

RECEIVED

MAY 29 2012

OCD-ARTESIA

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

FORM APPROVED
OMB No. 1004-0137
Expires March 31, 20075. Lease Serial No.
NMLC-028731B6 If Indian, Allottee or Tribe Name
N/A7 If Unit or CA Agreement, Name and No
NMNM-111789X; Dodd Federal Unit8. Lease Name and Well No.
DODD FEDERAL UNIT #5739 API Well No.
30-015-10 Field and Pool, or Exploratory
Dodd; Glorieta-Upper Yeso

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

Sec 10 T17S R29E

1a Type of work: ☒ DRILL ☐ REENTER1b Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☐ Single Zone ☐ Multiple Zone2. Name of Operator
COG Operating LLC3a. Address 550 W. Texas Ave., Suite 100
Midland, TX 797013b Phone No. (include area code)
432-685-4384

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

At surface 1055' FSL & 1535' FWL, Unit N

At proposed prod. zone 990' FSL & 1650' FWL, Unit N

14 Distance in miles and direction from nearest town or post office*
2 miles from Loco Hills, NM12 County or Parish
EDDY13 State
NM15 Distance from proposed*
location to nearest
property or lease line, ft
(Also to nearest drig. unit line, if any) 1055'16 No. of acres in lease
16017. Spacing Unit dedicated to this well
4018 Distance from proposed location*
to nearest well, drilling, completed,
applied for, on this lease; ft. 175'19 Proposed Depth
4400'20 BLM/BIA Bond No. on file
NMB000740; NMB00021521 Elevations (Show whether DF, KDB, RT, GL, etc)
3579' GL22 Approximate date work will start*
05/30/201223. Estimated duration
15 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 *Kacie Connally*
Title Permitting TechName (Printed/Typed)
Kacie ConnallyDate
03/23/2012Approved by (Signature) */s/ Don Peterson*

Name (Printed/Typed)

Date MAY 23 2012

Title FOR
FIELD MANAGEROffice
CARLSBAD FIELD OFFICEApplication 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

*(Instructions on page 2)

Roswell Controlled Water Basin

Approval Subject to General Requirements
& Special Stipulations AttachedSEE ATTACHED FOR
CONDITIONS OF APPROVAL

I hereby certify that I, or persons under my direct supervision, have inspected the drill site and access road proposed herein; that I am familiar with the conditions that presently exist; that I have full knowledge of State and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or COG Operating, LLC, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements. Executed this 19th day of March, 2012.

Signed: Carl Bird

Printed Name: Carl Bird

Position: Drilling Engineer

Address: 550 W. Texas, Suite 1300, Midland, Texas 79701

Telephone: (432) 683-7443

Field Representative (if not above signatory): Same

E-mail: cbird@concho.com

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 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- 40355	Pool Code 97917	Pool Name DODD; GLORIETA-UPPER YESO
Property Code 308195	Property Name DODD FEDERAL UNIT	Well Number 573
OGRID No. 229137	Operator Name COG OPERATING, LLC	Elevation 3579'

Surface Location

UL or lot No	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
N	10	17-S	29-E		1055	SOUTH	1535	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
N	10	17-S	29-E		990	SOUTH	1650	WEST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
40			

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=671095.6 N X=582172.9 E</p> <p>LAT = 32.844640° N LONG = 104.065774° W</p> <p>BOTTOM HOLE LOCATION Y=671030.7 N X=582288.0 E</p> <p>CORNER COORDINATES TABLE</p> <table border="1"> <tr> <td>(A)</td> <td>Y=671362.1 N, X=581962.2 E</td> </tr> <tr> <td>(B)</td> <td>Y=671363.6 N, X=583284.6 E</td> </tr> <tr> <td>(C)</td> <td>Y=670040.7 N, X=581965.8 E</td> </tr> <tr> <td>(D)</td> <td>Y=670042.0 N, X=583288.0 E</td> </tr> </table>	(A)	Y=671362.1 N, X=581962.2 E	(B)	Y=671363.6 N, X=583284.6 E	(C)	Y=670040.7 N, X=581965.8 E	(D)	Y=670042.0 N, X=583288.0 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><i>[Signature]</i> 5/8/2012 Signature Date</p> <p>Robyn M. Odom Printed Name</p> <p>Rodom@concho.com 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>MARCH 1, 2012 Date of Survey</p> <p><i>[Signature]</i> Signature of Professional Surveyor:</p> <p> Certificate No. 3239</p> <p>Ronald J. Eidson 12641 Ronald J. Eidson 3239</p> <p>AF JWSC W.O 12.13.0885</p>
(A)	Y=671362.1 N, X=581962.2 E								
(B)	Y=671363.6 N, X=583284.6 E								
(C)	Y=670040.7 N, X=581965.8 E								
(D)	Y=670042.0 N, X=583288.0 E								

MASTER DRILLING PROGRAM

1. Geologic Name of Surface Formation

Quaternary

2. Estimated Tops of Important Geologic Markers:

Quaternary	Surface
Rustler	220'
Salt	360'
Base of Salt	780'
Yates	950'
Seven Rivers	1235'
Queen	1845'
Grayburg	2220'
San Andres	2540'
Glorieta	4000'
Paddock	4075'
Blinbry	4620'
Tubb	5520'

3. Estimated Depths of Anticipated Fresh Water, Oil and Gas

Water Sand	150'	Fresh Water
Grayburg	2220'	Oil/Gas
San Andres	2540'	Oil/Gas
Glorieta	4000'	Oil/Gas
Paddock	4075'	Oil/Gas
Blinebry	4620'	Oil/Gas
Tubb	5520'	Oil/Gas

See COA
No other formations are expected to give up oil, gas or fresh water in measurable quantities. Setting 13 3/8" casing to 300' and circulating cement back to the surface will protect the surface fresh water sand. The Salt Section will be protected by setting 8 5/8" casing to 850' and circulating cement, in a single or multi-stage job and/or with an ECP, back to the surface. Any shallower zones above TD, which contain commercial quantities of oil and/or gas, will have cement circulated across them. This will be achieved by cementing, with a single or multi-stage job, the 5 1/2" production casing back 200' into the intermediate casing, (but calculated to surface) to be run at TD. If wellbore conditions arise that require immediate action and/or a change to this program, COG Operating LLC personnel will always react to protect the wellbore and/or environment. *See COA*

