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UNITED STATES

DEPARTMENT OF THE INTERIOR

BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

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

5. Lease Serial No.

NMNM098821

6. If Indian, Allottee or Tribe Name

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

8. Lease Name and Well No. **< 39313 >**
Cabo Wabo 25 Federal #1H

9. API Well No. **< 22913 >**
30-015-40440 761

10. Field and Pool, or Exploratory
Willow Lake; B.S., S.E.
Wildcat, Boyle Spring

11. Sec., T.R.M. or Blk and Survey or A.

Section 25-T25S-R29E

12. County or Parish

Eddy

13. State

New Mexico

1a. Type of Work: ☒ DRILL ☐ REENTER

1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone

2. Name of Operator

COG Production LLC.

3a. Address

2208 West Main Street
Artesia, NM 88210

3b. Phone No. (include area code)

575-748-6940

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

At surface 330' FNL & 660' FWL Unit Letter D NWNW Section 25-T25S-R29E

At proposed prod. Zone 350' FSL & 660' FWL Unit Letter M SWSW Section 25-T25S-R29E

14. Distance in miles and direction from nearest town or post office*

About 7 miles from Malaga

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.

About 1650'

TVD: 7705' MD: 12110' PH: 8700'

20. BLM/BIA Bond No. on file

NMB006970

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

3079'

22. Approximate date work will start*

4/15/2012

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

Title

Regulatory Analyst

Approved by (Signature)

James A. Amos

Name (Printed/Typed)

Date

Title

FIELD MANAGER

Office

CARLSBAD FIELD OFFICE

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to
conduct operations thereon.

Conditions of approval, if any, are attached.

APPROVAL FOR TWO YEARS

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

(Continued on page 2)

*(Instructions on page 2)

Carlsbad Controlled Water Basin

ATTACHED FOR
CONDITIONS OF APPROVAL

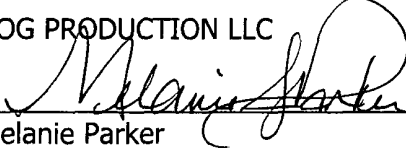
Approval Subject to General Requirements
& Special Stipulations Attached

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.

3/1/12
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 (575) 748-1283 Fax (575) 748-9720

DISTRICT III
1000 Rto 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 30-015-40440	Well Code 96217	Pool Name Willow Lake; Wildcat, Bone Spring, S.E.
Property Code 39313	Property Name CABO WABO 25 FEDERAL	Well Number 1H
OGRID No. 229137	Operator Name COG PRODUCTION, LLC	Elevation 3080'

Surface Location

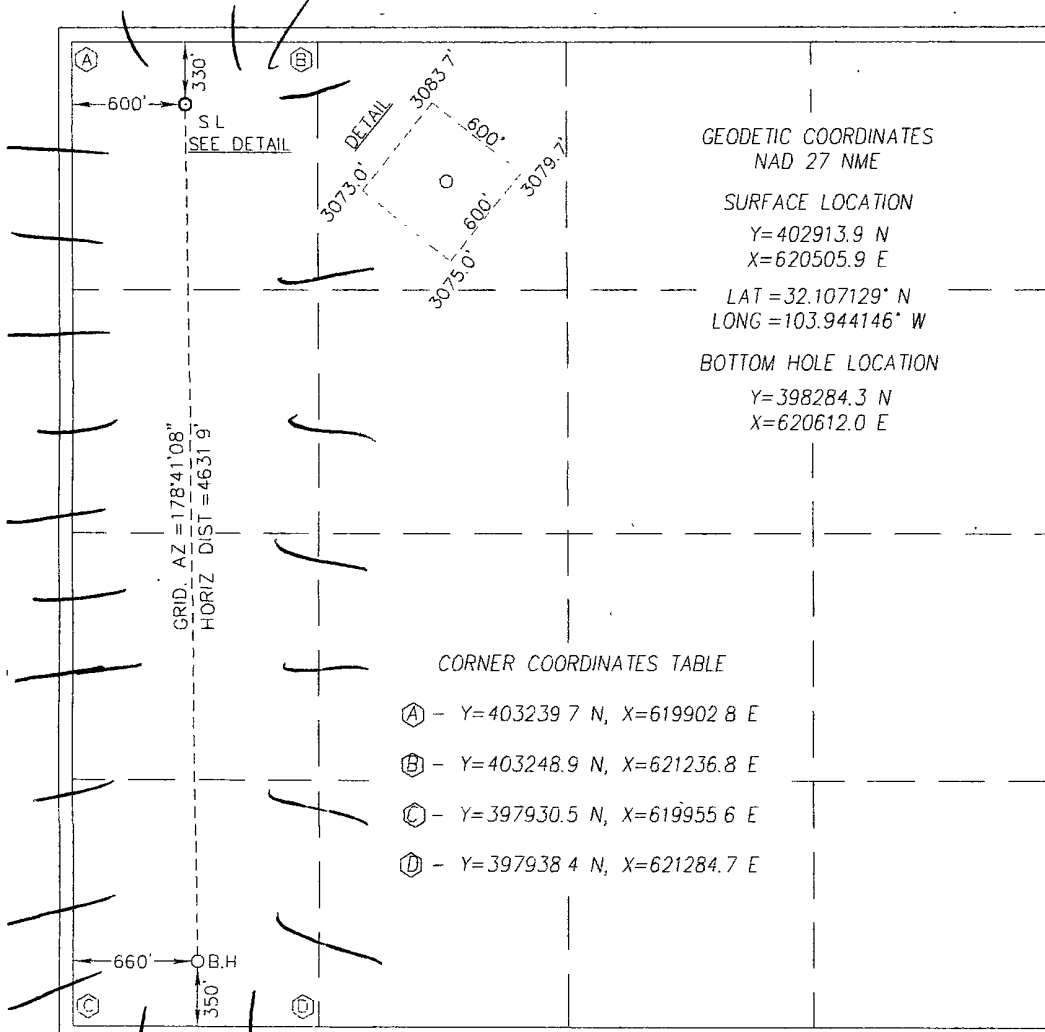
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	25	25-S	29-E		330	NORTH	600	WEST	EDDY

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
M	25	25-S	29-E		350	SOUTH	660	WEST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
160			12110 7-2

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



GEODETIC COORDINATES
NAD 27 NME

SURFACE LOCATION

Y=402913.9 N
X=620505.9 E

LAT = 32.107129° N
LONG = 103.944146° W

BOTTOM HOLE LOCATION

Y=398284.3 N
X=620612.0 E

CORNER COORDINATES TABLE

- Ⓐ - Y=403239.7 N, X=619902.8 E
- Ⓑ - Y=403248.9 N, X=621236.8 E
- Ⓒ - Y=397930.5 N, X=619955.6 E
- Ⓓ - Y=397938.4 N, X=621284.7 E

OPERATOR CERTIFICATION

I hereby certify that the information herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division

Melanie Parker 4/17/12
Signature Date
Melanie J. Parker
Printed Name
mparker@concho.com
E-mail Address

SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

MARCH 19, 2012

Date of Survey
Signature & Seal of Professional Surveyor:

Ronald J. Eidson
RONALD J. EIDSON
NEW MEXICO
3239
Certificate Number 12641
Gary C. Eidson
Ronald J. Eidson 3239
AF WSC W.O.: 12.11.0457

COG Production LLC
DRILLING AND OPERATIONS PROGRAM
Cabo Wabo 25 Federal #1H
SHL: 330' FNL & 660' FWL
BHL: 350' FSL & 660' FWL
Section 25 T25S R29E
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	~ 150'	
Rustler	575'	
Top of Salt	1698'	
Base of Salt	3069'	
Delaware	3266'	Oil
Bone Spring	7056'	Oil
2 nd BSS	8777'	
PHTD	8700'	
TD TVD	7705'	
TD MD	12,110'	

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 ~~600'~~ 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.

