00	445,451.71	688,414.80
8,325.0	48.90	179.65	8,277.3	4,680.3	-163.6	1.0	163.6	12.00	445,433.31	688,414.91
8,350.0	51.90	179.65	8,293.2	4,696.2	-182.8	1.1	182.9	12.00	445,414.05	688,415.03
8,375.0	54.90	179.65	8,308.1	4,711.1	-202.9	1.3	202.9	12.00	445,393.98	688,415.16
8,400.0	57.90	179.65	8,322.0	4,725.0	-223.7	1.4	223.7	12.00	445,373.16	688,415.29
8,425.0	60.90	179.65	8,334.7	4,737.7	-245.3	1.5	245.3	12.00	445,351.65	688,415.42
8,450.0	63.90	179.65	8,346.3	4,749.3	-267.4	1.7	267.4	12.00	445,329.50	688,415.56
8,475.0	66.90	179.65	8,356.7	4,759.7	-290.1	1.8	290.1	12.00	445,306.77	688,415.70
8,500.0	69.90	179.65	8,365.9	4,768.9	-313.4	1.9	313.4	12.00	445,283.53	688,415.84
8,525.0	72.90	179.65	8,373.9	4,776.9	-337.1	2.1	337.1	12.00	445,259.84	688,415.99
8,550.0	75.90	179.65	8,380.6	4,783.6	-361.1	2.2	361.1	12.00	445,235.76	688,416.14
8,575.0	78.90	179.65	8,386.0	4,789.0	-385.5	2.4	385.5	12.00	445,211.37	688,416.29



Pathfinder
Pathfinder X & Y Report

PATHFINDER
A Schlumberger Company

Company: COG Operating LLC
Project: Eddy County(NAD27)
Site: Canvasback 13 Federal
Well: #2H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #2H
TVD Reference: KB = 17' @ 3597.0usft (Original Well Elev)
MD Reference: KB = 17' @ 3597.0usft (Original Well Elev)
North Reference: Grd
Survey Calculation Method: Minimum Curvature
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)	Northing (usft)	Easting (usft)
8,600.0	81.90	179.65	8,390.2	4,793.2	-410.2	2.5	410.2	12.00	445,186.72	688,416.44
8,625.0	84.90	179.65	8,393.1	4,796.1	-435.0	2.7	435.0	12.00	445,161.89	688,416.59
8,650.0	87.90	179.65	8,394.6	4,797.6	-460.0	2.8	460.0	12.00	445,136.94	688,416.75
8,666.3	89.86	179.65	8,395.0	4,798.0	-476.3	2.9	476.3	12.00	445,120.60	688,416.85
8,700.0	89.86	179.65	8,395.0	4,798.0	-510.0	3.2	510.0	0.00	445,086.95	688,417.06
8,800.0	89.86	179.65	8,395.3	4,798.3	-610.0	3.8	610.0	0.00	444,986.95	688,417.68
8,900.0	89.86	179.65	8,395.5	4,798.5	-710.0	4.4	710.0	0.00	444,886.95	688,418.30
9,000.0	89.86	179.65	8,395.8	4,798.8	-809.9	5.0	810.0	0.00	444,786.95	688,418.92
9,100.0	89.86	179.65	8,396.0	4,799.0	-909.9	5.6	910.0	0.00	444,686.95	688,419.53
9,200.0	89.86	179.65	8,396.3	4,799.3	-1,009.9	6.3	1,010.0	0.00	444,586.96	688,420.15
9,300.0	89.86	179.65	8,396.5	4,799.5	-1,109.9	6.9	1,110.0	0.00	444,486.96	688,420.77
9,400.0	89.86	179.65	8,396.7	4,799.7	-1,209.9	7.5	1,210.0	0.00	444,386.96	688,421.39
9,500.0	89.86	179.65	8,397.0	4,800.0	-1,309.9	8.1	1,310.0	0.00	444,286.96	688,422.01
9,600.0	89.86	179.65	8,397.2	4,800.2	-1,409.9	8.7	1,410.0	0.00	444,186.96	688,422.63
9,700.0	89.86	179.65	8,397.5	4,800.5	-1,509.9	9.4	1,510.0	0.00	444,086.97	688,423.25
9,800.0	89.86	179.65	8,397.7	4,800.7	-1,609.9	10.0	1,610.0	0.00	443,986.97	688,423.87
9,900.0	89.86	179.65	8,398.0	4,801.0	-1,709.9	10.6	1,710.0	0.00	443,886.97	688,424.49
10,000.0	89.86	179.65	8,398.2	4,801.2	-1,809.9	11.2	1,810.0	0.00	443,786.97	688,425.11
10,100.0	89.86	179.65	8,398.4	4,801.4	-1,909.9	11.8	1,910.0	0.00	443,686.98	688,425.73
10,200.0	89.86	179.65	8,398.7	4,801.7	-2,009.9	12.4	2,010.0	0.00	443,586.98	688,426.35
10,300.0	89.86	179.65	8,398.9	4,801.9	-2,109.9	13.1	2,110.0	0.00	443,486.98	688,426.97
10,400.0	89.86	179.65	8,399.2	4,802.2	-2,209.9	13.7	2,210.0	0.00	443,386.98	688,427.58
10,500.0	89.86	179.65	8,399.4	4,802.4	-2,309.9	14.3	2,310.0	0.00	443,286.98	688,428.20
10,600.0	89.86	179.65	8,399.6	4,802.6	-2,409.9	14.9	2,410.0	0.00	443,186.99	688,428.82
10,700.0	89.86	179.65	8,399.9	4,802.9	-2,509.9	15.5	2,510.0	0.00	443,086.99	688,429.44
10,800.0	89.86	179.65	8,400.1	4,803.1	-2,609.9	16.2	2,610.0	0.00	442,986.99	688,430.06
10,900.0	89.86	179.65	8,400.4	4,803.4	-2,709.9	16.8	2,710.0	0.00	442,886.99	688,430.68