4. Casing Program

Hole Size	Interval	OD Casing	Weight	Grade	Jt., Condition	Jt.	brst/clps/ten
17 1/2"	0-300'	13 3/8"	48#	H-40/J-55 hybrid	ST&C/New	ST&C	9.22/3.943/15.8
11"	0-850'	8 5/8"	24or32#	J-55	ST&C/New	ST&C	3.03/2.029/7.82
7 7/8"	0-TD	5 1/2"	15.5or17#	J-55orL-80	LT&C/New	LT&C	1.88/1.731/2.42

5. Cement Program

13 3/8" Surface Casing:

Class C w/ 2% CaCl₂ + 0.25 pps CF, 400 sx, yield 1.32, back to surface. 154% excess

8 5/8" Intermediate Casing:

11" Hole:**Single Stage:** 50:50:10 C:Poz:Gel w/ 5% Salt +0.25% CF, 300 sx lead, yield-2.45 + Class C w/2% CaCl₂, 200 sx tail, yield-1.32, back to surface. 363% excess**Multi-Stage:** Stage 1: Class C w/2% CaCl₂, 200 sx, yield - 1.32; 108% excess
Stage 2: 50:50:10 C:Poz:Gel w/ 5% Salt +0.25% CF, 300 sx, yield - 2.45, back to surface, 726% excess; assumption for tool is lost circulation. Multi stage tool to be set at approximately, depending on hole conditions, 350' (50' below the surface casing). Cement volumes will be adjusted proportionately for depth changes of multi stage tool.

5 1/2" Production Casing:

Single Stage: LEAD 500 sx 35:65:6 C:Poz:Gel w/ 5% Salt + 5 pps LCM + 0.2% SMS + 0.3% FL-52A + 0.125 pps CF, yield-2.05; + TAIL 400 sx 50:50:2 C:Poz:Gel w/ 5% Salt + 3 pps LCM + 0.6% SMS + 1% FL-25 + 1% BA-58 + 0.3% FL-52A + 0.125 pps CF, yield-1.37, to 200' minimum tie back to intermediate casing. 76.8% open hole excess, cement calculated back to surface.**Multi-Stage:** Stage 1: (Assumed TD of 4550') 500 sx 50:50:2 C:Poz:Gel w/ 5% Salt + 3 pps LCM + 0.6% SMS + 1% FL-25 + 1% BA-58 + 0.3% FL-52A + 0.125 pps CF,

yield - 1.37, 34% excess; Stage 2: LEAD 450 sx 50:50:2 C:Poz:Gel w/ 5% Salt + 3 pps LCM + 0.6% SMS + 1% FL-25 + 1% BA-58 + 0.3% FL-52A + 0.125 pps CF, yield - 1.37, + TAIL 250 sx Class C w/ 0.3% R-3 + 1.5% CD-32, yield - 1.02 148% open hole excess, cement calculated back to surface. Multi stage tool to be set at approximately, depending on hole conditions, 2500'. Cement volumes will be adjusted proportionately for depth changes of multi stage tool, assumption for tool is water flow.

6. Minimum Specifications for Pressure Control

The blowout preventer equipment (BOP) shown in Exhibit #9 will consist of a double ram-type (2000 psi WP) preventer, and in some cases possibly a 2000 psi Hydril type annular preventer as provided for in Onshore Order #2. This unit will be hydraulically operated and the ram type preventer will be equipped with blind rams on top of 4 1/2" drill pipe rams on the bottom. A 13-5/8" or 11" BOP will be used, depending on the rig selected, during the drilling of the well. The BOP will be nipped up on the 13 3/8" surface casing with BOP equipment and tested to 2000 psi. When 11" BOP is used the special drilling flange will be utilized on the 13-3/8" head to allow testing the BOP with a retrievable test plug. After setting 8-5/8" the BOP will then be nipped up on the 8 5/8" intermediate casing and tested by a third party to 2000 psi and used continuously until total depth is reached. Pipe rams will be operationally checked each 24-hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment (Exhibit #10) will include a Kelly cock and floor safety valve, choke lines and a choke manifold (Exhibit #11) with a 2000 psi WP rating.

The majority of the rigs currently in use have a 13-5/8" BOP, so no special provision is needed for most wells in the area for conventionally testing the BOP with a test plug. However, due to the vagaries of rig scheduling, it might be that one of the few rigs with 11" BOP's might be called upon to drill any specific well in the area. Note that intermediate hole size is always 11". Therefore, COG Operating LLC respectfully requests a variance to the requirement of 13-5/8" BOP on 13-3/8" casing. When that circumstance is encountered the special flange will be utilized to allow testing the entire BOP with a test plug, without subjecting the casing to test pressure. The special flange also allows the return to full-open capability if desired. *See COA*

7. Types and Characteristics of the Proposed Mud System

The well will be drilled to TD with a combination of brine, cut brine and polymer mud system. The applicable depths and properties of this system are as follows:

DEPTH	TYPE	WEIGHT	VISCOSITY	WATERLOSS
0-300'	Fresh Water	8.5	28	N.C.
300-850'	Brine	10	30	N.C.
850'-TD	Cut Brine	8.7-9.2	30	N.C.

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

8. Auxiliary Well Control and Monitoring Equipment

- A. Kelly cock will be kept in the drill string at all times.
- B. A full opening drill pipe stabbing valve with proper drill pipe connections will be on the rig floor at all times.

9. Logging, Testing and Coring Program

- A. The electric logging program will consist of GR-Dual Laterolog, Spectral Density, Dual Spaced Neutron, CSNG Log and will be run from TD to Surface.
- B. Drill Stem test is not anticipated.
- C. No conventional coring is anticipated.
- D. Further testing procedures will be determined after the 6 1/2" production casing has been cemented at TD, based on drill shows and log evaluation.

10. Abnormal Conditions, Pressure, Temperatures and Potential Hazards

No abnormal pressures or temperatures are anticipated. The estimated bottom hole at TD is 110 degrees and the estimated maximum bottom hole pressure is 2300 psig. Measurable gas volumes or Hydrogen Sulfide levels have not been encountered during drilling operations in this area, although a Hydrogen Sulfide Drilling Operation Plan is attached to this program. No major loss of circulation zones has been reported in offsetting wells.

11. Anticipated Starting Date and Duration of Operations

Road and location work will not begin until approval has been received from the BLM. As this is a Master Drilling plan, please refer to the Form 3160-3 for the anticipated start date. Once commenced, drilling operations should be finished in approximately 10 days. If the well is productive, an additional 30 days will be required for completion and testing before a decision is made to install permanent facilities. Completion is planned in the Paddock formation.