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

Hole Size	Depths <i>see COA</i>	Section	OD Casing	New/Used	Wt	Collar	Grade	Collapse Design Factor	Burst Design Factor	Tension Design Factor
17 1/2"	0' - 600' 650'	Surface	13 3/8"	New	54.5#	STC	J-55	1.125	1.125	1.6
12 1/4"	0' - 3150'	Intrmd	9 5/8"	New	36#	STC	J-55	1.125	1.125	1.6
7 7/8"	3150' - 8700'	Pilot Hole								
7 7/8"	0' - 12,110'	Production Curve & Lateral	5 1/2"	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: 200 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: 600 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/35% excess on OH volumes**

d. 5 1/2" Production

See
cont

Lead: 950 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 at least tie back 500' into 9-5/8" shoe (above slurry volumes are design to circulate to surface).
- Pilot hole will be plugged back with the following plugs:

PH TD: 8500' – 8700' (200')

100 sx Class H @ 17.2 ppg/0.98 ft3/sx

KO Plug: 7200' – 7900'

250 sx Class H @ 17.2 ppg/0.98 ft3/sx

5. Minimum Specifications for Pressure Control:

~~Nipple up on 13 3/8 with 2M annular tested to 50% of rating working pressure by independent tester.~~

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:

PHTD = 3775 psi

Lateral TD = 3340 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' - 600' <i>650</i>	Fresh Water	8.4	29	N.C.
600' - 3150'	Brine	10	29	N.C.
3150' - 8700' (PH)	Cut Brine	8.9 - 9.2	29	N.C.
3150' - 12,110' (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 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.

9. Testing, Logging and Coring Program: *See CorA*

- Drill stem tests will be based on geological sample shows.
- If open hole electrical logging is preformed, 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:

- 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: Cabo Wabo 25 Fed
 Well: #1H
 Wellbore: OH
 Plan: Plan #1 (#1H/OH)

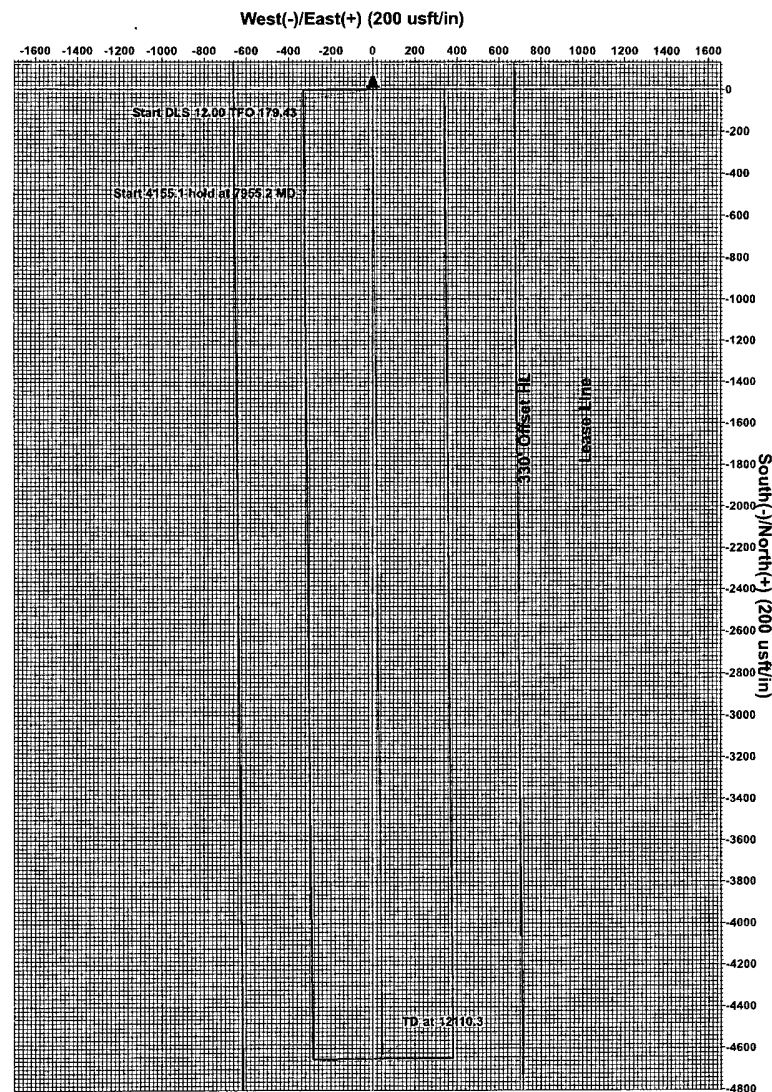
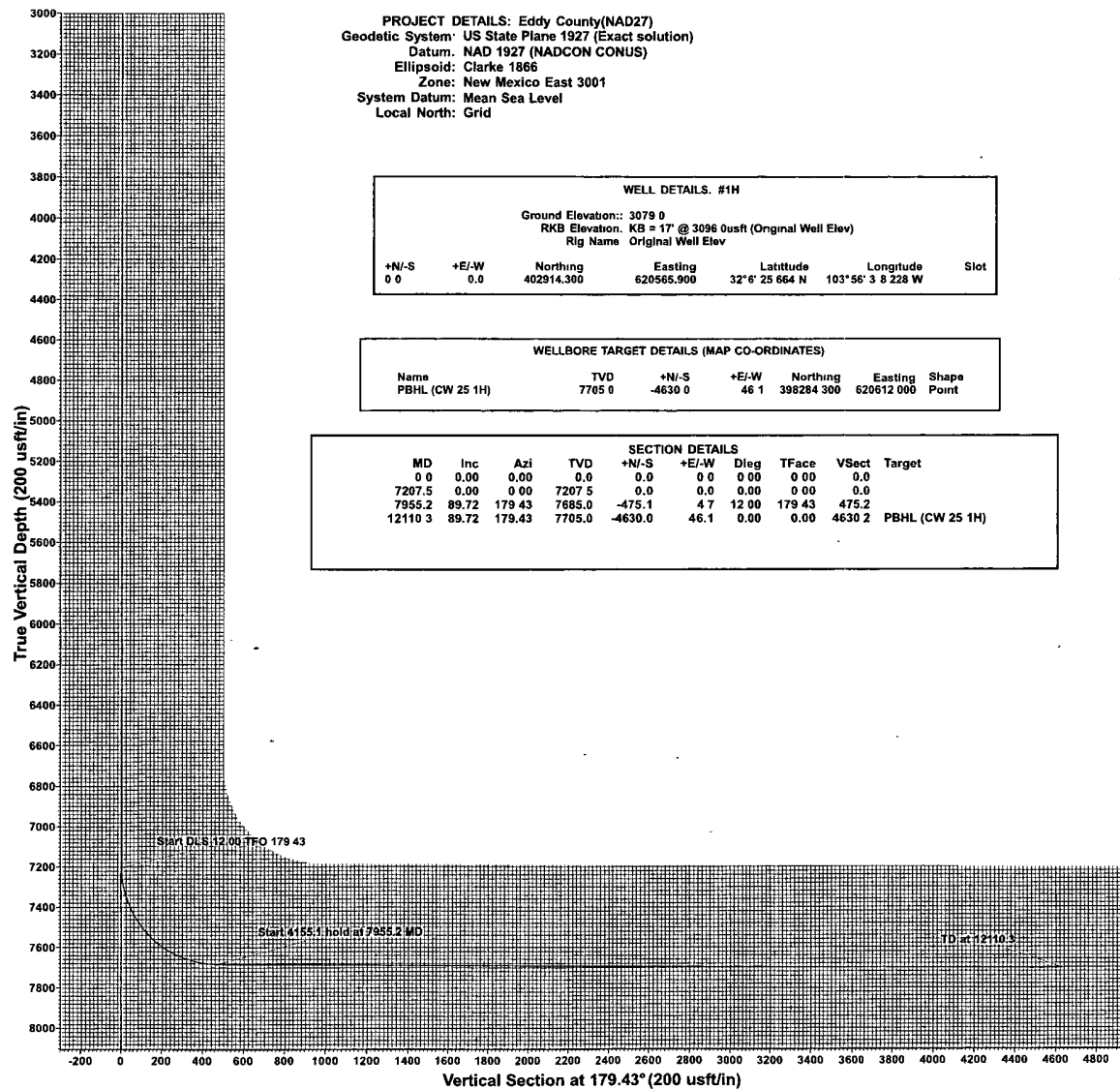


Azimuths to Grid North
 True North: -0.21°
 Magnetic North: 7.46°

Magnetic Field
 Strength: 48438.2snT
 Dip Angle: 60.00°
 Date: 2/21/2012
 Model: IGRF2010