Pathfinder
Pathfinder X & Y Report



Company: COG Operating LLC
Project: Eddy County(NAD27)
Site: Canvasback 13 Federal
Well: #2H
Wellbore: OH
Design: Plan #1

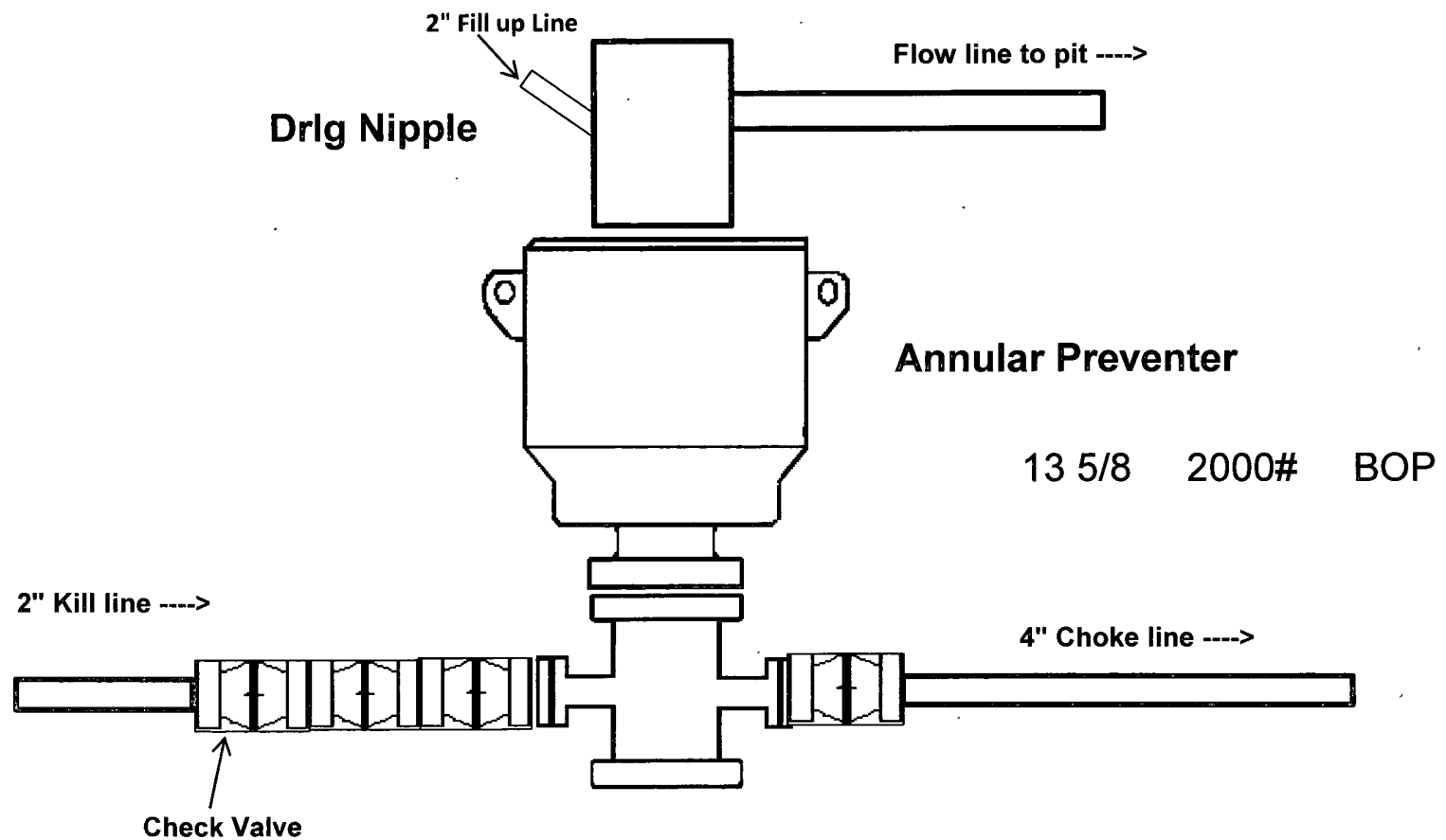
Local Co-ordinate Reference: Well #2H
TVD Reference: KB = 17' @ 3597.0usft (Original Well Elev)
MD Reference: KB = 17' @ 3597.0usft (Original Well Elev)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Planned Survey