COG Operating LLC

Eddy County, NM (NAN27 NME)

Dodd Federal Unit #573

OH

Plan: Plan #1 7-7/8" Hole

SHL = 1055' FSL & 1535' FWL

BHL = 980' FSL & 1700' FWL

Top of Paddock = 980' FSL & 1700' FWL @ 4000' TVD

Standard Planning Report

07 May, 2012



Scientific Drilling
Directional Drilling Operations



Scientific Drilling International, Inc.
Planning Report



Database:	EDM 5000 1 Single User Db	Local Co-ordinate Reference:	Site Dodd Federal Unit #573
Company:	COG Operating LLC	TVD Reference:	GL @ 3579.00usft
Project:	Eddy County, NM (NAN27 NME)	MD Reference:	GL @ 3579.00usft
Site:	Dodd Federal Unit #573	North Reference:	Grid
Well:	Dodd Federal Unit #573	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1 7-7/8" Hole		

Project	Eddy County, NM (NAN27 NME)		
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	Dodd Federal Unit #573				
Site Position:		Northing:	671,095.60 usft	Latitude:	32° 50' 40.707 N
From:	Map	Easting:	582,172.90 usft	Longitude:	104° 3' 56.785 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16"	Grid Convergence:	0.15°

Well	Dodd Federal Unit #573					
Well Position	+N/-S	0 00 usft	Northing:	671,095 60 usft	Latitude:	32° 50' 40.707 N
	+E/-W	0 00 usft	Easting:	582,172 90 usft	Longitude:	104° 3' 56.785 W
Position Uncertainty		0 00 usft	Wellhead Elevation:		Ground Level:	3,579 00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	05/07/12	7.75	60.65	48,844

Design	Plan #1 7-7/8" Hole			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	114.40

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,150.00	0.00	0.00	1,150.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,345.35	3.91	114.40	1,345.20	-2.75	6.06	2.00	2.00	0.00	114.40	
3,810.68	3.91	114.40	3,804.80	-72.15	159.04	0.00	0.00	0.00	0.00	
4,006.03	0.00	0.00	4,000.00	-74.90	165.10	2.00	-2.00	0.00	180.00	T1-Dodd #573
4,556.03	0.00	0.00	4,550.00	-74.90	165.10	0.00	0.00	0.00	0.00	PBHL-Dodd #573



Scientific Drilling International, Inc.

Planning Report



Database:	EDM 5000 1 Single User Db	Local Co-ordinate Reference:	Site Dodd Federal Unit #573
Company:	COG Operating LLC	TVD Reference:	GL @ 3579.00usft
Project:	Eddy County, NM (NAN27 NME)	MD Reference:	GL @ 3579 00usft
Site:	Dodd Federal Unit #573	North Reference:	Gnd
Well:	Dodd Federal Unit #573	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1 7-7/8" Hole		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1,050.00	0.00	0.00	1,050.00	0.00	0.00	0.00	0.00	0.00	0.00
8-5/8" Casing									
1,150.00	0.00	0.00	1,150.00	0.00	0.00	0.00	0.00	0.00	0.00
KOP Start Build 2.00°/100'									
1,200.00	1.00	114.40	1,200.00	-0.18	0.40	0.44	2.00	2.00	0.00
1,300.00	3.00	114.40	1,299.93	-1.62	3.58	3.93	2.00	2.00	0.00
1,345.35	3.91	114.40	1,345.20	-2.75	6.06	6.66	2.00	2.00	0.00
Hold 3.91°									
1,400.00	3.91	114.40	1,399.72	-4.29	9.45	10.38	0.00	0.00	0.00
1,500.00	3.91	114.40	1,499.49	-7.10	15.66	17.20	0.00	0.00	0.00
1,600.00	3.91	114.40	1,599.26	-9.92	21.86	24.01	0.00	0.00	0.00
1,700.00	3.91	114.40	1,699.02	-12.73	28.07	30.82	0.00	0.00	0.00
1,800.00	3.91	114.40	1,798.79	-15.55	34.27	37.64	0.00	0.00	0.00
1,900.00	3.91	114.40	1,898.56	-18.36	40.48	44.45	0.00	0.00	0.00
2,000.00	3.91	114.40	1,998.33	-21.18	46.68	51.26	0.00	0.00	0.00
2,100.00	3.91	114.40	2,098.09	-23.99	52.89	58.08	0.00	0.00	0.00
2,200.00	3.91	114.40	2,197.86	-26.81	59.09	64.89	0.00	0.00	0.00
2,300.00	3.91	114.40	2,297.63	-29.62	65.30	71.70	0.00	0.00	0.00
2,400.00	3.91	114.40	2,397.40	-32.44	71.50	78.52	0.00	0.00	0.00
2,500.00	3.91	114.40	2,497.17	-35.25	77.71	85.33	0.00	0.00	0.00
2,600.00	3.91	114.40	2,596.93	-38.07	83.91	92.15	0.00	0.00	0.00
2,700.00	3.91	114.40	2,696.70	-40.88	90.12	98.96	0.00	0.00	0.00
2,800.00	3.91	114.40	2,796.47	-43.70	96.32	105.77	0.00	0.00	0.00
2,900.00	3.91	114.40	2,896.24	-46.51	102.53	112.59	0.00	0.00	0.00
3,000.00	3.91	114.40	2,996.00	-49.33	108.73	119.40	0.00	0.00	0.00
3,100.00	3.91	114.40	3,095.77	-52.14	114.94	126.21	0.00	0.00	0.00
3,200.00	3.91	114.40	3,195.54	-54.96	121.14	133.03	0.00	0.00	0.00
3,300.00	3.91	114.40	3,295.31	-57.77	127.35	139.84	0.00	0.00	0.00
3,400.00	3.91	114.40	3,395.07	-60.59	133.55	146.65	0.00	0.00	0.00
3,500.00	3.91	114.40	3,494.84	-63.40	139.76	153.47	0.00	0.00	0.00
3,600.00	3.91	114.40	3,594.61	-66.22	145.96	160.28	0.00	0.00	0.00
3,700.00	3.91	114.40	3,694.38	-69.03	152.17	167.10	0.00	0.00	0.00
3,800.00	3.91	114.40	3,794.14	-71.85	158.37	173.91	0.00	0.00	0.00
3,810.68	3.91	114.40	3,804.80	-72.15	159.04	174.64	0.00	0.00	0.00
Start Drop 2.00°/100'									
3,900.00	2.12	114.40	3,893.99	-74.09	163.31	179.33	2.00	-2.00	0.00
4,000.00	0.12	114.40	3,993.97	-74.90	165.09	181.29	2.00	-2.00	0.00
4,006.03	0.00	0.00	4,000.00	-74.90	165.10	181.30	2.00	-2.00	0.00
Hold 0.00° - Top of Paddock - T1-Dodd #573									
4,556.03	0.00	0.00	4,550.00	-74.90	165.10	181.30	0.00	0.00	0.00
PBHL-Dodd #573									



Scientific Drilling International, Inc.