A Schlumberger Company



Plan: Plan #1 (#1H/OH)	
Created By: Michael Trout	Date: 10 49, February 27 2012
Checked: _____	Date: _____

COS Operating LLC
 Eddy County(NAD27)
 Cabo Wabo 25 Fed
 #1H
 Original Well Elev
 Off
 Plan #1



COG Operating LLC

Eddy County(NAD27)

Cabo Wabo 25 Fed

#1H

OH

Plan: Plan #1

Pathfinder X & Y Report

27 February, 2012

PATHFINDER®
A Schlumberger Company



Pathfinder
Pathfinder X & Y Report

PATHFINDER
A Schlumberger Company

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #1H
Project:	Eddy County(NAD27)	TYD Reference:	KB = 17' @ 3096 0usft (Original Well Elev)
Site:	Cabo Wabo 25 Fed	MD Reference:	KB = 17' @ 3096 0usft (Original Well Elev)
Well:	#1H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	EDM 5000.1 Single User Db

Project:	Eddy 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:	Cabo Wabo 25 Fed		
Site Position:		Northing:	402,914 300 usft
From:	Map	Easting:	620,565 900 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "
		Latitude:	32° 6' 25 664 N
		Longitude:	103° 56' 38 228 W
		Grid Convergence:	0 21 °

Well:	#1H					
Well Position	+N/-S	0 0 usft	Northing:	402,914.300 usft	Latitude:	32° 6' 25 664 N
	+E/-W	0 0 usft	Easting:	620,565 900 usft	Longitude:	103° 56' 38 228 W
Position Uncertainty	0 0 usft	Wellhead Elevation:	usft	Ground Level:	3,079 0 usft	

Wellbore:	OH				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
	IGRF2010	2/21/2012	7 66	60.00	48,438

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	179.43

Survey Tool Program	Date	2/27/2012		
From	To	Survey (Wellbore)	Tool Name	Description
(usft)	(usft)			
0 0	12,110.3	Plan #1 (OH)		



Pathfinder
Pathfinder X & Y Report

PATHFINDER
A Schlumberger Company

Company: COG Operating LLC
Project: Eddy County(NAD27)
Site: Cabo Wabo 25 Fed
Well: #1H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #1H
TVD Reference: KB = 17' @ 3096.0usft (Original Well Elev)
MD Reference: KB = 17' @ 3096 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)
0.0	0.00	0.00	0.0	-3,096 0	0.0	0.0	0.0	0.00	402,914 30	620,565 90
100 0	0.00	0.00	100 0	-2,996 0	0.0	0.0	0.0	0.00	402,914 30	620,565 90
200.0	0.00	0.00	200 0	-2,896 0	0.0	0.0	0.0	0.00	402,914 30	620,565 90
300 0	0.00	0.00	300 0	-2,796 0	0.0	0.0	0.0	0.00	402,914 30	620,565 90
400 0	0.00	0.00	400 0	-2,696.0	0.0	0.0	0.0	0.00	402,914 30	620,565 90
500.0	0.00	0.00	500.0	-2,596 0	0.0	0.0	0.0	0.00	402,914.30	620,565 90
600 0	0.00	0.00	600 0	-2,496 0	0.0	0.0	0.0	0.00	402,914.30	620,565 90
700.0	0.00	0.00	700 0	-2,396 0	0.0	0.0	0.0	0.00	402,914 30	620,565 90
800.0	0.00	0.00	800 0	-2,296 0	0.0	0.0	0.0	0.00	402,914 30	620,565 90
900 0	0.00	0.00	900 0	-2,196.0	0.0	0.0	0.0	0.00	402,914 30	620,565 90
1,000 0	0.00	0.00	1,000 0	-2,096 0	0.0	0.0	0.0	0.00	402,914 30	620,565 90
1,100 0	0.00	0.00	1,100 0	-1,996 0	0.0	0.0	0.0	0.00	402,914.30	620,565 90
1,200 0	0.00	0.00	1,200 0	-1,896.0	0.0	0.0	0.0	0.00	402,914 30	620,565 90
1,300.0	0.00	0.00	1,300 0	-1,796 0	0.0	0.0	0.0	0.00	402,914 30	620,565 90
1,400 0	0.00	0.00	1,400.0	-1,696 0	0.0	0.0	0.0	0.00	402,914 30	620,565 90
1,500 0	0.00	0.00	1,500.0	-1,596 0	0.0	0.0	0.0	0.00	402,914 30	620,565 90
1,600.0	0.00	0.00	1,600 0	-1,496.0	0.0	0.0	0.0	0.00	402,914 30	620,565 90
1,700 0	0.00	0.00	1,700.0	-1,396 0	0.0	0.0	0.0	0.00	402,914 30	620,565 90
1,800.0	0.00	0.00	1,800 0	-1,296 0	0.0	0.0	0.0	0.00	402,914 30	620,565 90
1,900 0	0.00	0.00	1,900 0	-1,196 0	0.0	0.0	0.0	0.00	402,914 30	620,565 90
2,000 0	0.00	0.00	2,000 0	-1,096 0	0.0	0.0	0.0	0.00	402,914 30	620,565 90
2,100 0	0.00	0.00	2,100 0	-996 0	0.0	0.0	0.0	0.00	402,914.30	620,565 90
2,200 0	0.00	0.00	2,200 0	-896 0	0.0	0.0	0.0	0.00	402,914.30	620,565 90
2,300 0	0.00	0.00	2,300 0	-796.0	0.0	0.0	0.0	0.00	402,914.30	620,565 90
2,400 0	0.00	0.00	2,400 0	-696.0	0.0	0.0	0.0	0.00	402,914.30	620,565 90
2,500.0	0.00	0.00	2,500 0	-596.0	0.0	0.0	0.0	0.00	402,914 30	620,565 90
2,600 0	0.00	0.00	2,600 0	-496 0	0.0	0.0	0.0	0.00	402,914 30	620,565 90



Pathfinder
Pathfinder X & Y Report

PATHFINDER
A Schlumberger Company

Company: COG Operating LLC
Project: Eddy County(NAD27)
Site: Cabo Wabo 25 Fed
Well: #1H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #1H
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MD Reference: KB = 17' @ 3096.0usft (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)
2,700.0	0.00	0.00	2,700.0	-396.0	0.0	0.0	0.0	0.00	402,914.30	620,565.90
2,800.0	0.00	0.00	2,800.0	-296.0	0.0	0.0	0.0	0.00	402,914.30	620,565.90
2,900.0	0.00	0.00	2,900.0	-196.0	0.0	0.0	0.0	0.00	402,914.30	620,565.90
3,000.0	0.00	0.00	3,000.0	-96.0	0.0	0.0	0.0	0.00	402,914.30	620,565.90
3,100.0	0.00	0.00	3,100.0	4.0	0.0	0.0	0.0	0.00	402,914.30	620,565.90
3,200.0	0.00	0.00	3,200.0	104.0	0.0	0.0	0.0	0.00	402,914.30	620,565.90
3,300.0	0.00	0.00	3,300.0	204.0	0.0	0.0	0.0	0.00	402,914.30	620,565.90
3,400.0	0.00	0.00	3,400.0	304.0	0.0	0.0	0.0	0.00	402,914.30	620,565.90
3,500.0	0.00	0.00	3,500.0	404.0	0.0	0.0	0.0	0.00	402,914.30	620,565.90
3,600.0	0.00	0.00	3,600.0	504.0	0.0	0.0	0.0	0.00	402,914.30	620,565.90
3,700.0	0.00	0.00	3,700.0	604.0	0.0	0.0	0.0	0.00	402,914.30	620,565.90
3,800.0	0.00	0.00	3,800.0	704.0	0.0	0.0	0.0	0.00	402,914.30	620,565.90
3,900.0	0.00	0.00	3,900.0	804.0	0.0	0.0	0.0	0.00	402,914.30	620,565.90
4,000.0	0.00	0.00	4,000.0	904.0	0.0	0.0	0.0	0.00	402,914.30	620,565.90
4,100.0	0.00	0.00	4,100.0	1,004.0	0.0	0.0	0.0	0.00	402,914.30	620,565.90
4,200.0	0.00	0.00	4,200.0	1,104.0	0.0	0.0	0.0	0.00	402,914.30	620,565.90
4,300.0	0.00	0.00	4,300.0	1,204.0	0.0	0.0	0.0	0.00	402,914.30	620,565.90
4,400.0	0.00	0.00	4,400.0	1,304.0	0.0	0.0	0.0	0.00	402,914.30	620,565.90
4,500.0	0.00	0.00	4,500.0	1,404.0	0.0	0.0	0.0	0.00	402,914.30	620,565.90
4,600.0	0.00	0.00	4,600.0	1,504.0	0.0	0.0	0.0	0.00	402,914.30	620,565.90
4,700.0	0.00	0.00	4,700.0	1,604.0	0.0	0.0	0.0	0.00	402,914.30	620,565.90
4,800.0	0.00	0.00	4,800.0	1,704.0	0.0	0.0	0.0	0.00	402,914.30	620,565.90
4,900.0	0.00	0.00	4,900.0	1,804.0	0.0	0.0	0.0	0.00	402,914.30	620,565.90
5,000.0	0.00	0.00	5,000.0	1,904.0	0.0	0.0	0.0	0.00	402,914.30	620,565.90
5,100.0	0.00	0.00	5,100.0	2,004.0	0.0	0.0	0.0	0.00	402,914.30	620,565.90
5,200.0	0.00	0.00	5,200.0	2,104.0	0.0	0.0	0.0	0.00	402,914.30	620,565.90
5,300.0	0.00	0.00	5,300.0	2,204.0	0.0	0.0	0.0	0.00	402,914.30	620,565.90