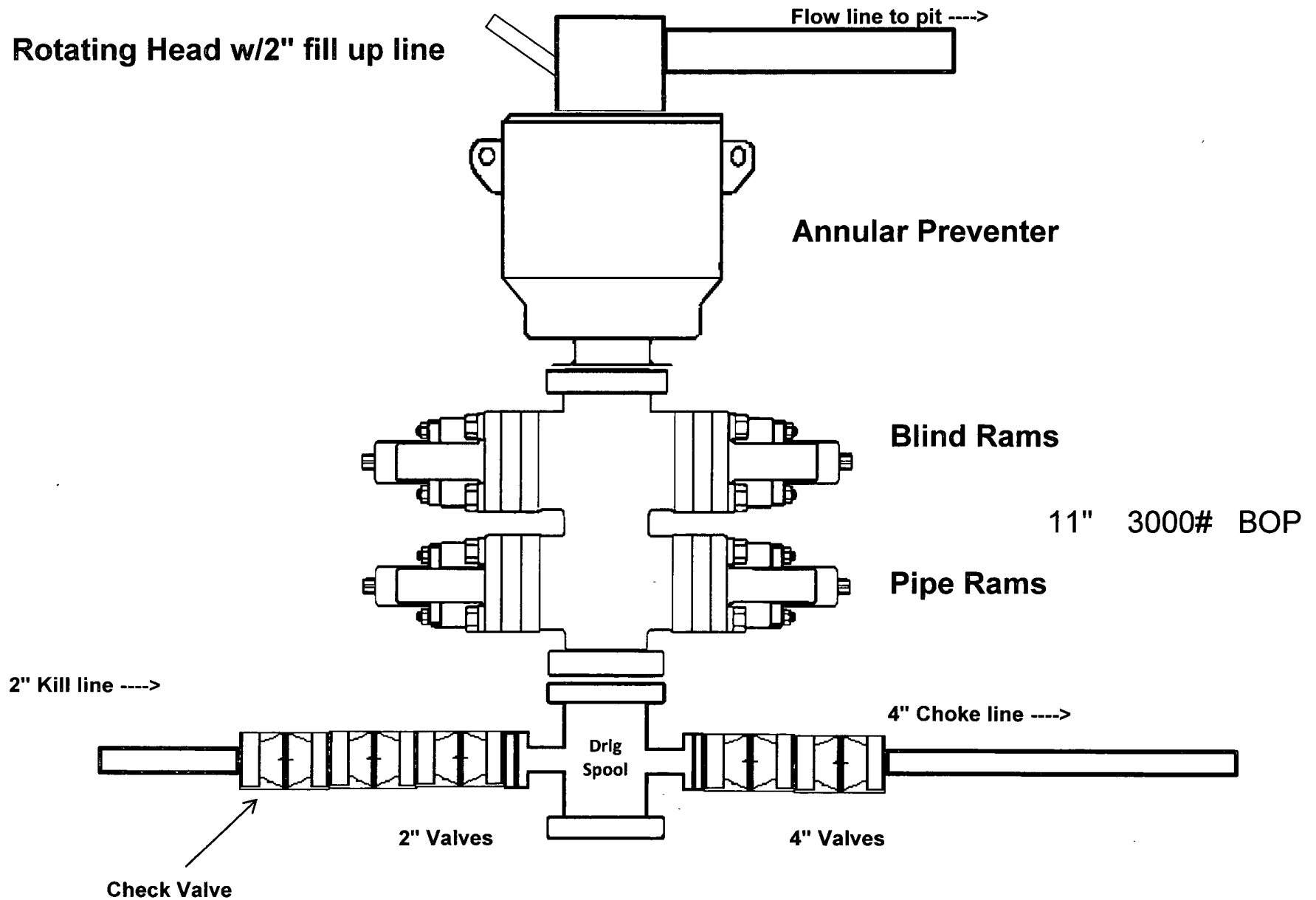
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)	Northing (usft)	Easting (usft)
11,000.0	89.86	179.65	8,400.6	4,803.6	-2,809.9	17.4	2,810.0	0.00	442,787.00	688,431.30
11,100.0	89.86	179.65	8,400.9	4,803.9	-2,909.9	18.0	2,910.0	0.00	442,687.00	688,431.92
11,200.0	89.86	179.65	8,401.1	4,804.1	-3,009.9	18.6	3,010.0	0.00	442,587.00	688,432.54
11,300.0	89.86	179.65	8,401.3	4,804.3	-3,109.9	19.3	3,110.0	0.00	442,487.00	688,433.16
11,400.0	89.86	179.65	8,401.6	4,804.6	-3,209.9	19.9	3,210.0	0.00	442,387.00	688,433.78
11,500.0	89.86	179.65	8,401.8	4,804.8	-3,309.9	20.5	3,310.0	0.00	442,287.01	688,434.40
11,600.0	89.86	179.65	8,402.1	4,805.1	-3,409.9	21.1	3,410.0	0.00	442,187.01	688,435.02
11,700.0	89.86	179.65	8,402.3	4,805.3	-3,509.9	21.7	3,510.0	0.00	442,087.01	688,435.63
11,800.0	89.86	179.65	8,402.6	4,805.6	-3,609.9	22.4	3,610.0	0.00	441,987.01	688,436.25
11,900.0	89.86	179.65	8,402.8	4,805.8	-3,709.9	23.0	3,710.0	0.00	441,887.02	688,436.87
12,000.0	89.86	179.65	8,403.0	4,806.0	-3,809.9	23.6	3,810.0	0.00	441,787.02	688,437.49
12,100.0	89.86	179.65	8,403.3	4,806.3	-3,909.9	24.2	3,910.0	0.00	441,687.02	688,438.11
12,200.0	89.86	179.65	8,403.5	4,806.5	-4,009.9	24.8	4,010.0	0.00	441,587.02	688,438.73
12,300.0	89.86	179.65	8,403.8	4,806.8	-4,109.9	25.4	4,110.0	0.00	441,487.02	688,439.35
12,400.0	89.86	179.65	8,404.0	4,807.0	-4,209.9	26.1	4,210.0	0.00	441,387.03	688,439.97
12,500.0	89.86	179.65	8,404.3	4,807.3	-4,309.9	26.7	4,310.0	0.00	441,287.03	688,440.59
12,600.0	89.86	179.65	8,404.5	4,807.5	-4,409.9	27.3	4,410.0	0.00	441,187.03	688,441.21
12,700.0	89.86	179.65	8,404.7	4,807.7	-4,509.9	27.9	4,510.0	0.00	441,087.03	688,441.83
12,808.7	89.86	179.65	8,405.0	4,808.0	-4,618.6	28.6	4,618.7	0.00	440,978.30	688,442.50