Planning Report



Database:	EDM 5000 1 Single User Db	Local Co-ordinate Reference:	Site Dodd Federal Unit #573
Company:	COG Operating LLC	TVD Reference:	GL @ 3579 00usft
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Site:	Dodd Federal Unit #573	North Reference:	Grid
Well:	Dodd Federal Unit #573	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1 7-7/8" Hole		

Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
- Shape									
T1-Dodd #573	0 00	0 01	4,000 00	-74 90	165 10	671,020 70	582,338 00	32° 50' 39 962 N	104° 3' 54.852 W
- plan hits target center									
- Point									
PBHL-Dodd #573	0 00	0 01	4,550 00	-74 90	165.10	671,020 70	582,338 00	32° 50' 39 962 N	104° 3' 54 852 W
- plan hits target center									
- Circle (radius 50 00)									

Casing Points					
Measured Depth	Vertical Depth	Name		Casing Diameter	Hole Diameter
(usft)	(usft)			(")	(")
1,050.00	1,050 00	8-5/8" Casing		8-5/8	12-1/4

Formations					
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction
(usft)	(usft)			(°)	(°)
4,006 03	4,000 00	Top of Paddock		0 00	

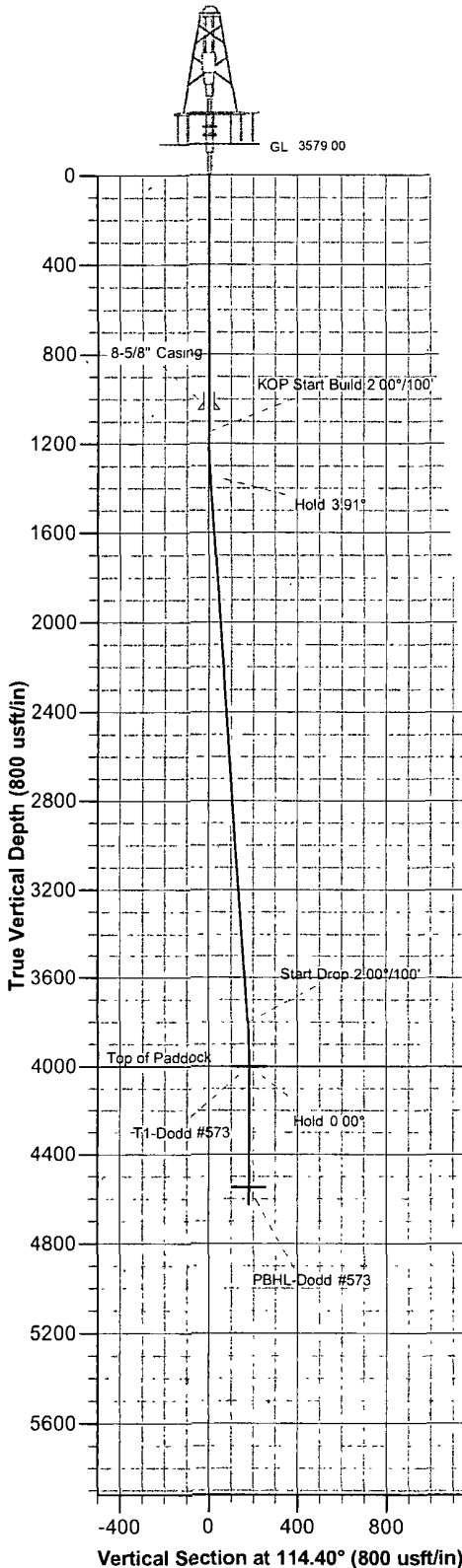
Plan Annotations					
Measured Depth	Vertical Depth	Local Coordinates			
(usft)	(usft)	+N/-S	+E/-W	Comment	
(usft)	(usft)	(usft)	(usft)		
1,150.00	1,150 00	0.00	0 00	KOP Start Build 2 00°/100'	
1,345 35	1,345 20	-2.75	6.06	Hold 3 91°	
3,810 68	3,804.80	-72 15	159 04	Start Drop 2 00°/100'	
4,006 03	4,000.00	-74.90	165 10	Hold 0 00°	



Azimuths to Grid North
True North -0.14°
Magnetic North 7.61°

Magnetic Field
Strength 48844.4 nT
Dip Angle 60.65°
Date 05/07/2012
Model IGRF2010

Dodd Federal Unit #573
Eddy County, NM (NAN27 NME)
Northing: (Y) 671095.60
Easting: (X) 582172.90
Plan #1 7-7/8" Hole



WELL DETAILS: Dodd Federal Unit #573

+N/-S	+E/-W	Northing	Ground Level	Easting	Latitude	Longitude
0.00	0.00	671095.60	3579.00	582172.90	50° 40' 70.7" N	104° 3' 56' 78.5" W

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	1150.00	0.00	0.00	1150.00	0.00	0.00	0.00	0.00	0.00	
3	1345.35	3.91	114.40	1345.20	-2.75	6.06	2.00	114.40	6.66	
4	3810.68	3.91	114.40	3804.80	-72.15	159.04	0.00	0.00	174.64	
5	4006.03	0.00	0.00	4000.00	-74.90	165.10	2.00	180.00	181.30	T1-Dodd #573
6	4556.03	0.00	0.00	4550.00	-74.90	165.10	0.00	0.00	181.30	PBHL-Dodd #573

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
T1-Dodd #573	4000.00	-74.90	165.10	671020.70	582338.08	2° 50' 39.962" N	104° 3' 54.852" W
- plan hits target center							
PBHL-Dodd #573	4550.00	-74.90	165.10	671020.70	582338.08	2° 50' 39.962" N	104° 3' 54.852" W
- plan hits target center							

SITE DETAILS: Dodd Federal Unit #573

Site Centre Northing: 671095.60
Easting: 582172.90
Positional Uncertainty: 0.00
Convergence: 0.15
Local North: Grid

PROJECT DETAILS: Eddy County, NM (NAN27 NME)

