OCD-ARTESIA

ATS-12-306

Form 3160-3
(April 2004)

FORM APPROVED
OMB No 1004-0137
Expires March 31, 2007

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5 Lease Serial No.
NMLC - 029418A

6 If Indian, Allotee or Tribe Name

1a Type of work. ☑ DRILL ☐ REENTER

7 If Unit or CA Agreement, Name and No.
NMNM-71030C; Skelly Unit

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

8 Lease Name and Well No.
SKELLY UNIT #661 [305607]

2 Name of Operator
Chevron USA **Agent: COG Operating LLC** [229137]

9 API Well No.
30-015-40092

3a Address
550 W. Texas Ave., Suite 100
Midland, TX 79701

3b Phone No. *(include area code)*
432-685-4384

10 Field and Pool, or Exploratory
FREN; Glorieta-Yeso [26770]

4. Location of Well *(Report location clearly and in accordance with any State requirements *)*
At surface **SHL: 923 FSL & 709 FWL, Unit M**
At proposed prod zone **BHL: 990 FSL & 990 FWL, Unit M**

11 Sec ; T R M or Blk and Survey or Area
Sec 14 T17S R31E

14 Distance in miles and direction from nearest town or post office*
9 miles East of Loco Hills, NM

12 County or Parish
EDDY

13 State
NM

15 Distance from proposed* location to nearest property or lease line, ft (Also to nearest drig unit line, if any)	16 No. of acres in lease	17 Spacing Unit dedicated to this well
990'	**640**	**40**
18 Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft	19 Proposed Depth	20 BLM/BIA Bond No. on file
145'	**TVD: 6800' MD: 6813'**	**NMB000740; NMB000215**
21 Elevations (Show whether DF, KDB, RT, GL, etc)	22 Approximate date work will start*	23 Estimated duration
3891' GL	**03/31/2012**	**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	Name *(Printed/Typed)*	Date
	Kelly Holly	**01/19/2012**
Title **Permitting Tech**		

Approved by *(Signature)* James A. Amos	Name *(Printed Typed)*	Date MAR 20 2012
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

**(Instructions on page 2)*

Roswell Controlled Water Basin

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

RECEIVED
MAR 22 2012
NMOCD ARTESIA

Approval Subject to General Requirements
& Special Stipulations Attached

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 make 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 10th day of January, 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@conchoresources.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

RECEIVED
MAR 22 2012
NMOCD ARTESIA

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
30-015- 40092	26770	FREN; GL - YESO

Property Code	Property Name	Well Number
305607	SKELLY UNIT	661

OGRID No.	Operator Name	Elevation
229137	COG OPERATING, LLC	3891'