Checked By: _____ Approved By: _____ Date: _____

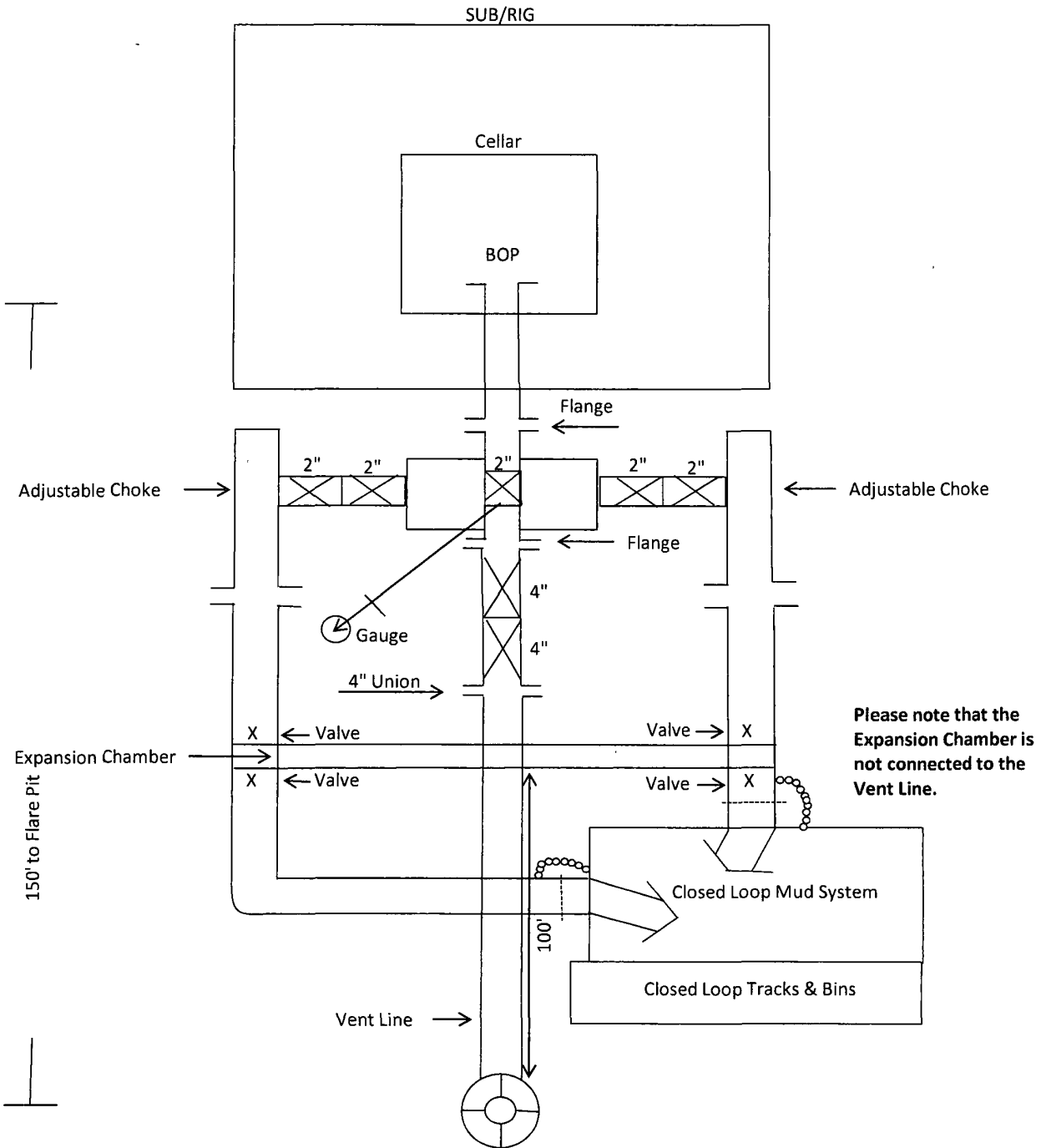
2,000 psi BOP Schematic



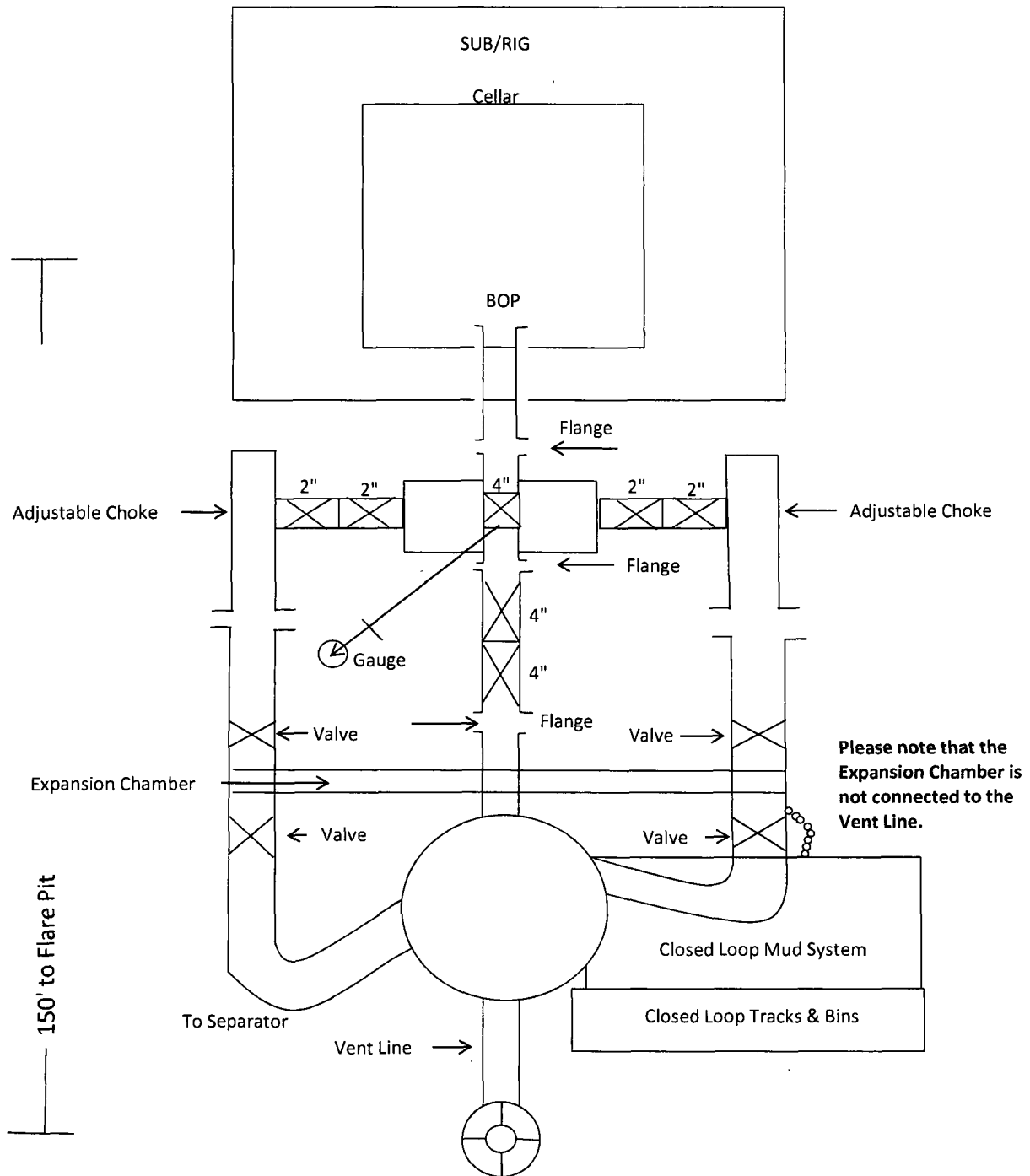
3,000 psi BOP Schematic



2M Choke Manifold Equipment



3M Choke Manifold Equipment



**Design Plan
Operating and Maintenance Plan
Closure Plan**

**Canvasback 13 Federal #2H
SHL: 330' FNL & 480' FEL
BHL: 330' FSL & 480' FEL
Section 13 T24S R31E
Eddy County, New Mexico**

COG Production 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.