Pathfinder
Pathfinder X & Y Report

PATHFINDER
A Schlumberger Company

Company: COG Operating LLC
Project: Eddy County(NAD27)
Site: Cabo Wabo 25 Fed
Well: #1H
Wellbore: OH
Design: Plan #1

Local Co-ordinate Reference: Well #1H
TVD Reference: KB = 17' @ 3096.0usft (Original Well Elev)
MD Reference: KB = 17' @ 3096.0usft (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	2,304.0	0.0	0 0	0 0	0 00	402,914.30	620,565.90
5,500.0	0 00	0 00	5,500.0	2,404.0	0 0	0 0	0.0	0 00	402,914.30	620,565.90
5,600.0	0 00	0 00	5,600.0	2,504.0	0 0	0 0	0.0	0 00	402,914.30	620,565.90
5,700.0	0 00	0 00	5,700.0	2,604.0	0 0	0 0	0.0	0 00	402,914.30	620,565.90
5,800.0	0 00	0 00	5,800.0	2,704.0	0.0	0 0	0.0	0 00	402,914.30	620,565.90
5,900.0	0 00	0 00	5,900.0	2,804.0	0.0	0 0	0.0	0 00	402,914.30	620,565.90
6,000.0	0.00	0 00	6,000.0	2,904.0	0.0	0.0	0.0	0 00	402,914.30	620,565.90
6,100.0	0 00	0 00	6,100.0	3,004.0	0 0	0 0	0.0	0 00	402,914.30	620,565.90
6,200.0	0 00	0 00	6,200.0	3,104.0	0 0	0.0	0.0	0 00	402,914.30	620,565.90
6,300.0	0 00	0 00	6,300.0	3,204.0	0 0	0 0	0.0	0 00	402,914.30	620,565.90
6,400.0	0 00	0 00	6,400.0	3,304.0	0 0	0 0	0.0	0 00	402,914.30	620,565.90
6,500.0	0 00	0 00	6,500.0	3,404.0	0 0	0 0	0.0	0 00	402,914.30	620,565.90
6,600.0	0 00	0 00	6,600.0	3,504.0	0 0	0 0	0.0	0 00	402,914.30	620,565.90
6,700.0	0 00	0 00	6,700.0	3,604.0	0 0	0 0	0.0	0.00	402,914.30	620,565.90
6,800.0	0 00	0 00	6,800.0	3,704.0	0 0	0 0	0.0	0 00	402,914.30	620,565.90
6,900.0	0 00	0 00	6,900.0	3,804.0	0 0	0 0	0.0	0 00	402,914.30	620,565.90
7,000.0	0 00	0 00	7,000.0	3,904.0	0.0	0 0	0.0	0 00	402,914.30	620,565.90
7,100.0	0 00	0 00	7,100.0	4,004.0	0 0	0 0	0.0	0 00	402,914.30	620,565.90
7,207.5	0 00	0 00	7,207.5	4,111.5	0 0	0.0	0.0	0 00	402,914.30	620,565.90
7,225.0	2 10	179.43	7,225.0	4,129.0	-0.3	0 0	0.3	12.00	402,913.98	620,565.90
7,250.0	5 10	179.43	7,249.9	4,153.9	-1.9	0 0	1.9	12.00	402,912.41	620,565.92
7,275.0	8 10	179.43	7,274.8	4,178.8	-4.8	0 0	4.8	12.00	402,909.54	620,565.95
7,300.0	11 10	179.43	7,299.4	4,203.4	-8.9	0 1	8.9	12.00	402,905.37	620,565.99
7,325.0	14 10	179.43	7,323.8	4,227.8	-14.4	0 1	14.4	12.00	402,899.92	620,566.04
7,350.0	17 10	179.43	7,347.9	4,251.9	-21.1	0.2	21.1	12.00	402,893.19	620,566.11
7,375.0	20 10	179.43	7,371.6	4,275.6	-29.1	0.3	29.1	12.00	402,885.22	620,566.19
7,400.0	23 10	179.43	7,394.8	4,298.8	-38.3	0.4	38.3	12.00	402,876.02	620,566.28



Pathfinder
Pathfinder X & Y Report

PATHFINDER
A Schlumberger Company

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #1H
Project:	Eddy County(NAD27)	TVD Reference:	KB = 17' @ 3096.0usft (Original Well Elev)
Site:	Cabo Wabo 25 Fed	MD Reference:	KB = 17' @ 3096.0usft (Original Well Elev)
Well:	#1H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	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)	
7,425.0	26 10	179 43	7,417.6	4,321.6	-48.7	0.5	48.7	12.00	402,865.61	620,566.38	
7,450.0	29 10	179 43	7,439.7	4,343.7	-60.3	0.6	60.3	12.00	402,854.03	620,566.50	
7,475.0	32 10	179 43	7,461.2	4,365.2	-73.0	0.7	73.0	12.00	402,841.31	620,566.63	
7,500.0	35 10	179 43	7,482.0	4,386.0	-86.8	0.9	86.8	12.00	402,827.48	620,566.76	
7,525.0	38 10	179 43	7,502.1	4,406.1	-101.7	1.0	101.7	12.00	402,812.57	620,566.91	
7,550.0	41 10	179 43	7,521.4	4,425.4	-117.7	1.2	117.7	12.00	402,796.64	620,567.07	
7,575.0	44 10	179 43	7,539.8	4,443.8	-134.6	1.3	134.6	12.00	402,779.72	620,567.24	
7,600.0	47 10	179 43	7,557.3	4,461.3	-152.4	1.5	152.4	12.00	402,761.86	620,567.42	
7,625.0	50 10	179 43	7,573.8	4,477.8	-171.2	1.7	171.2	12.00	402,743.11	620,567.60	
7,650.0	53 10	179 43	7,589.3	4,493.3	-190.8	1.9	190.8	12.00	402,723.52	620,567.80	
7,675.0	56 10	179 43	7,603.8	4,507.8	-211.2	2.1	211.2	12.00	402,703.15	620,568.00	
7,700.0	59 10	179 43	7,617.2	4,521.2	-232.3	2.3	232.3	12.00	402,682.04	620,568.21	
7,725.0	62 10	179 43	7,629.5	4,533.5	-254.0	2.5	254.0	12.00	402,660.27	620,568.43	
7,750.0	65 10	179 43	7,640.6	4,544.6	-276.4	2.8	276.4	12.00	402,637.88	620,568.65	
7,775.0	68 10	179 43	7,650.5	4,554.5	-299.4	3.0	299.4	12.00	402,614.94	620,568.88	
7,800.0	71 10	179 43	7,659.2	4,563.2	-322.8	3.2	322.8	12.00	402,591.51	620,569.11	
7,825.0	74 10	179 43	7,666.7	4,570.7	-346.6	3.5	346.7	12.00	402,567.66	620,569.35	
7,850.0	77 10	179 43	7,672.9	4,576.9	-370.9	3.7	370.9	12.00	402,543.45	620,569.59	
7,875.0	80 10	179 43	7,677.9	4,581.9	-395.4	3.9	395.4	12.00	402,518.94	620,569.84	
7,900.0	83 10	179 43	7,681.5	4,585.5	-420.1	4.2	420.1	12.00	402,494.22	620,570.08	
7,925.0	86 10	179 43	7,683.9	4,587.9	-445.0	4.4	445.0	12.00	402,469.33	620,570.33	
7,950.0	89 10	179 43	7,684.9	4,588.9	-469.9	4.7	470.0	12.00	402,444.36	620,570.58	
7,955.2	89 72	179 43	7,685.0	4,589.0	-475.1	4.7	475.2	12.00	402,439.16	620,570.63	
8,000.0	89 72	179 43	7,685.2	4,589.2	-519.9	5.2	520.0	0.00	402,394.36	620,571.08	
8,100.0	89 72	179 43	7,685.7	4,589.7	-619.9	6.2	620.0	0.00	402,294.37	620,572.07	
8,200.0	89.72	179 43	7,686.1	4,590.1	-719.9	7.2	720.0	0.00	402,194.37	620,573.07	
8,300.0	89.72	179 43	7,686.6	4,590.6	-819.9	8.2	820.0	0.00	402,094.38	620,574.06	