Surface Location

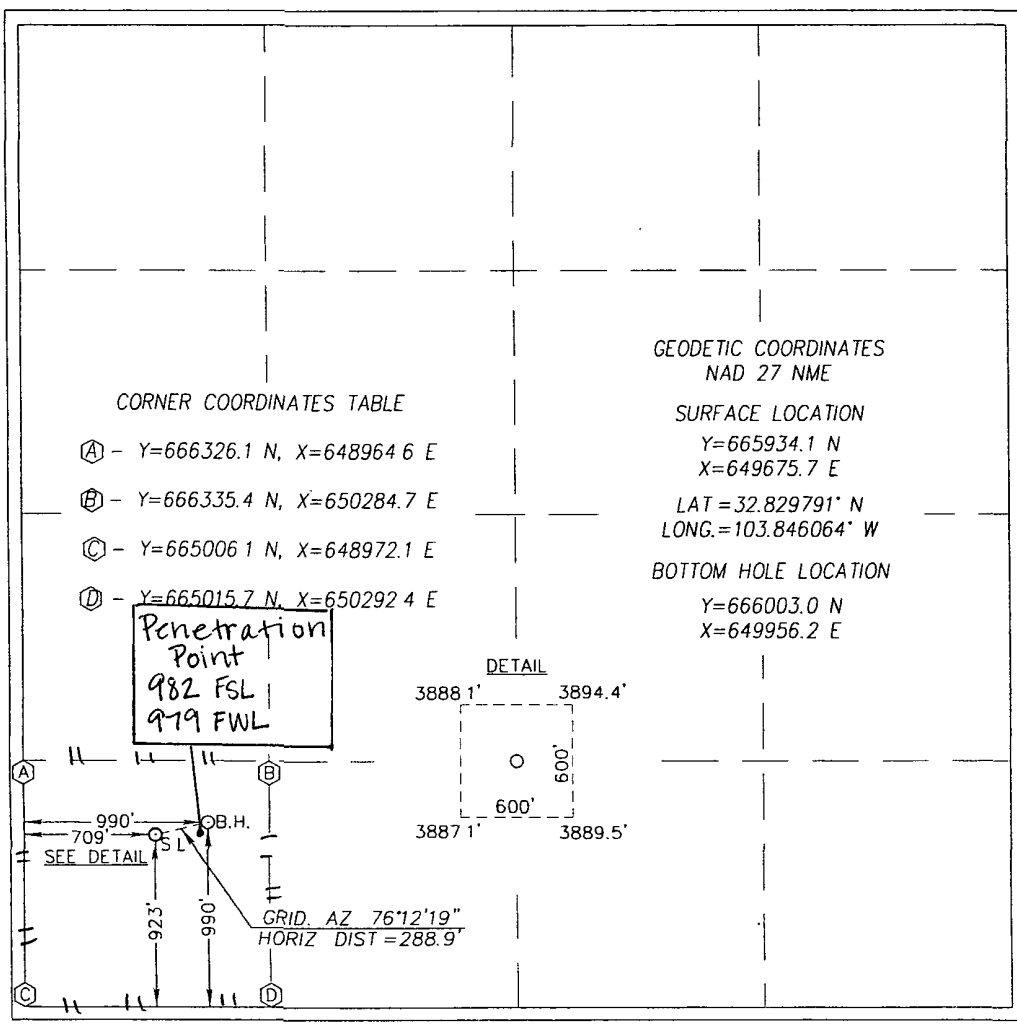
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	14	17-S	31-E		923	SOUTH	709	WEST	EDDY

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	14	17-S	31-E		990	SOUTH	990	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



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

1-9-2012
Signature Date

Kelly J. Holly
Printed Name

kholly@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.

DECEMBER 19, 2011
Date of Survey

Signature & Seal of Professional Surveyor.

GARY G. EIDSON NEW MEXICO 12641 REGISTERED PROFESSIONAL SURVEYOR

1/4/12

Certificate Number	Gary G. Eidson	12641
	Ronald J. Eidson	3239

AF WSC W.O 11.11.2207

MASTER DRILLING PROGRAM

1. Geologic Name of Surface Formation

Quaternary

2. Estimated Tops of Important Geologic Markers:

Quaternary	Surface
Rustler	628'
Top of Salt	801'
Base of Salt	1771'
Yates	1958'
Seven Rivers	2293'
Queen	2915'
Grayburg	3345'
San Andres	3697'
Glorietta	5240'
Paddock	5299'
Blinebry	5736'
Tubb	6700'

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

Water Sand	150'	Fresh Water
Grayburg	3345'	Oil/Gas
San Andres	3697'	Oil/Gas
Glorieta	5240'	Oil/Gas
Paddock	5299'	Oil/Gas
Blinebry	5736'	Oil/Gas
Tubb	6700'	Oil/Gas

No other formations are expected to give up oil, gas or fresh water in measurable quantities. Setting 13 3/8" casing to 650' 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 1800' 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 the environment.