COG PRODUCTION LLC
HYDROGEN SULFIDE DRILLING OPERATIONS PLAN

I. HYDROGEN SULFIDE TRAINING

All personnel, whether regularly assigned, contracted, or employed on an unscheduled basis, will receive training from a qualified instructor in the following areas prior to commencing drilling operations on this well:

- A. The hazards and characteristics of hydrogen sulfide (H₂S).
- B. The proper use and maintenance of personal protective equipment and life support systems.
- C. The proper use of H₂S detectors, alarms, warning systems, briefing areas, evacuation procedures, and prevailing winds.
- D. The proper techniques for first aid and rescue procedures.

In addition, supervisory personnel will be trained in the following areas:

- A. The effects of H₂S on metal components. If high tensile tubulars are to be used, personnel will be trained in their special maintenance requirements.
- B. Corrective action and shut-in procedures when drilling or reworking a well and blowout prevention and well control procedures.
- C. The contents and requirements of the H₂S Drilling Operations Plan and the Public Protection Plan.

There will be an initial training session just prior to encountering a known or probable H₂S zone (within 3 days or 500 feet) and weekly H₂S and well control drills for all personnel in each crew. The initial training session shall include a review of the site specific H₂S Drilling Operations Plan and the Public Protection Plan. This plan shall be available at the well site. All personnel will be required to carry documentation that they have received the proper training.

II. H₂S SAFETY EQUIPMENT AND SYSTEMS

Note: All H₂S safety equipment and systems will be installed, tested, and operational when drilling reaches a depth of 500 feet above, or three days prior to penetrating the first zone containing or reasonably expected to contain H₂S.

A. Well Control Equipment:

Flare line.

Choke manifold.

Blind rams and pipe rams to accommodate all pipe sizes with properly sized closing unit.

Auxiliary equipment to include: annular preventer, mud-gas separator, rotating head.

B. Protective equipment for essential personnel:

Mark II Surviveair 30-minute units located in the dog house and at briefing areas.

C. H₂S detection and monitoring equipment:

2 - portable H₂S monitor positioned on location for best coverage and response. These units have warning lights and audible sirens when H₂S levels of 20 ppm are reached.

D. Visual warning systems:

Caution/Danger signs shall be posted on roads providing direct access to location. Signs will be painted a high visibility yellow with black lettering of sufficient size to be readable at a reasonable distance from the immediate location. Bilingual signs will be used, when appropriate. See example attached.

E. Mud Program:

The mud program has been designed to minimize the volume of H₂S circulated to the surface.

F. Metallurgy:

All drill strings, casings, tubing, wellhead, blowout preventers, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H₂S service.

G. Communication:

Company vehicles equipped with cellular telephone.

COG Production LLC has conducted a review to determine if an H₂S contingency plan is required for the above referenced well. We were able to conclude that any potential hazardous volume would be minimal. H₂S concentrations of wells in this area from surface to TD are low enough; therefore, we do not believe that an H₂S contingency plan is necessary.

W A R N I N G

**YOU ARE ENTERING AN H₂S AREA
AUTHORIZED PERSONNEL ONLY**

- 1. BEARDS OR CONTACT LENSES NOT ALLOWED**
- 2. HARD HATS REQUIRED**
- 3. SMOKING IN DESIGNATED AREAS ONLY**
- 4. BE WIND CONSCIOUS AT ALL TIMES**
- 5. CK WITH COG PRODUCTION LLC FOREMAN AT MAIN OFFICE**

COG PRODUCTION LLC

1-575-748-6940

EMERGENCY CALL LIST

	<u>OFFICE</u>	<u>MOBILE</u>	<u>HOME</u>
COG OPERATING LLC OFFICE	575-748-6940		
SHERYL BAKER	575-748-6940	432-934-1873	575-748-2396
RON BEASLEY	575-746-2010	432-254-9883	
SETH WILD	575-748-6940	432-528-3633	
DEAN CHUMBLEY	575-748-3303	575-748-5988	575-748-2426