Pathfinder
Pathfinder X & Y Report



Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #1H
Project:	Eddy County(NAD27)	TVD Reference:	KB = 17' @ 3096 0usft (Original Well Elev)
Site:	Cabo Wabo 25 Fed	MD Reference:	KB = 17' @ 3096 0usft (Original Well Elev)
Well:	#1H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	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)	
8,400 0	89 72	179 43	7,687 1	4,591 1	-919 9	9 2	920 0	0 00	401,994 39	620,575 06	
8,500.0	89 72	179 43	7,687 6	4,591 6	-1,019 9	10 2	1,020 0	0 00	401,894 39	620,576 06	
8,600.0	89 72	179.43	7,688 1	4,592 1	-1,119 9	11 2	1,120 0	0 00	401,794 40	620,577 05	
8,700 0	89 72	179 43	7,688.6	4,592.6	-1,219 9	12 1	1,220 0	0.00	401,694.40	620,578 05	
8,800 0	89 72	179 43	7,689 0	4,593 0	-1,319 9	13 1	1,320.0	0 00	401,594 41	620,579.04	
8,900 0	89.72	179 43	7,689 5	4,593.5	-1,419 9	14 1	1,420 0	0 00	401,494 42	620,580 04	
9,000 0	89 72	179 43	7,690 0	4,594 0	-1,519 9	15 1	1,520 0	0 00	401,394 42	620,581 03	
9,100 0	89 72	179 43	7,690 5	4,594 5	-1,619 9	16 1	1,620 0	0 00	401,294 43	620,582 03	
9,200 0	89 72	179 43	7,691 0	4,595 0	-1,719 9	17 1	1,720 0	0 00	401,194 43	620,583 02	
9,300 0	89 72	179 43	7,691 4	4,595.4	-1,819 9	18 1	1,819 9	0 00	401,094.44	620,584 02	
9,400 0	89.72	179 43	7,691 9	4,595 9	-1,919 9	19 1	1,919 9	0.00	400,994.45	620,585 02	
9,500 0	89 72	179 43	7,692 4	4,596.4	-2,019 8	20 1	2,019 9	0 00	400,894 45	620,586 01	
9,600.0	89 72	179 43	7,692 9	4,596 9	-2,119 8	21 1	2,119 9	0 00	400,794.46	620,587 01	
9,700 0	89.72	179 43	7,693 4	4,597 4	-2,219 8	22 1	2,219.9	0 00	400,694 47	620,588 00	
9,800.0	89 72	179 43	7,693.9	4,597 9	-2,319 8	23 1	2,319 9	0 00	400,594 47	620,589.00	
9,900 0	89 72	179 43	7,694 3	4,598.3	-2,419 8	24 1	2,419 9	0 00	400,494 48	620,589 99	
10,000.0	89 72	179 43	7,694 8	4,598 8	-2,519 8	25 1	2,519 9	0 00	400,394.48	620,590.99	
10,100.0	89 72	179 43	7,695 3	4,599 3	-2,619 8	26 1	2,619 9	0 00	400,294.49	620,591 98	
10,200 0	89 72	179 43	7,695 8	4,599 8	-2,719.8	27 1	2,719 9	0 00	400,194 50	620,592 98	
10,300 0	89 72	179 43	7,696.3	4,600 3	-2,819 8	28 1	2,819 9	0 00	400,094 50	620,593 98	
10,400.0	89 72	179 43	7,696.8	4,600 8	-2,919 8	29 1	2,919 9	0 00	399,994 51	620,594 97	
10,500 0	89 72	179.43	7,697 2	4,601 2	-3,019.8	30 1	3,019 9	0 00	399,894 51	620,595 97	
10,600 0	89 72	179 43	7,697 7	4,601 7	-3,119 8	31 1	3,119 9	0 00	399,794 52	620,596 96	
10,700 0	89 72	179 43	7,698 2	4,602 2	-3,219 8	32 1	3,219 9	0 00	399,694 53	620,597 96	
10,800 0	89 72	179 43	7,698 7	4,602 7	-3,319 8	33 1	3,319 9	0 00	399,594 53	620,598 95	
10,900 0	89 72	179 43	7,699 2	4,603 2	-3,419 8	34 0	3,419 9	0 00	399,494 54	620,599 95	
11,000 0	89 72	179 43	7,699 6	4,603 6	-3,519 8	35 0	3,519 9	0 00	399,394 55	620,600 95	