See COA

See COA

4. Casing Program

Hole Size	Interval	OD Casing	Weight	Grade	Jt., Condition	Jt.	burst/collapse/tension
17 ½" 545	0-~~650~~'	13 3/8"	48#	H-40orJ-55	New	ST&C	8.71/3.724/14.91
11" 1945	0-~~1800~~'	8 5/8"	24or32#	J-55	New	ST&C	2.91/1.46/5.65
7 7/8"	0-T.D.	5 1/2"	15.5 or17#	J-55orL80	New	LT&C	1.71/1.574/2.20

See COA

5. Cement Program See COA

13 3/8" Surface Casing: Class C, 475 sx w/ 2% CaCl2, 0.25 pps CF, yield-1.32, back to surface 100% excess

8 5/8" Intermediate Casing:

11" Hole:
Single Stage: LEAD 350 sx 50:50:10 C:Poz:Gel w/ 5% Salt +0.25% CF, yield-2.45 + TAIL 200 sx Class C w/2% CaCl2, yield-1.32, back to surface. 145% excess
Multi-Stage: Stage 1: 350 sx Class C, w/2% CaCl2, yield - 1.32. 40% excess Stage 2: 200 sx Class C w/2% CaCl2, yield – 1.32, back to surface, 108% excess Multi stage tool to be set at approximately, depending on hole conditions, 700' (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. 44.4% open hole excess, cement calculated back to surface (no need for excess in casing overlap).
Multi-Stage: Stage 1: (Assumed TD of 6900') 550 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, 9% excess; **this is a**

minimum volume and will be adjusted up after caliper is run. 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 – 1.02 152% open hole excess, cement calculated back to surface (no need for excess in casing overlap). Multi stage tool to be set at approximately, depending on hole conditions, 3000'. 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 nippled 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 nippled 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
0-650' 515	Fresh Water	8.5	28	N.C.
650-1800' 1945	Brine	10	30	N.C.
1800'-TD	Cut Brine	8.7-9.1	29	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 See COA

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 8 5/8" casing shoe.

B. Drill Stem test is not anticipated.

C. No conventional coring is anticipated.

D. Further testing procedures will be determined after the 5 ½" 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 hold 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 12 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 and Blinebry formations.

CONCHO

COG Operating LLC

Eddy County, NM (NAN27 NME)
Skelly Unit #661
Skelly Unit #661

OH

Plan: Plan #1 - 7-7/8" Hole
SHL = 923' FSL & 709' FWL
BHL = 980' FSL & 980' FWL
Top of Paddock = 980' FSL & 980' FWL @ 5100' TVD

Standard Planning Report

13 January, 2012

Scientific Drilling
Directional Drilling Operations

Database:	EDM 5000 1 Single User Db	**Local Co-ordinate Reference:**	Site Skelly Unit #661
Company:	COG Operating LLC	**TVD Reference:**	GL @ 3891 00usft
Project:	Eddy County, NM (NAN27 NME)	**MD Reference:**	GL @ 3891 00usft
Site:	Skelly Unit #661	**North Reference:**	Grid
Well:	Skelly Unit #661	**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 Skelly Unit #661

Site Position:		**Northing:**	665,934 10 usft	**Latitude:**	32° 49' 47 247 N
From:	Map	**Easting:**	649,675 70 usft	**Longitude:**	103° 50' 45 829 W
Position Uncertainty:	0 00 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0 26 °

Well Skelly Unit #661

Well Position	**+N/-S**	0 00 usft	**Northing:**	665,934 10 usft	**Latitude:**	32° 49' 47 247 N
	+E/-W	0 00 usft	**Easting:**	649,675 70 usft	**Longitude:**	103° 50' 45 829 W
Position Uncertainty		0.00 usft	**Wellhead Elevation:**		**Ground Level:**	3,891 00 usft

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2012/01/13	7 69	60 69	48,889

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	77 72

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	
1,950 00	0 00	0 00	1,950 00	0 00	0 00	0 00	0 00	0 00	0 00	
2,225 03	5 50	77 72	2,224 61	2 81	12 89	2 00	2 00	0 00	77 72	
4,837 85	5 50	77 72	4,825 39	56 09	257 61	0 00	0 00	0 00	0 00	
5,112 88	0 00	0 00	5,100 00	58 90	270 50	2 00	-2 00	0 00	180 00	TG1-SU #661
6,812 88	0 00	0 00	6,800 00	58 90	270 50	0 00	0 00	0 00	0 00	PBHL-SU #661