EMERGENCY RESPONSE NUMBERS

	<u>OFFICE</u>
STATE POLICE	575-748-9718
EDDY COUNTY SHERIFF	575-746-2701
EMERGENCY MEDICAL SERVICES (AMBULANCE)	911 or 575-746-2701
EDDY COUNTY EMERGENCY MANAGEMENT (HARRY BURGESS)	575-887-9511
STATE EMERGENCY RESPONSE CENTER (SERC)	575-476-9620
CARLSBAD POLICE DEPARTMENT	575-885-2111
CARLSBAD FIRE DEPARTMENT	575-885-3125
NEW MEXICO OIL CONSERVATION DIVISION	575-748-1283
INDIAN FIRE & SAFETY	800-530-8693
HALLIBURTON SERVICES	800-844-8451

COG Operating LLC
H₂S Equipment Schematic

Well pad will be 330' X 330'
with cellar in center of pad

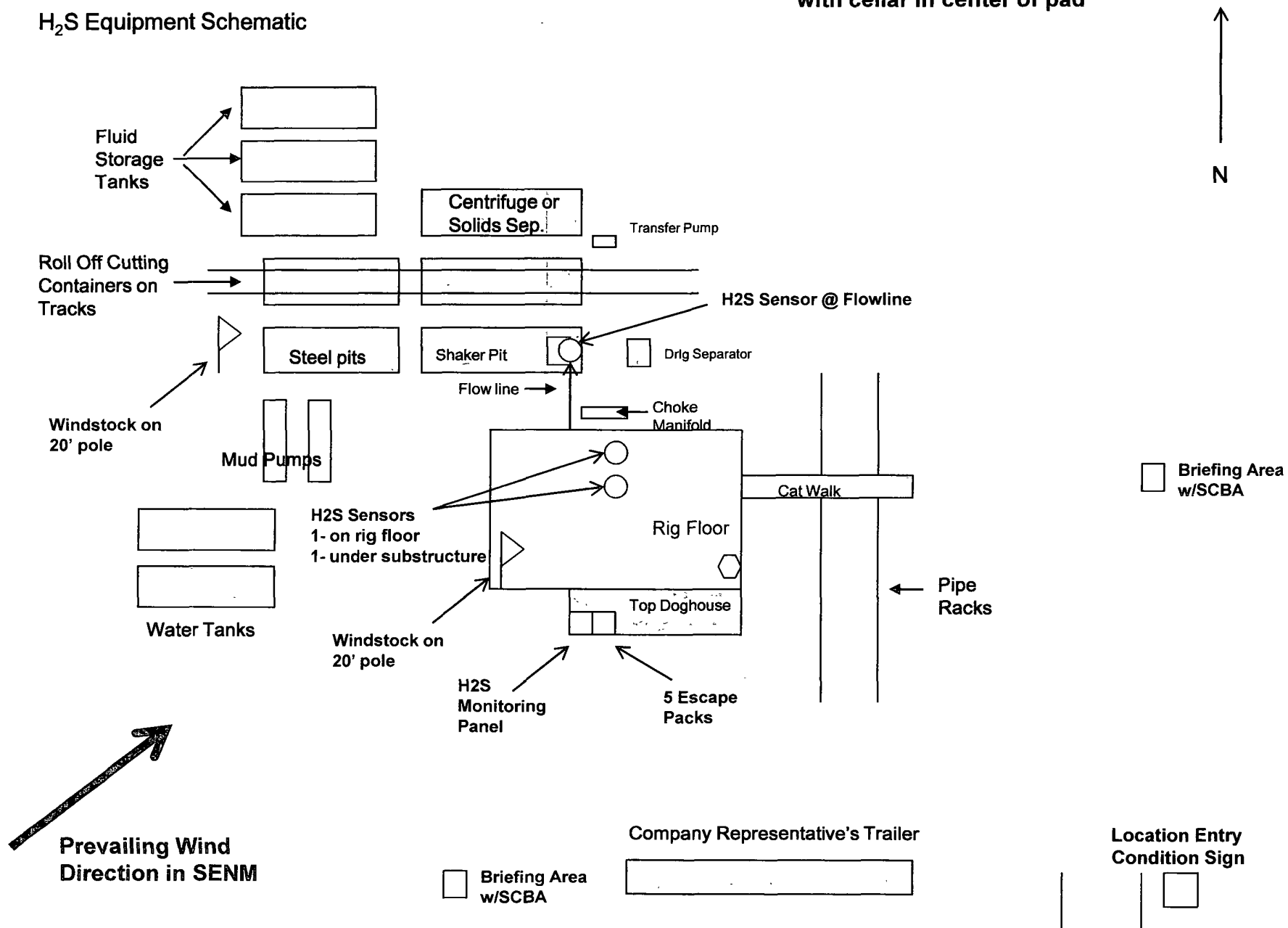
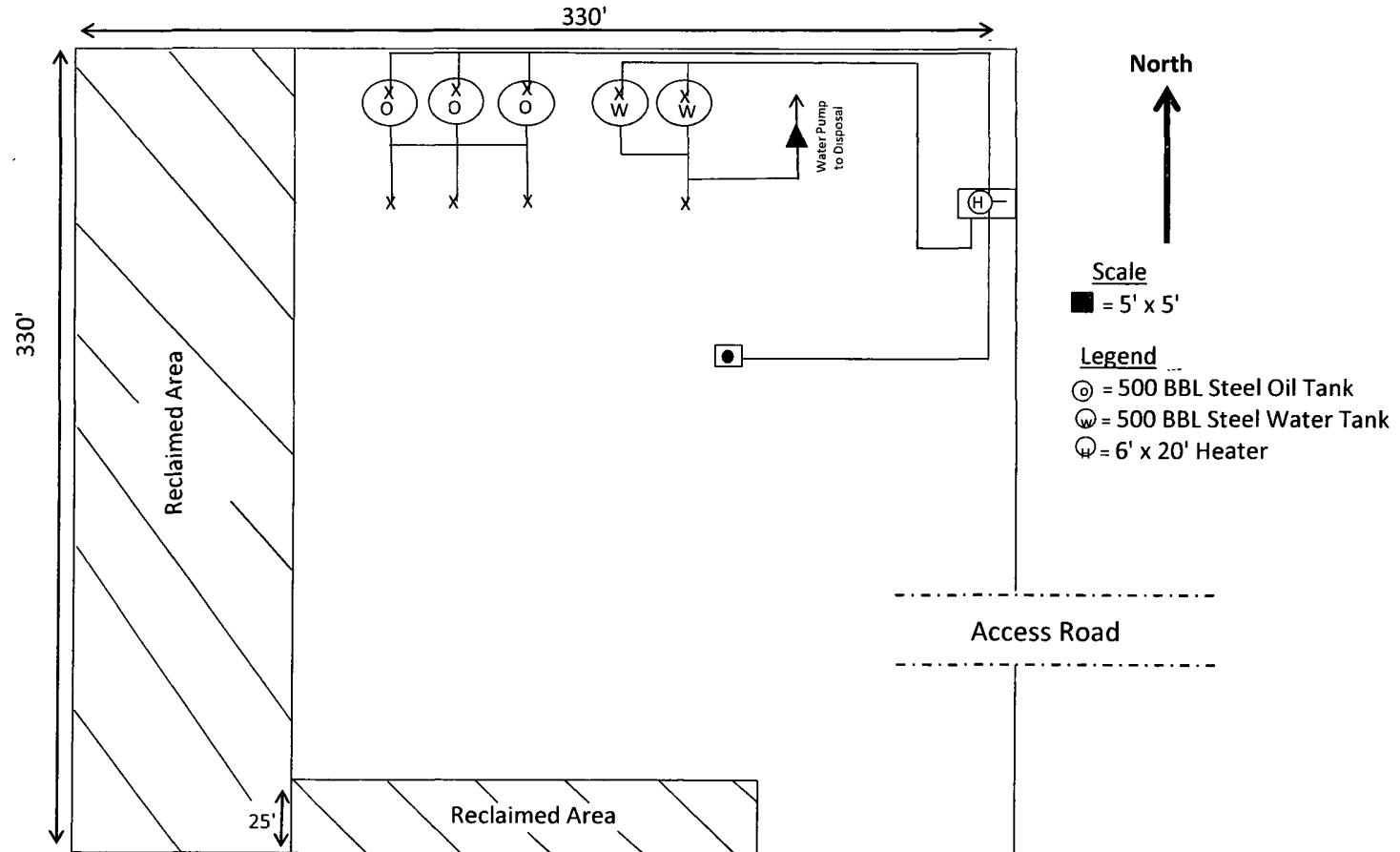