Pathfinder
Pathfinder X & Y Report

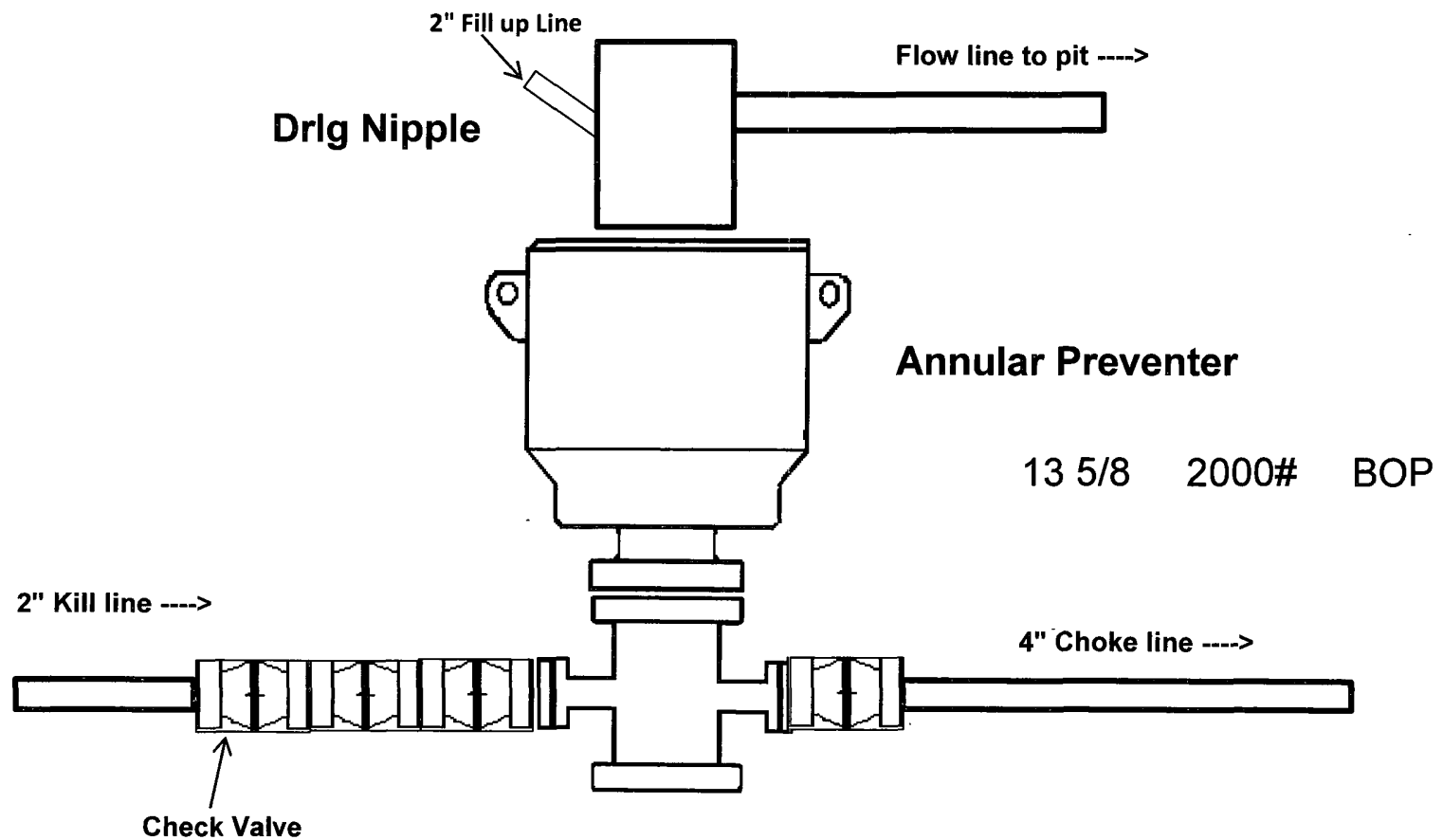
PATHFINDER
A Schlumberger Company

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well #1H
Project:	Eddy County(NAD27)	TVD Reference:	KB = 17' @ 3096.0usft (Original Well Elev)
Site:	Cabo Wabo 25 Fed	MD Reference:	KB = 17' @ 3096.0usft (Original Well Elev)
Well:	#1H	North Reference:	Grid
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Design:	Plan #1	Database:	EDM 5000 1 Single User Db

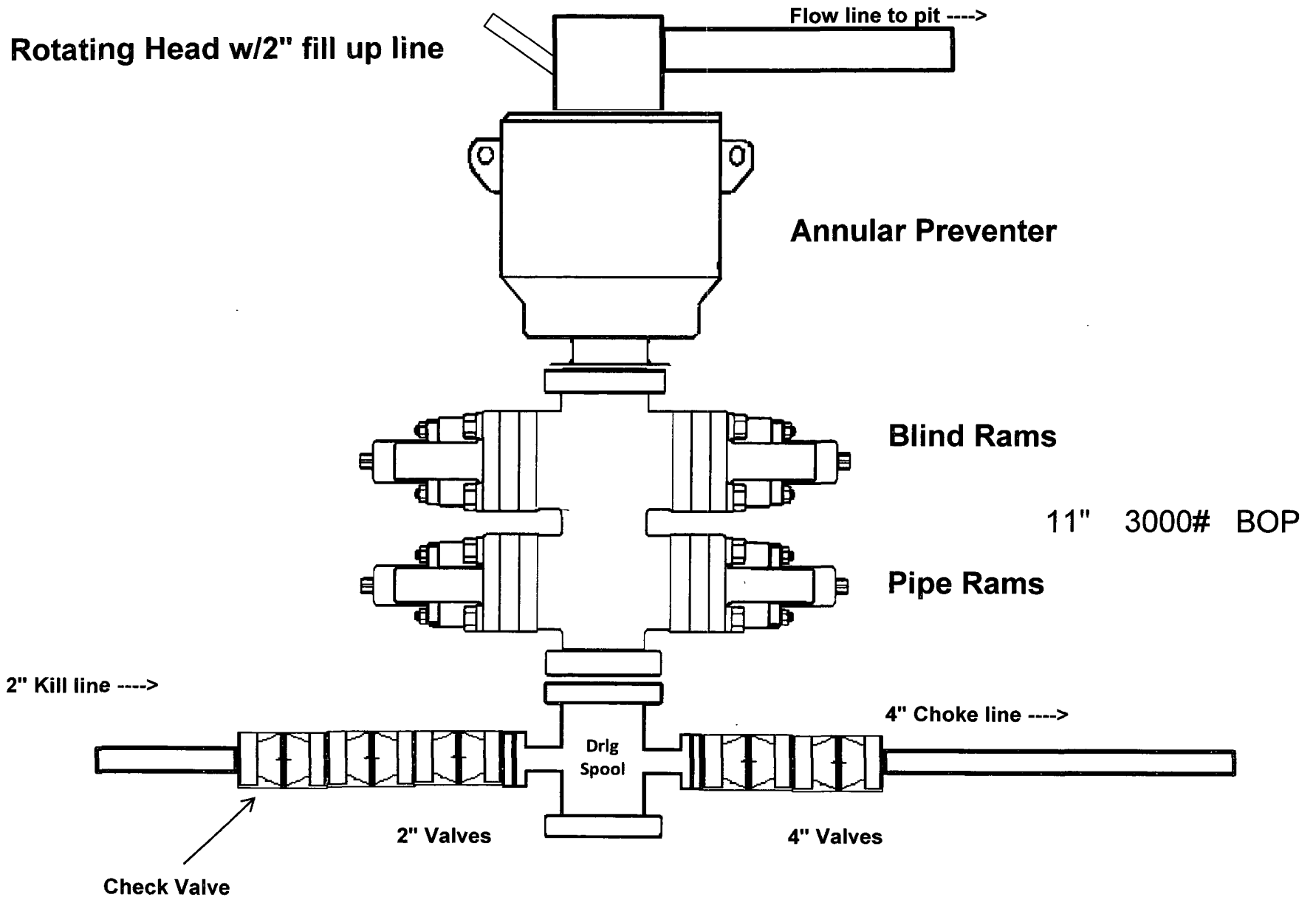
Planned Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	TVDSS (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	D Leg (°/100usft)	Northing (usft)	Easting (usft)	
11,100.0	89.72	179.43	7,700.1	4,604.1	-3,619.7	36.0	3,619.9	0.00	399,294.55	620,601.94	
11,200.0	89.72	179.43	7,700.6	4,604.6	-3,719.7	37.0	3,719.9	0.00	399,194.56	620,602.94	
11,300.0	89.72	179.43	7,701.1	4,605.1	-3,819.7	38.0	3,819.9	0.00	399,094.56	620,603.93	
11,400.0	89.72	179.43	7,701.6	4,605.6	-3,919.7	39.0	3,919.9	0.00	398,994.57	620,604.93	
11,500.0	89.72	179.43	7,702.1	4,606.1	-4,019.7	40.0	4,019.9	0.00	398,894.58	620,605.92	
11,600.0	89.72	179.43	7,702.5	4,606.5	-4,119.7	41.0	4,119.9	0.00	398,794.58	620,606.92	
11,700.0	89.72	179.43	7,703.0	4,607.0	-4,219.7	42.0	4,219.9	0.00	398,694.59	620,607.91	
11,800.0	89.72	179.43	7,703.5	4,607.5	-4,319.7	43.0	4,319.9	0.00	398,594.59	620,608.91	
11,900.0	89.72	179.43	7,704.0	4,608.0	-4,419.7	44.0	4,419.9	0.00	398,494.60	620,609.91	
12,000.0	89.72	179.43	7,704.5	4,608.5	-4,519.7	45.0	4,519.9	0.00	398,394.61	620,610.90	
12,100.0	89.72	179.43	7,705.0	4,609.0	-4,619.7	46.0	4,619.9	0.00	398,294.61	620,611.90	
12,110.3	89.72	179.43	7,705.0	4,609.0	-4,630.0	46.1	4,630.2	0.00	398,284.30	620,612.00	