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Site Skelly Unit #661
Company:	COG Operating LLC	**TVD Reference:**	GL @ 3891.00usft
Project:	Eddy County, NM (NAD27 NME)	**MD Reference:**	GL @ 3891.00usft
Site:	Skelly Unit #661	**North Reference:**	Grid
Well:	Skelly Unit #661	**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
North HL-SU #661 - East HL-SU #661									
1,850.00	0.00	0.00	1,850.00	0.00	0.00	0.00	0.00	0.00	0.00
8-5/8" Casing									
1,950.00	0.00	0.00	1,950.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00°/100'									
2,000.00	1.00	77.72	2,000.00	0.09	0.43	0.44	2.00	2.00	0.00
2,100.00	3.00	77.72	2,099.93	0.84	3.84	3.93	2.00	2.00	0.00
2,200.00	5.00	77.72	2,199.68	2.32	10.65	10.90	2.00	2.00	0.00
2,225.03	5.50	77.72	2,224.61	2.81	12.89	13.19	2.00	2.00	0.00
Hold 5.50°									
2,300.00	5.50	77.72	2,299.23	4.34	19.91	20.38	0.00	0.00	0.00
2,400.00	5.50	77.72	2,398.77	6.38	29.28	29.96	0.00	0.00	0.00
2,500.00	5.50	77.72	2,498.31	8.41	38.64	39.55	0.00	0.00	0.00
2,600.00	5.50	77.72	2,597.85	10.45	48.01	49.14	0.00	0.00	0.00
2,700.00	5.50	77.72	2,697.39	12.49	57.38	58.72	0.00	0.00	0.00
2,800.00	5.50	77.72	2,796.93	14.53	66.74	68.31	0.00	0.00	0.00
2,900.00	5.50	77.72	2,896.47	16.57	76.11	77.89	0.00	0.00	0.00
3,000.00	5.50	77.72	2,996.01	18.61	85.47	87.48	0.00	0.00	0.00
3,100.00	5.50	77.72	3,095.55	20.65	94.84	97.06	0.00	0.00	0.00
3,200.00	5.50	77.72	3,195.09	22.69	104.21	106.65	0.00	0.00	0.00
3,300.00	5.50	77.72	3,294.63	24.73	113.57	116.23	0.00	0.00	0.00
3,400.00	5.50	77.72	3,394.17	26.77	122.94	125.82	0.00	0.00	0.00
3,500.00	5.50	77.72	3,493.71	28.81	132.31	135.41	0.00	0.00	0.00
3,600.00	5.50	77.72	3,593.25	30.85	141.67	144.99	0.00	0.00	0.00
3,700.00	5.50	77.72	3,692.79	32.89	151.04	154.58	0.00	0.00	0.00
3,800.00	5.50	77.72	3,792.33	34.93	160.40	164.16	0.00	0.00	0.00
3,900.00	5.50	77.72	3,891.86	36.97	169.77	173.75	0.00	0.00	0.00
4,000.00	5.50	77.72	3,991.40	39.01	179.14	183.33	0.00	0.00	0.00
4,100.00	5.50	77.72	4,090.94	41.05	188.50	192.92	0.00	0.00	0.00
4,200.00	5.50	77.72	4,190.48	43.08	197.87	202.51	0.00	0.00	0.00
4,300.00	5.50	77.72	4,290.02	45.12	207.23	212.09	0.00	0.00	0.00
4,400.00	5.50	77.72	4,389.56	47.16	216.60	221.68	0.00	0.00	0.00
4,500.00	5.50	77.72	4,489.10	49.20	225.97	231.26	0.00	0.00	0.00
4,600.00	5.50	77.72	4,588.64	51.24	235.33	240.85	0.00	0.00	0.00
4,700.00	5.50	77.72	4,688.18	53.28	244.70	250.43	0.00	0.00	0.00
4,800.00	5.50	77.72	4,787.72	55.32	254.07	260.02	0.00	0.00	0.00
4,837.85	5.50	77.72	4,825.40	56.09	257.61	263.65	0.00	0.00	0.00
Start Drop 2.00°/100'									
4,900.00	4.26	77.72	4,887.32	57.22	262.78	268.93	2.00	-2.00	0.00
5,000.00	2.26	77.72	4,987.15	58.43	268.33	274.61	2.00	-2.00	0.00
5,100.00	0.26	77.72	5,087.12	58.89	270.47	276.81	2.00	-2.00	0.00
5,112.88	0.00	0.00	5,100.00	58.90	270.50	276.84	2.00	-2.00	0.00
Hold 0.00° - Top of Paddock - TG1-SU #661									
6,812.88	0.00	0.00	6,800.00	58.90	270.50	276.84	0.00	0.00	0.00
PBHL-SU #661									