Exhibit 3

Production Facility Layout Canvasback 13 Federal #2H



PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME:	COG PRODUCTION LLC
LEASE NO.:	NM-114979
WELL NAME & NO.:	CANVASBACK 13 FEDERAL #2H
SURFACE HOLE FOOTAGE:	330' FNL & 480' FEL
BOTTOM HOLE FOOTAGE:	330' FSL & 480' FEL
LOCATION:	Section 13, T.24 S., R.31 E., NMPM
COUNTY:	Eddy County, New Mexico

TABLE OF CONTENTS

Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

- ☐ General Provisions
- ☐ Permit Expiration
- ☐ Archaeology, Paleontology, and Historical Sites
- ☐ Noxious Weeds
- ☒ Special Requirements

- Lesser Prairie-Chicken Timing Stipulations
- Ground-level Abandoned Well Marker

- ☐ Construction
 - Notification
 - Topsoil
 - Closed Loop System
 - Federal Mineral Material Pits
 - Well Pads
 - Roads

- ☐ Road Section Diagram

- ☒ Drilling
 - Secretary's Potash
 - Logging Requirements
 - Casing Requirements
 - Waste Material and Fluids

- ☐ Production (Post Drilling)
 - Well Structures & Facilities
 - Pipelines
 - Electric Lines

- ☒ Interim Reclamation
- ☒ Final Abandonment & Reclamation