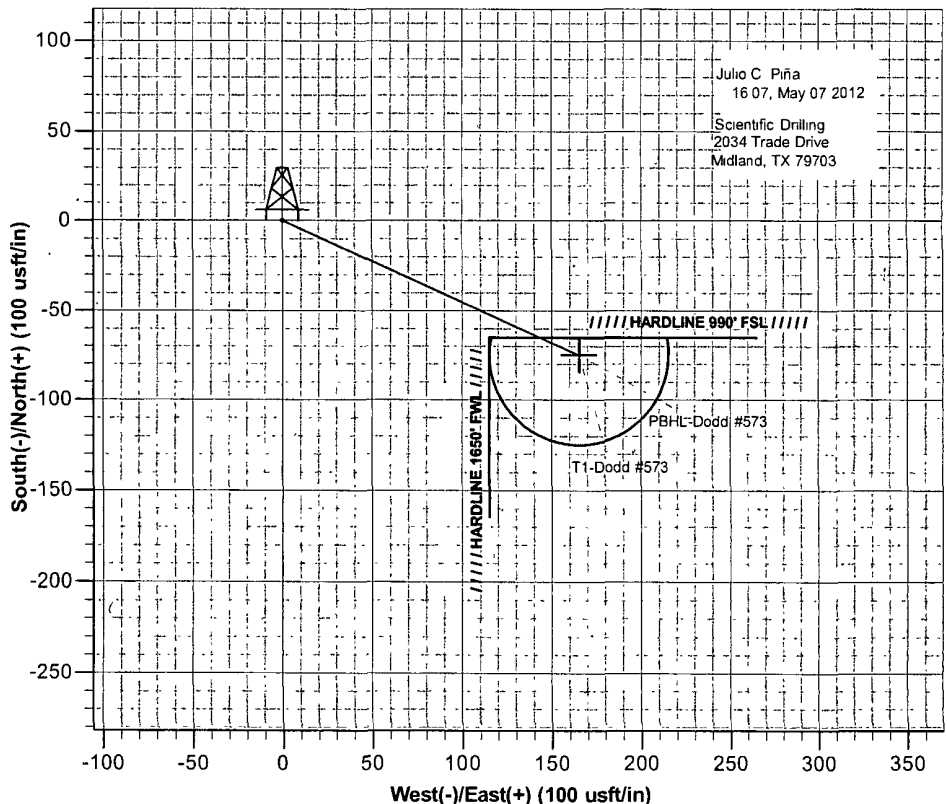
Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico East 3001
System Datum: Mean Sea Level

FORMATION TOP DETAILS

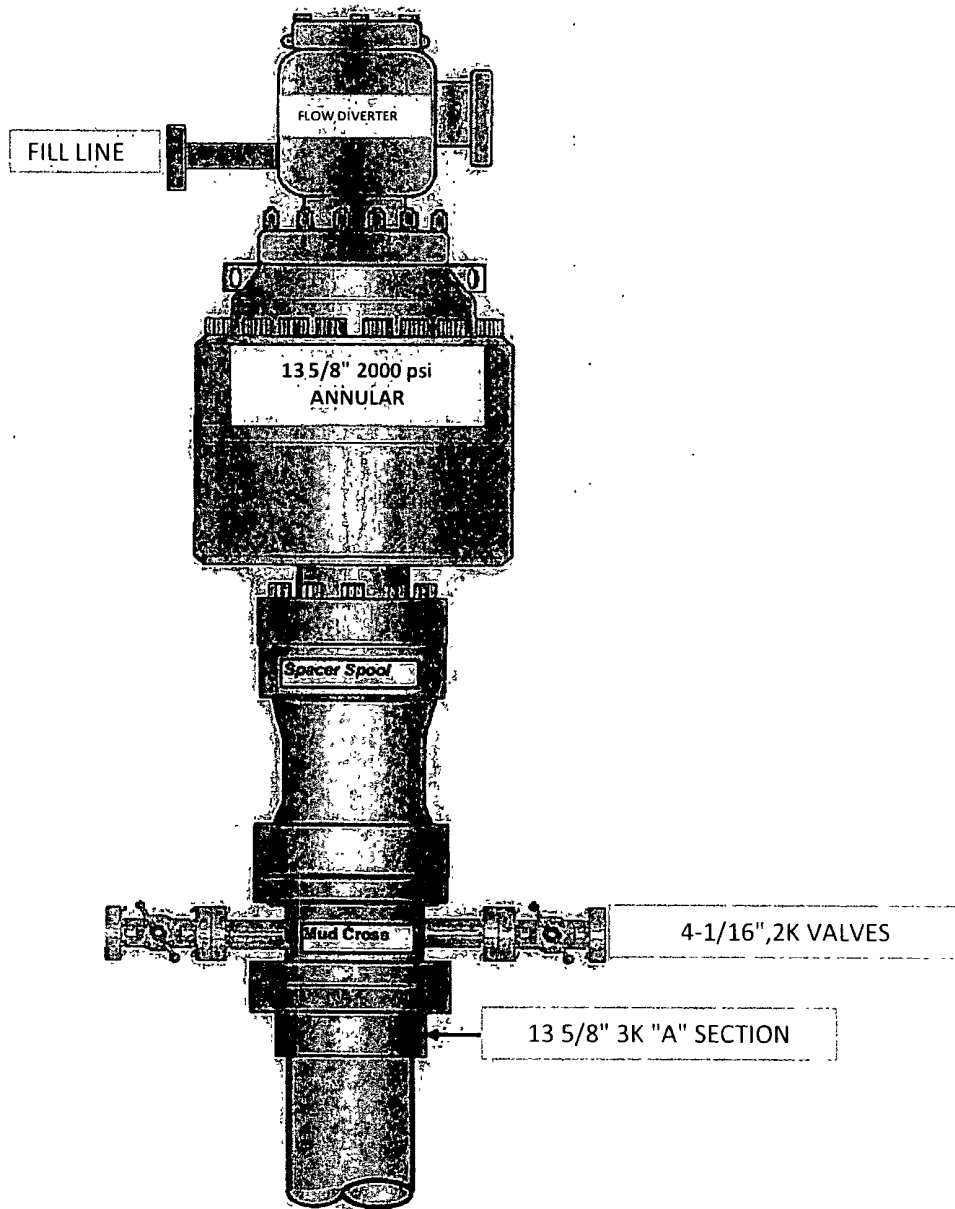
TVDPath	MDPath	Formation	DipAngle	DipDir
4000.00	4006.03	Top of Paddock	0.00	