Database:	EDM 5000 1 Single User Db	**Local Co-ordinate Reference:**	Site Skelly Unit #661
Company:	COG Operating LLC	**TVD Reference:**	GL @ 3891 00usft
Project:	Eddy County, NM (NAN27 NME)	**MD Reference:**	GL @ 3891 00usft
Site:	Skelly Unit #661	**North Reference:**	Grid
Well:	Skelly Unit #661	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1 - 7-7/8" Hole		

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
North HL-SU #661 - plan misses target center by 288 84usft at 0 00usft MD (0 00 TVD, 0 00 N, 0 00 E) - Rectangle (sides W100 00 H0 00 D0 00)	0 00	0 00	-1 00	68 90	280 50	666,003 00	649,956 20	32° 49' 47 916 N	103° 50' 42 537 W
East HL-SU #661 - plan misses target center by 288 84usft at 0 00usft MD (0 00 TVD, 0 00 N, 0 00 E) - Rectangle (sides W0 00 H100 00 D0 00)	0 00	0 00	-1 00	68 90	280 50	666,003 00	649,956 20	32° 49' 47 916 N	103° 50' 42 537 W
TG1-SU #661 - plan hits target center - Point	0 00	0 01	5,100 00	58 90	270 50	665,993 00	649,946 20	32° 49' 47 818 N	103° 50' 42 655 W
PBHL-SU #661 - plan hits target center - Circle (radius 10 00)	0 00	0 00	6,800 00	58 90	270 50	665,993 00	649,946 20	32° 49' 47 818 N	103° 50' 42 655 W

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,850 00	1,850 00	8-5/8" Casing	8-5/8	12-1/4

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
5,112 88	5,100 00	Top of Paddock		0 00	

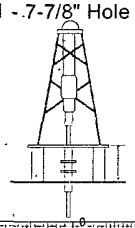
Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
1,950 00	1,950 00	0 00	0 00	Start Build 2 00°/100'
2,225 03	2,224 61	2 81	12 89	Hold 5 50°
4,837 85	4,825 40	56 09	257 61	Start Drop 2 00°/100'
5,112 88	5,100 00	58 90	270 50	Hold 0 00°

CONCHO

Scientific Drilling
Directional Drilling Operations

Skelly Unit #661
Eddy County, NM (NAN27 NME)
Northing (Y) 665934.10
Easting: (X) 649675.70
Plan #1 - 7-7/8" Hole



Azimuths to Grid North
True North -0.26°
Magnetic North 7.42°
Magnetic Field
Strength 48889.5nT
Dip Angle 60.69°
Date 2012/01/13
Model IGRF2010

To convert a Magnetic Direction to a Grid Direction Add 7.42°
To convert a True Direction to a Grid Direction Subtract 0.26°

WELL DETAILS Skelly Unit #661

Ground Level 3891.00

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	665934.10	649675.70	32° 49' 47.247 N	103° 50' 45.829 W	