Checked By: _____ Approved By: _____ Date: _____

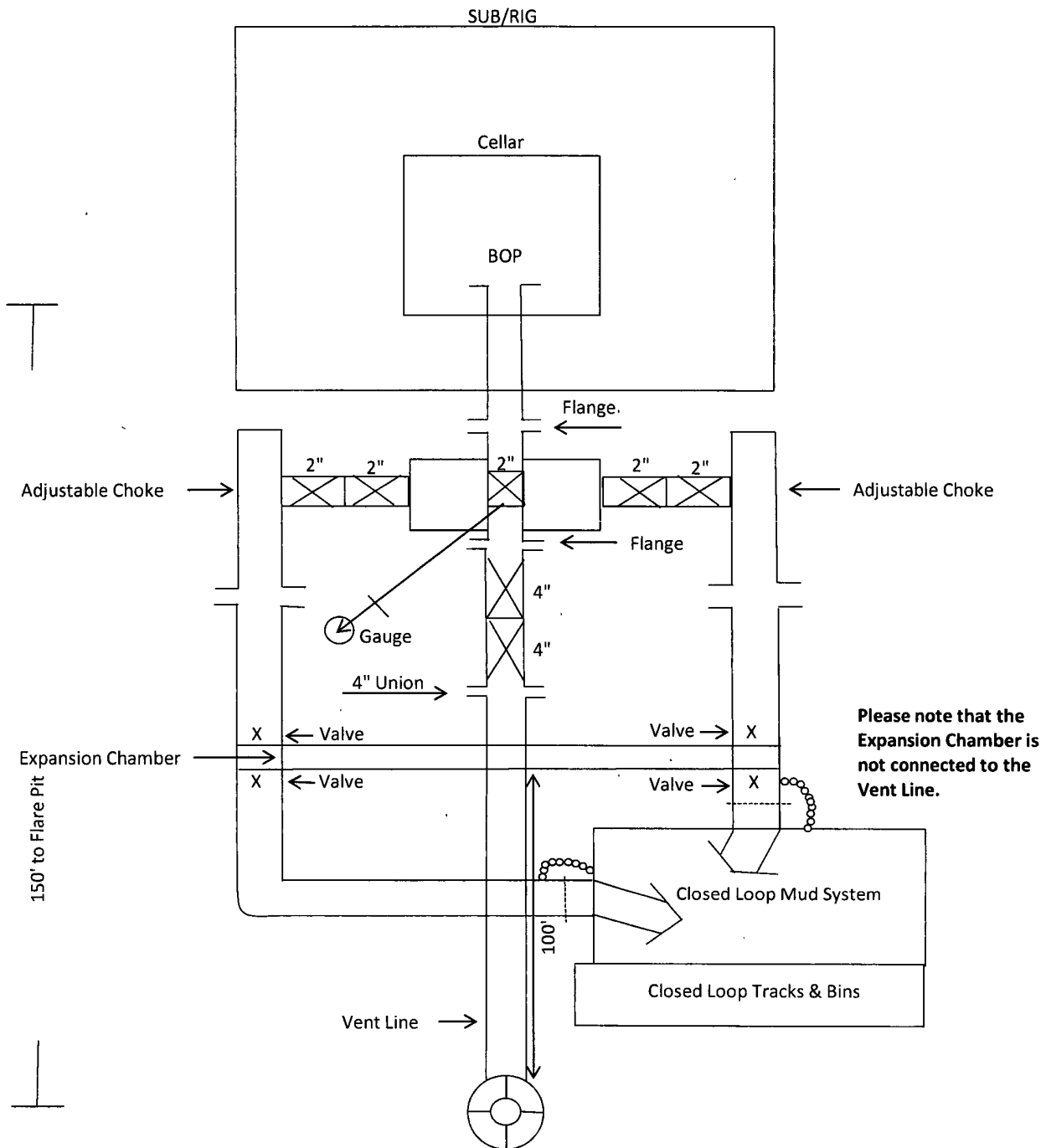
2,000 psi BOP Schematic



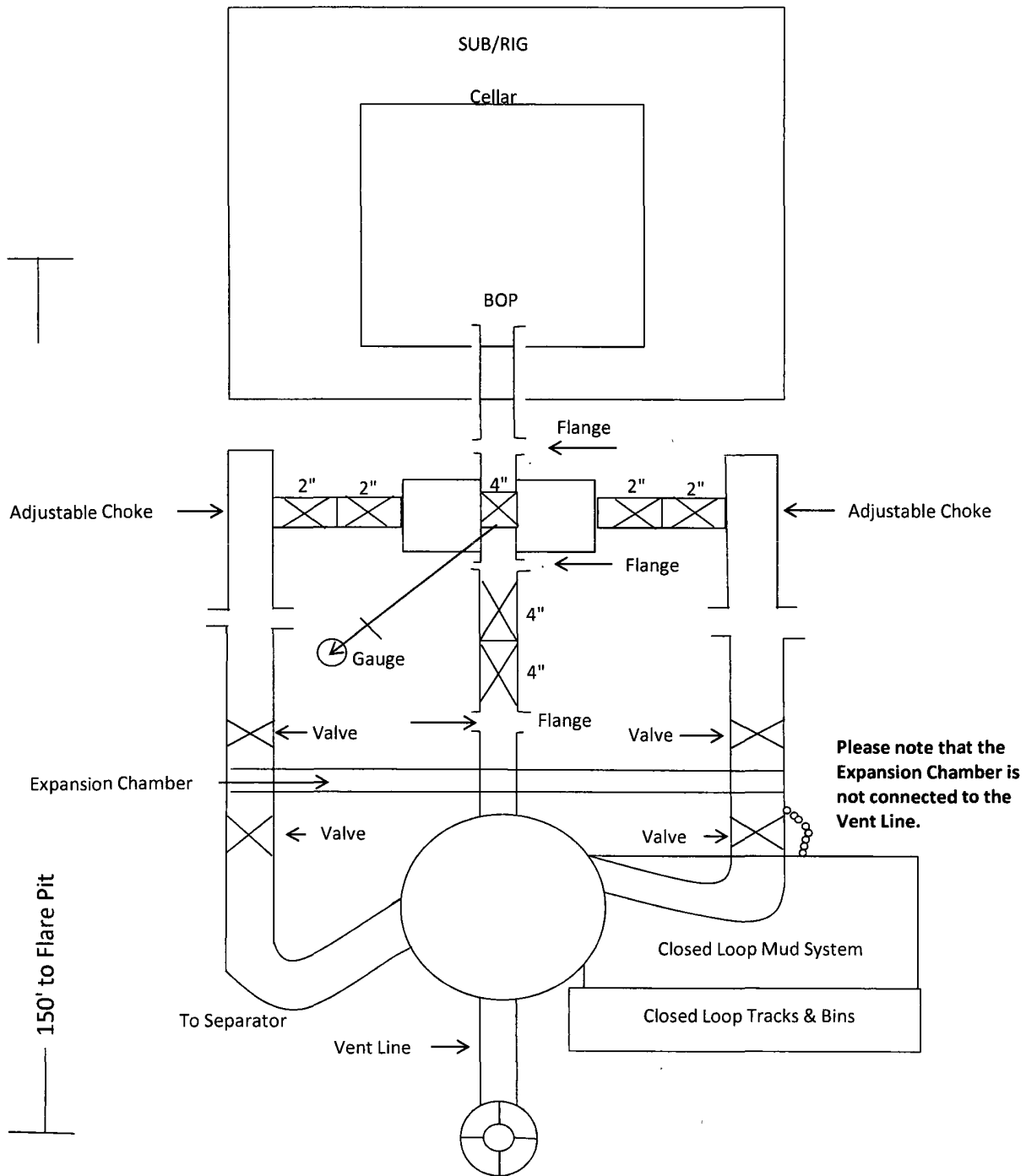
3,000 psi BOP Schematic



2M Choke Manifold Equipment



3M Choke Manifold Equipment



COG Operating LLC

Rig Plat & Closed Loop Equipment Diagram

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

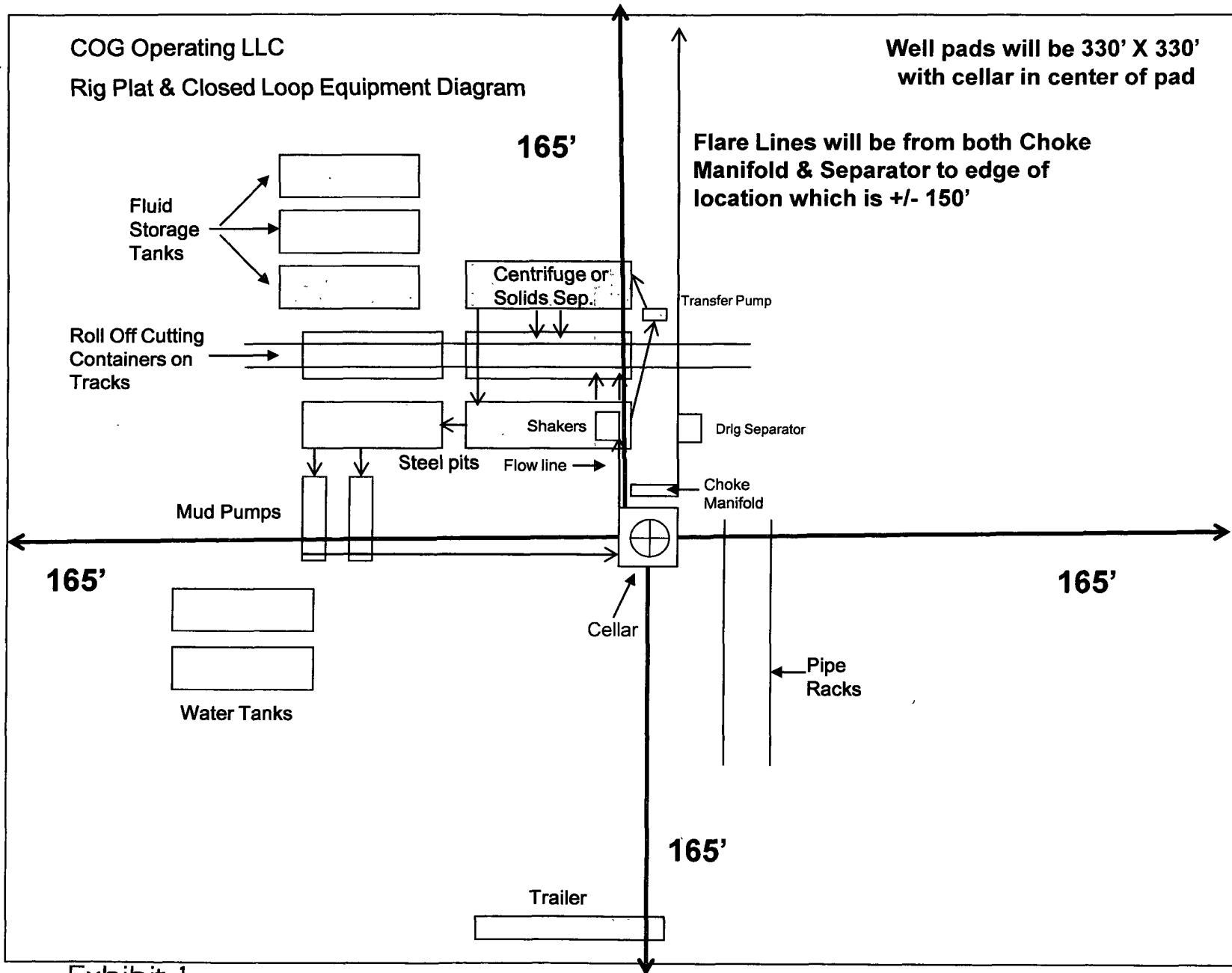


Exhibit 1

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

**Cabo Wabo 25 Federal #1H
SHL: 330' FNL & 660' FWL
BHL: 350' FSL & 660' FWL
Section 25 T25S R29E
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



COG Operating LLC
2208 West Main

Production Facility Layout

Cabo Wabo 25 Federal #1H

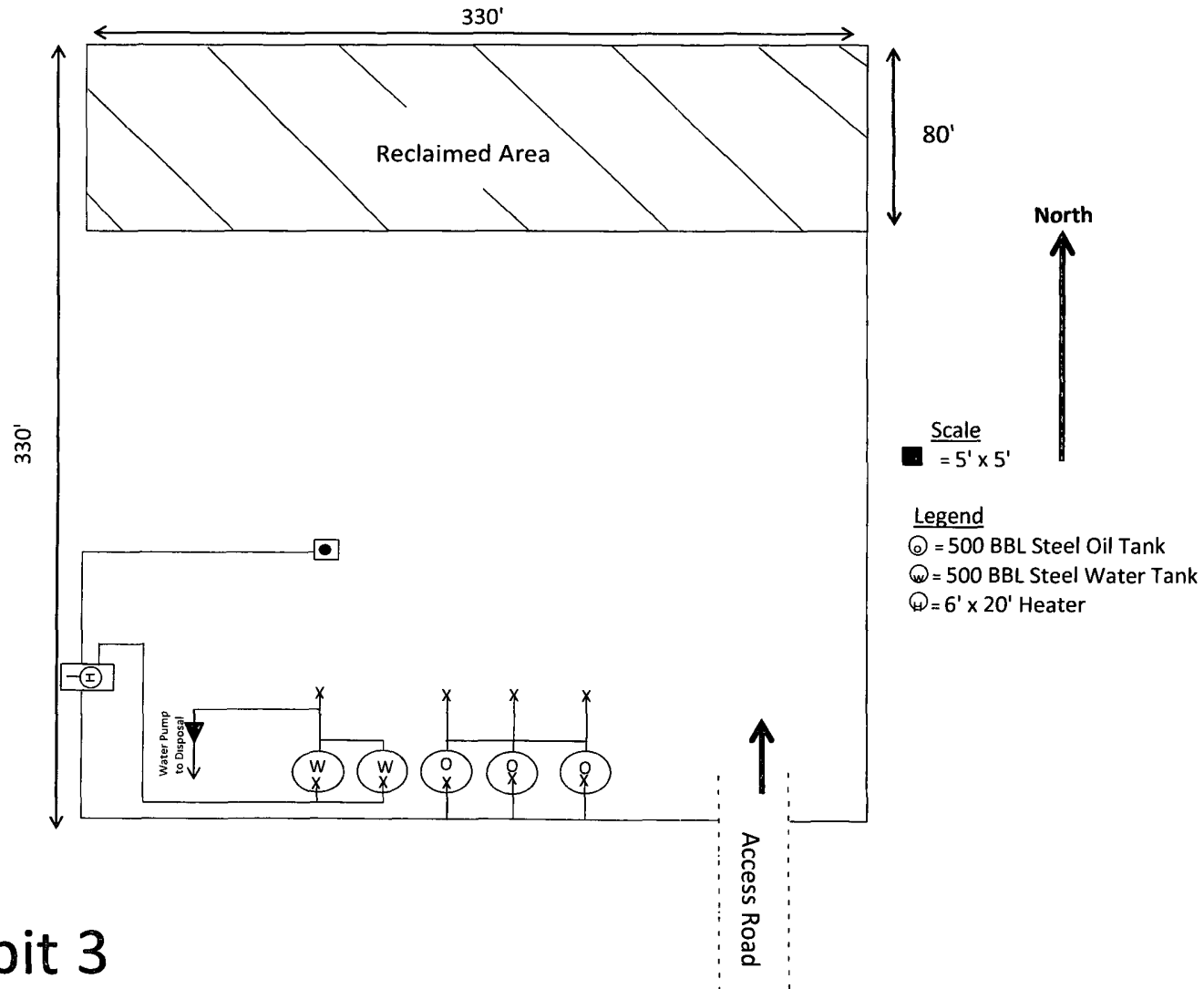


Exhibit 3

PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME:	COG PRODUCTION, LLC
LEASE NO.:	NM98821
WELL NAME & NO.:	1H CABO WABO 25 FEDERAL
SURFACE HOLE FOOTAGE:	330' FNL & 660' FWL
BOTTOM HOLE FOOTAGE:	350' FSL & 660' FWL
LOCATION:	Section 25, T.25 S., R.29 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**

- ☒ **Construction**
 - Notification
 - Topsoil
 - Closed Loop System
 - Federal Mineral Material Pits
 - Well Pads
 - Roads
- ☒ **Road Section Diagram**
- ☒ **Drilling**
 - Medium Cave/Karst
 - Logging Requirements
 - Waste Material and Fluids
- ☒ **Production (Post Drilling)**
 - Well Structures & Facilities
 - Pipelines
 - Electric Lines
- ☒ **Interim Reclamation**
- ☒ **Final Abandonment & Reclamation**