LEGEND

— Plan #1 7-7/8" Hole



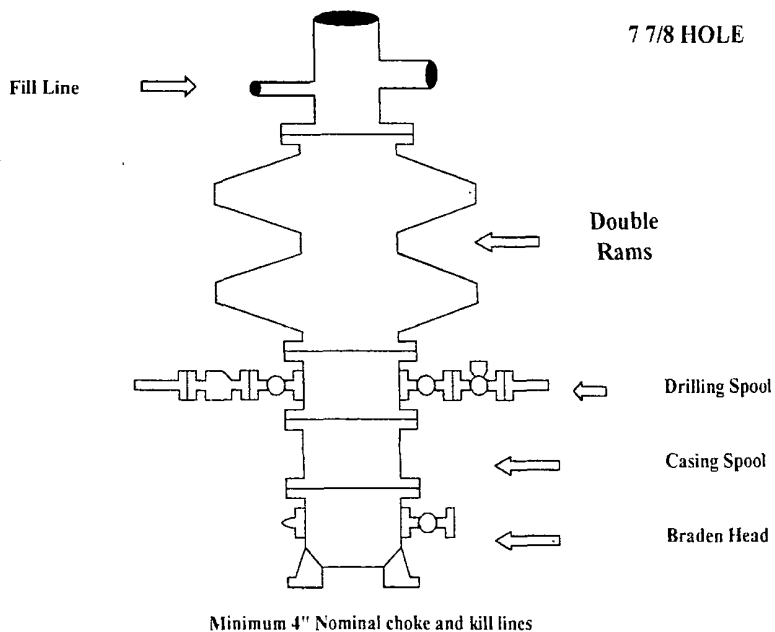
13 5/8" 2K ANNULAR



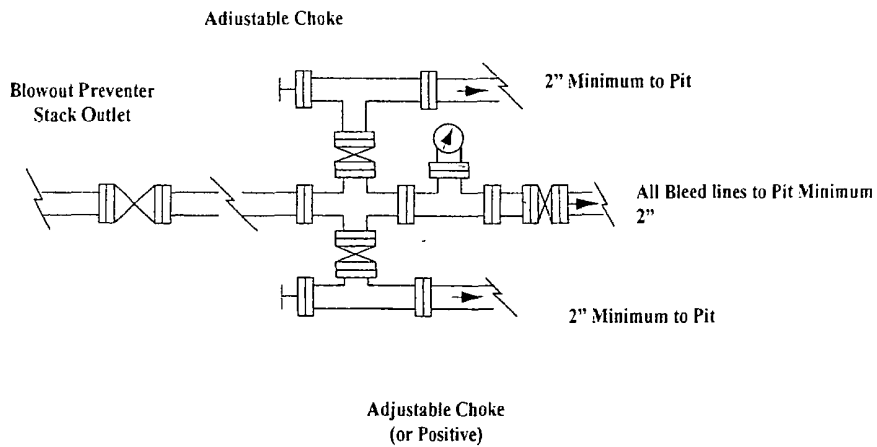
COG Operating LLC

Exhibit #9

BOPE and Choke Schematic



Choke Manifold Requirement (2000 psi WP)
No Annular Required

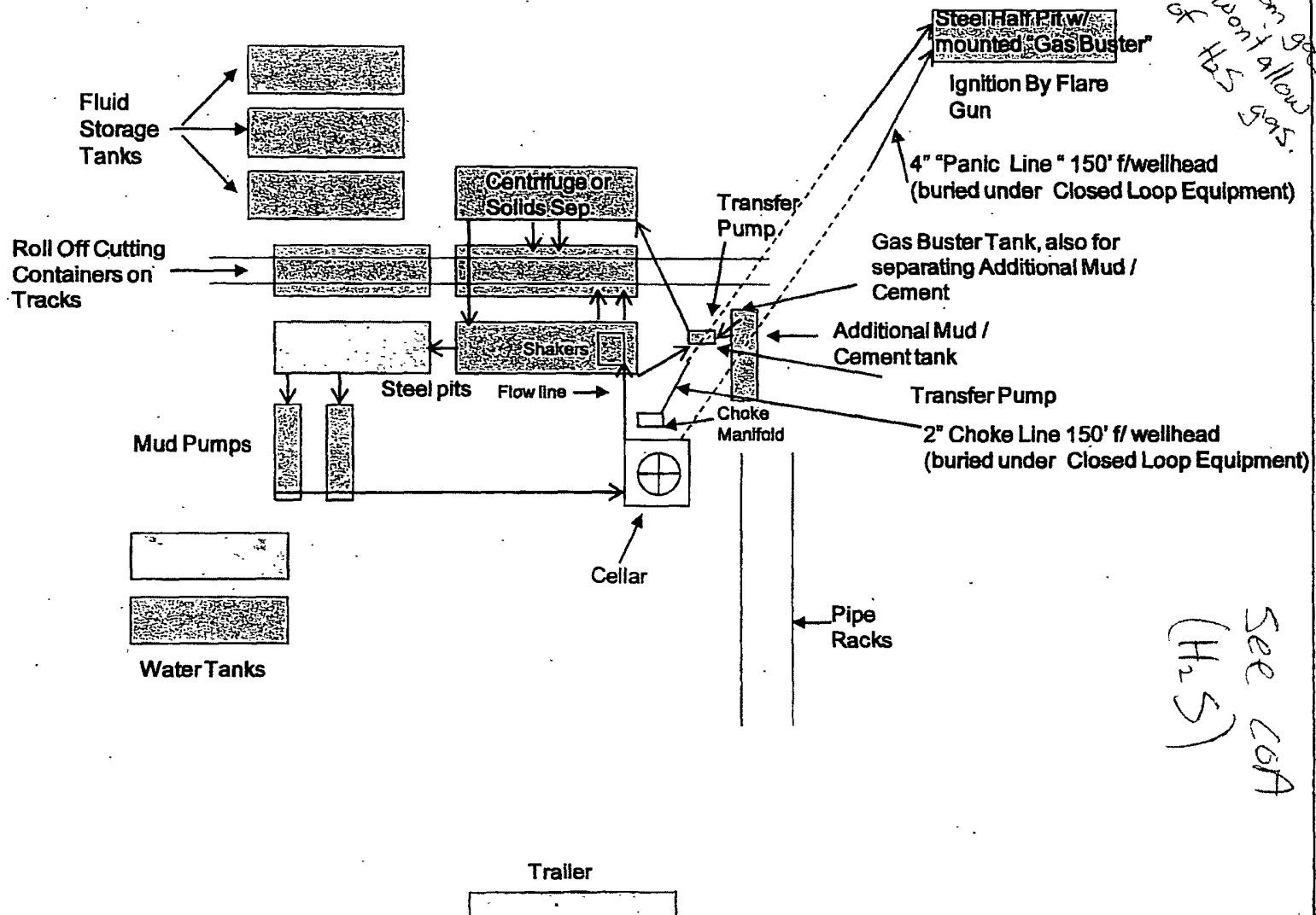


NOTES REGARDING THE BLOWOUT PREVENTERS

**Master Drilling Plan
Eddy County, New Mexico**

1. Drilling nipple to be so constructed that it can be removed without use of a welder through rotary table opening, with minimum I.D. equal to preventer bore.
2. Wear ring to be properly installed in head.
3. Blow out preventer and all fittings must be in good condition, 2000 psi WP minimum.
4. All fittings to be flanged.
5. Safety valve must be available on rig floor at all times with proper connections, valve to be full 2000 psi WP minimum.
6. All choke and fill lines to be securely anchored especially ends of choke lines.
7. Equipment through which bit must pass shall be at least as large as the diameter of the casing being drilled through.
8. Kelly cock on Kelly.
9. Extension wrenches and hands wheels to be properly installed.
10. Blow out preventer control to be located as close to driller's position as feasible.
11. Blow out preventer closing equipment to include minimum 40-gallon accumulator, two independent sources of pump power on each closing unit installation all API specifications.

COG Operating LLC
Closed Loop Equipment Diagram



Closed Loop Operation & Maintenance Procedure

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

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

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

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

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

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

Cuttings will be hauled to either:

CRI (permit number R9166)

or

GMI (permit number 711-019-001)

dependent upon which rig is available to drill this well.

COG Operating LLC

Hydrogen Sulfide Drilling Operation 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:

1. The hazards and characteristics of hydrogen sulfide (H₂S)
2. The proper use and maintenance of personal protective equipment and life support systems.
3. The proper use of H₂S detectors, alarms, warning systems, briefing areas, evacuation procedures, and prevailing winds.
4. The proper techniques for first aid and rescue procedures.

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

1. The effects of H₂S on metal components. If high tensile tubular are to be used, personnel will be trained in their special maintenance requirements.