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	1950.00	0.00	0.00	1950.00	0.00	0.00	0.00	0.00	0.00	
3	2225.03	5.50	77.72	2224.61	2.81	12.89	2.00	77.72	13.19	
4	4837.85	5.50	77.72	4825.39	56.09	257.61	0.00	0.00	263.65	
5	5112.88	0.00	0.00	5100.00	58.90	270.50	2.00	180.00	276.84	TG1-SU #661
6	6812.88	0.00	0.00	6800.00	58.90	270.50	0.00	0.00	276.84	PBHL-SU #661

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
East HL-SU #661	-1.00	58.90	280.50	665993.00	649956.2032	32° 49' 47.818 N	103° 50' 42.537 W	Rectangle (Sides: L100.00 W0.00)
- plan misses target center by 288.84usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)								
North HL-SU #661	-1.00	58.90	280.50	666003.00	649956.2032	32° 49' 47.918 N	103° 50' 42.537 W	Rectangle (Sides: L0.00 W100.00)
- plan misses target center by 288.84usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)								
TG1-SU #661	5100.00	58.90	270.50	665993.00	649946.2032	32° 49' 47.818 N	103° 50' 42.655 W	Point
- plan hits target center								
PBHL-SU #661	6800.00	58.90	270.50	665993.00	649946.2032	32° 49' 47.818 N	103° 50' 42.655 W	Circle (Radius: 10.00)
- plan hits target center								

SITE DETAILS Skelly Unit #661

Site Centre Northing 665934.10
Easting 649675.70

Positional Uncertainty 0.00
Convergence 0.26
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
5100.00	5112.88	Top of Paddock	0.00	

Map System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone Name: New Mexico East 3001

Local Origin: Site Skelly Unit #661 Grid North

Latitude: 32° 49' 47.247 N
Longitude: 103° 50' 45.829 W

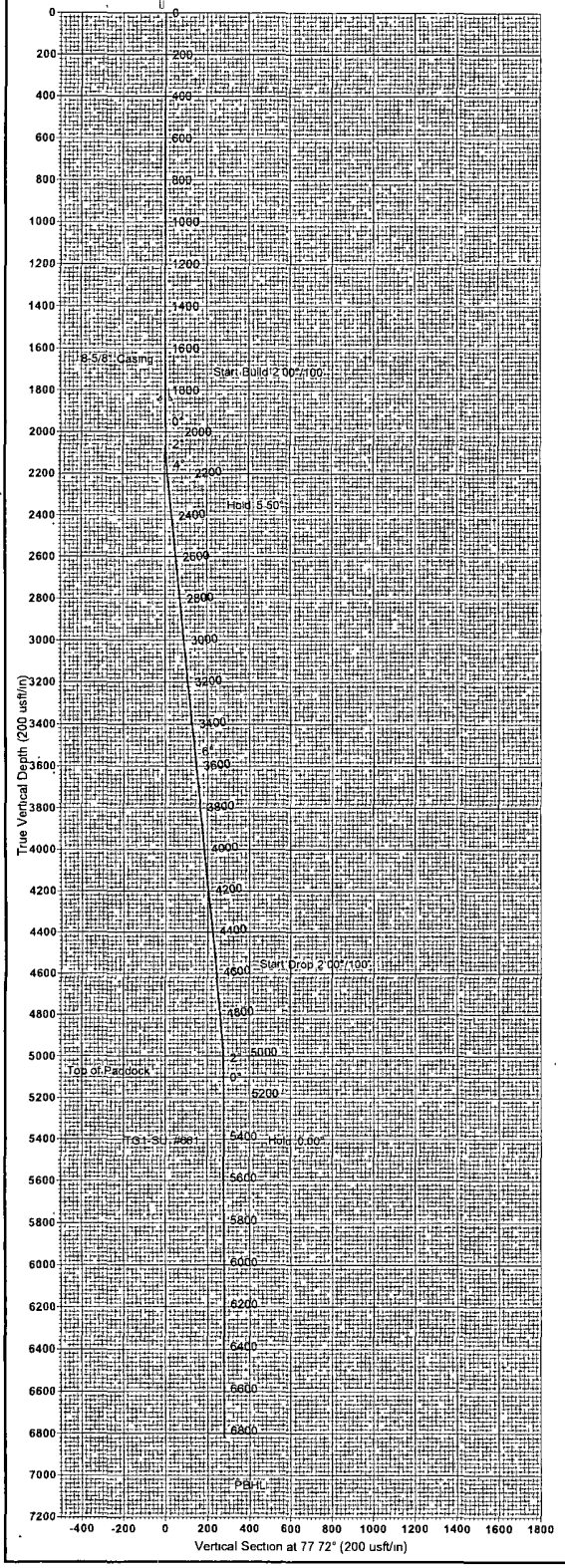
Grid East: 649675.70
Grid North: 665934.10
Scale Factor: 1.000

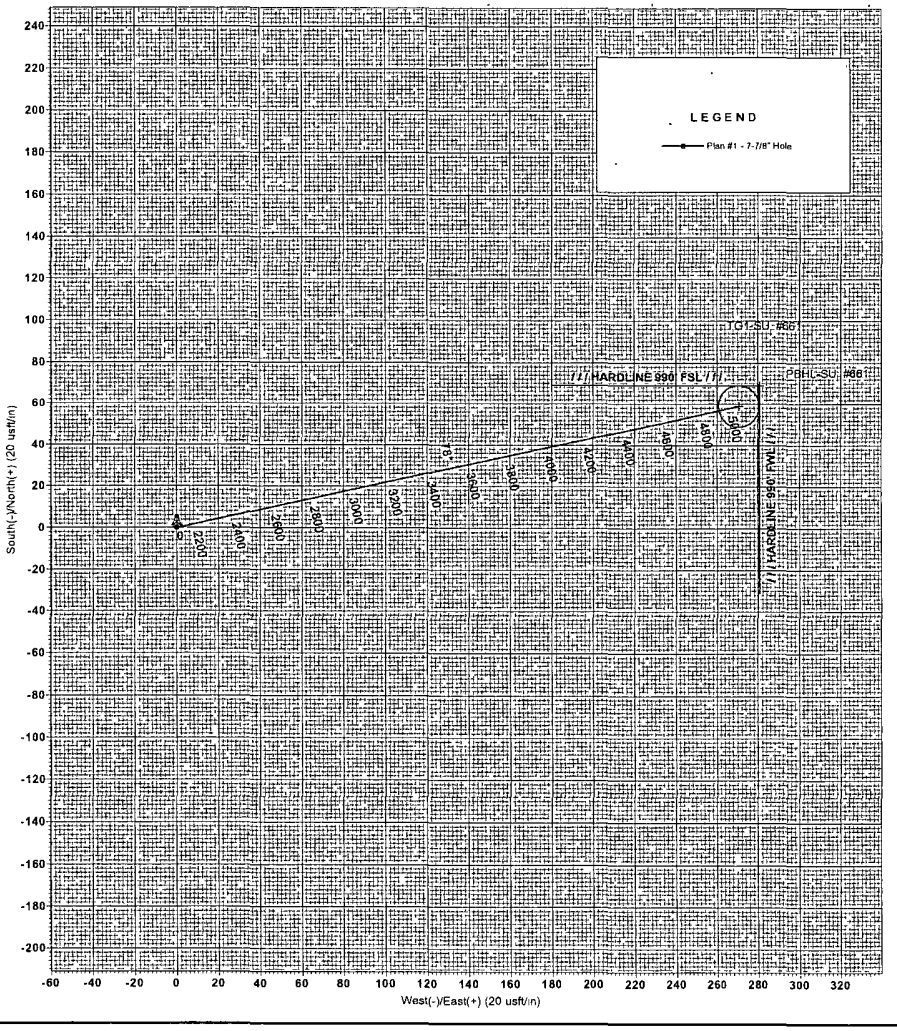
Geomagnetic Model: IGRF2010
Sample Date: 13-Jan-12
Magnetic Declination: 7.68°
Dip Angle from Horizontal: 60.69°
Magnetic Field Strength: 48889.14 nT