2. Corrective action and shut-in procedures when drilling or reworking a well and blowout prevention and well control procedures.
3. The contents and requirements of the H₂S Drilling Operations Plan and 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. **The concentrations of H₂S of wells in this area from surface to TD are low enough that a contingency plan is not required.**

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 reasonable expected to contain H2S.

1. Well Control Equipment:

- A. Flare line.
- B. Choke manifold.
- C. Blind rams and pipe rams to accommodate all pipe sizes with properly sized closing unit.
- D. Auxiliary equipment may include if applicable: annular preventer & rotating head.

2. Protective equipment for essential personnel:

- A. Mark II Survive air 30-minute units located in the doghouse and at briefing areas, as indicated on well site diagram.

3. H2S detection and monitoring equipment:

- A. 1 portable H2S monitors positioned on location for best coverage and response. These units have warning lights and audible sirens when H2S levels of 20 PPM are reached.

4. Visual warning systems:

- A. Wind direction indicators as shown on well site diagram (Exhibit #8).
- B. Caution/Danger signs (Exhibit #7) 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.

5. Mud program:

- A. The mud program has been designed to minimize the volume of H2S circulated to surface. Proper mud weight, safe drilling practices, and the use of H2S scavengers will minimize hazards when penetrating H2S bearing zones.

3

6. Metallurgy:

- A. All drill strings, casings, tubing, wellhead, blowout preventer, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H2S service.
- B. All elastomers used for packing and seals shall be H2S trim.

7. Communication:

- A. Radio communications in company vehicles including cellular telephone and 2-way radio.
- B. Land line (telephone) communication at Office.

8. Well testing:

- A. Drill stem testing will be performed with a minimum number of personnel in the immediate vicinity, which are necessary to safely and adequately conduct the test. The drill stem testing will be conducted during daylight hours and formation fluids will not be flowed to the surface. All drill-stem-testing operations conducted in an H2S environment will use the closed chamber method of testing.
- B. There will be no drill stem testing.

EXHIBIT #7

WARNING
YOU ARE ENTERING AN H2S
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. CHECK WITH COG OPERATING FOREMAN AT

COG OPERATING LLC
1-432-683-7443
1-575-746-2010

EDDY COUNTY EMERGENCY NUMBERS

ARTESIA FIRE DEPT. 575-746-5050
ARTESIA POLICE DEPT. 575-746-5000
EDDY CO. SHERIFF DEPT. 575-746-9888

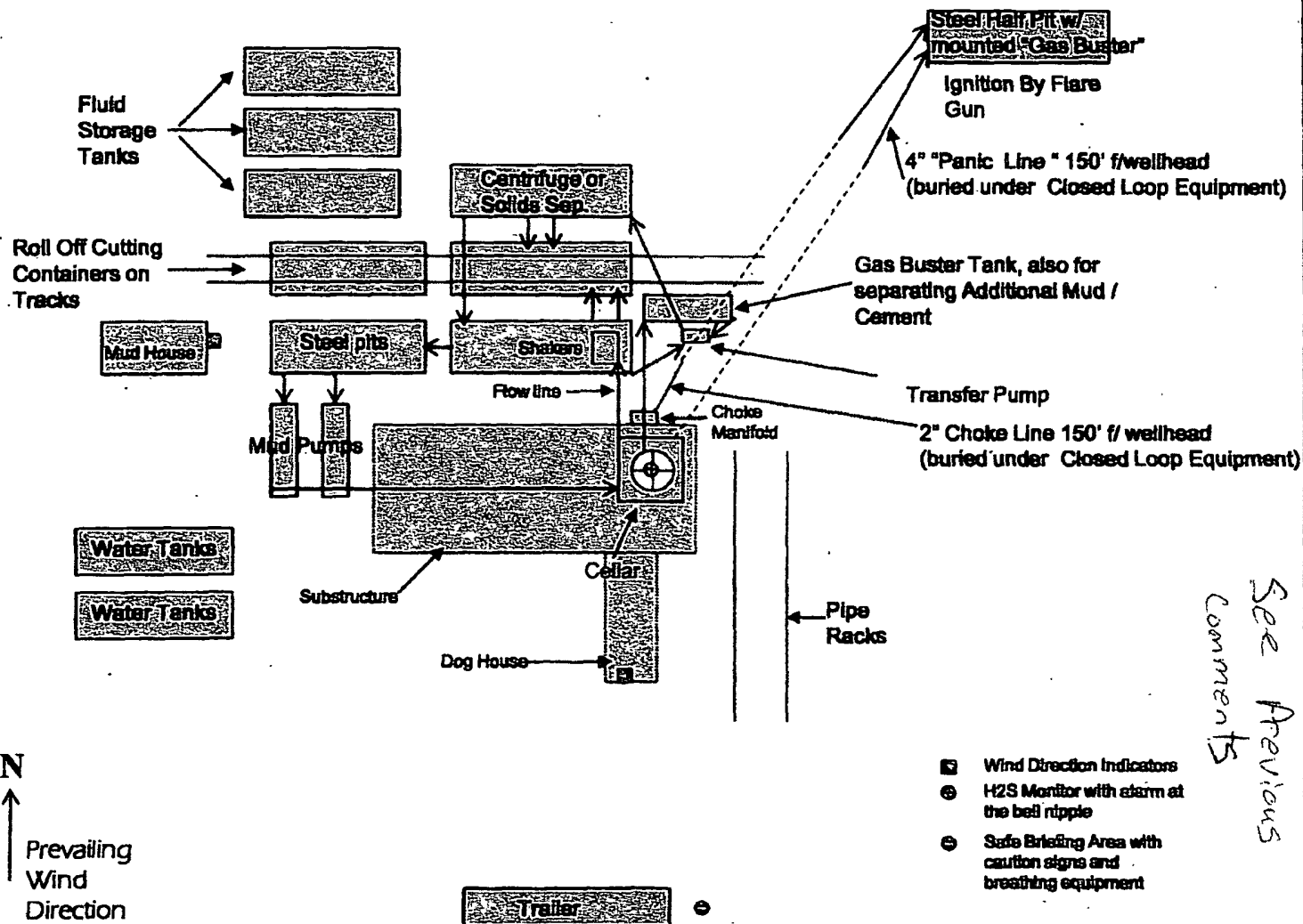
LEA COUNTY EMERGENCY NUMBERS

HOBBS FIRE DEPT. 575-397-9308
HOBBS POLICE DEPT. 575-397-9285
LEA CO. SHERIFF DEPT. 575-396-1196

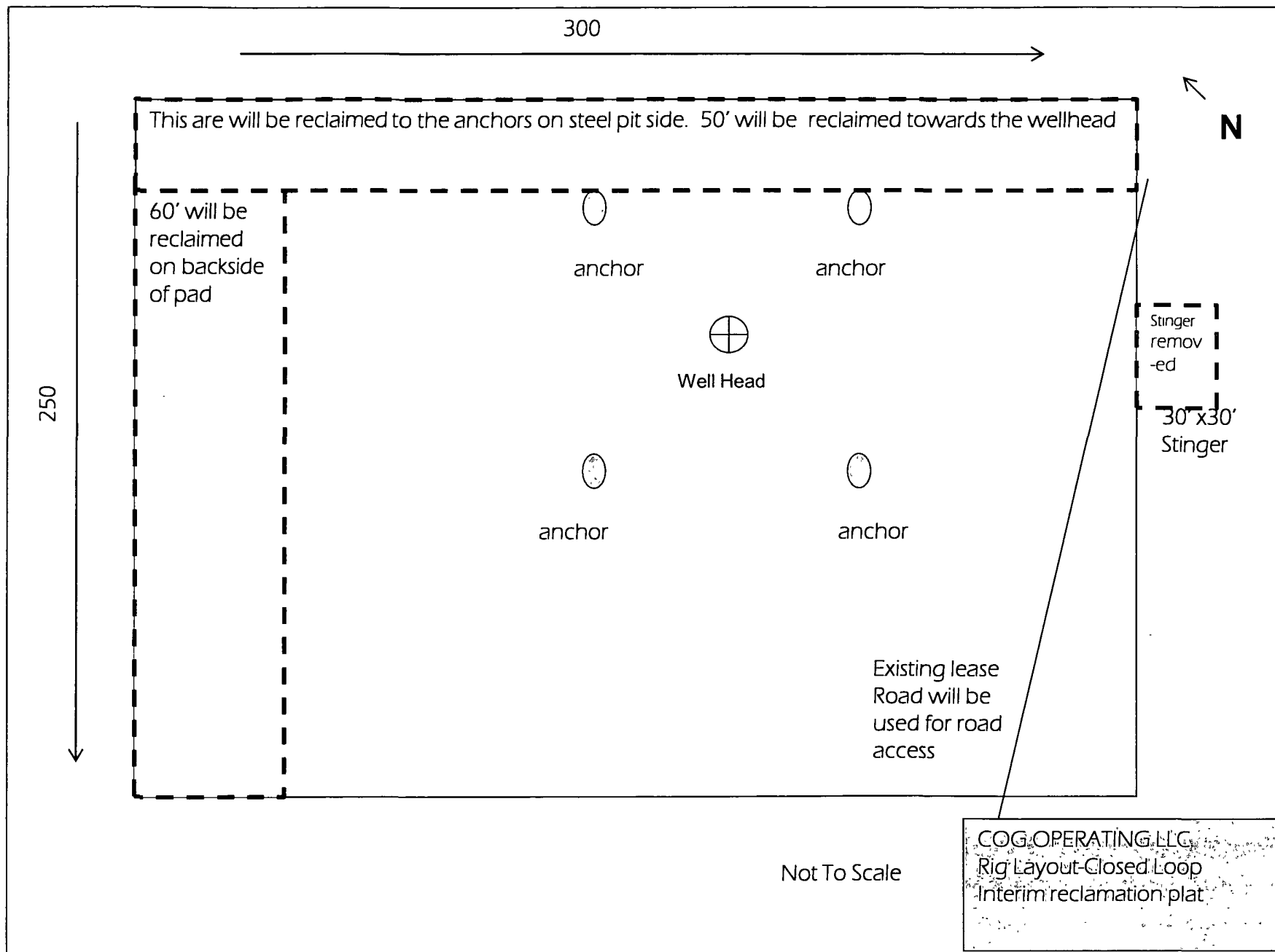
COG Operating LLC

Drilling Location - H2S Safety Equipment Diagram

EXHIBIT 8



See Previous comments



PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME:	COG OPERATING, LLC
LEASE NO.:	NMLC028731B
WELL NAME & NO.:	573 DODD FEDERAL UNIT
SURFACE HOLE FOOTAGE:	1055' FSL & 1535' FWL
BOTTOM HOLE FOOTAGE:	990' FSL & 1650' FWL
LOCATION:	Section 10, T.17 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**
 - H2S requirement
 - Logging requirement
 - Waste Material and Fluids
- ☐ **Production (Post Drilling)**
 - Well Structures & Facilities
 - Pipelines
 - Electric Lines
- ☐ **Interim Reclamation**
- ☐ **Final Abandonment & Reclamation**