To convert a Magnetic Direction to a Grid Direction: Add 7.42°
To convert a Magnetic Direction to a True Direction: Add 7.68° East
To convert a True Direction to a Grid Direction: Subtract 0.26°

CASING DETAILS

TVD	MD	Name	Size
1850.00	1850.00	8-5/8" Casing	8-5/8





COG OPERATING LLC
550 West Texas, Suite 1300
Midland, TX 79701

DIRECTIONAL PLAN VARIANCE REQUEST

SKELLY UNIT #661
EDDY COUNTY, NM

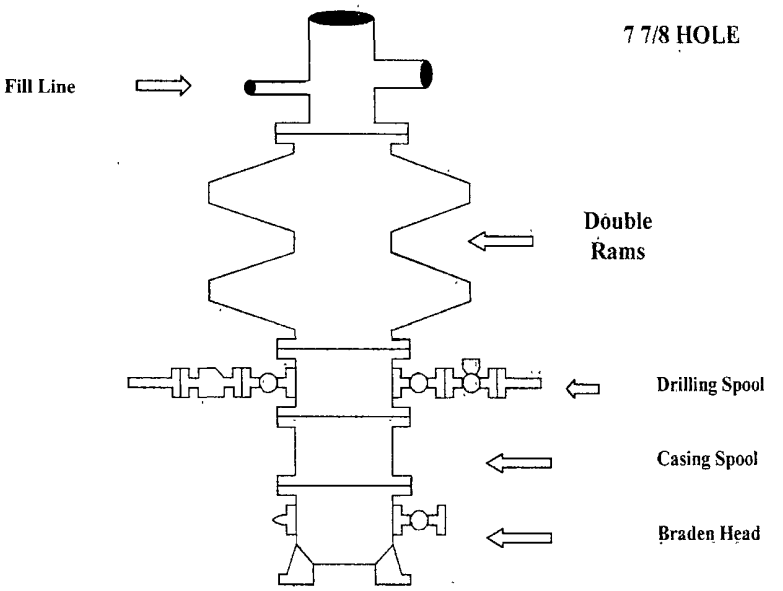
SHL	923 FSL, 709 FWL	Sec 14, T17S, R31E, UL M
BHL	990 FSL, 990 FWL	Sec 14, T17S, R31E; UL M

COG Operating LLC, as Operator, desires that the APD reflect the footages as stated on the surveyor's plat. However, Operator also desires to avoid inadvertently drilling the well to a non-standard location. Therefore, due to the proximity of the plat bottom hole location to the pro-ration unit hard line(s), the attached directional plan is designed to avoid the hard lines by as much as fifty feet; said fifty feet being in either (or both) the north-south and/or east-west directions as applicable.

COG Operating LLC

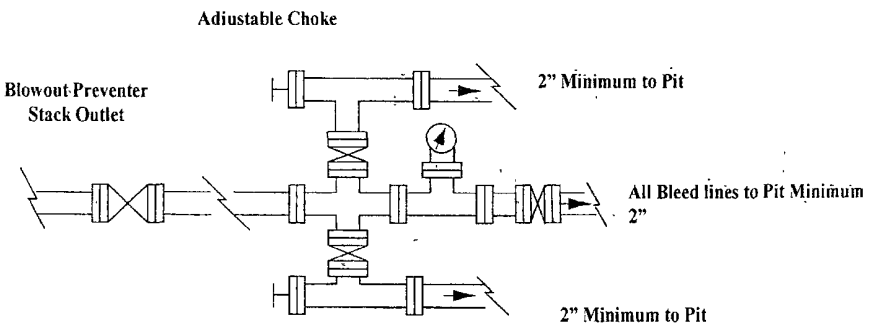
Exhibit #9

BOPE and Choke Schematic



Minimum 4" Nominal choke and kill lines

Choke Manifold Requirement (2000 psi WP)
No Annular Required



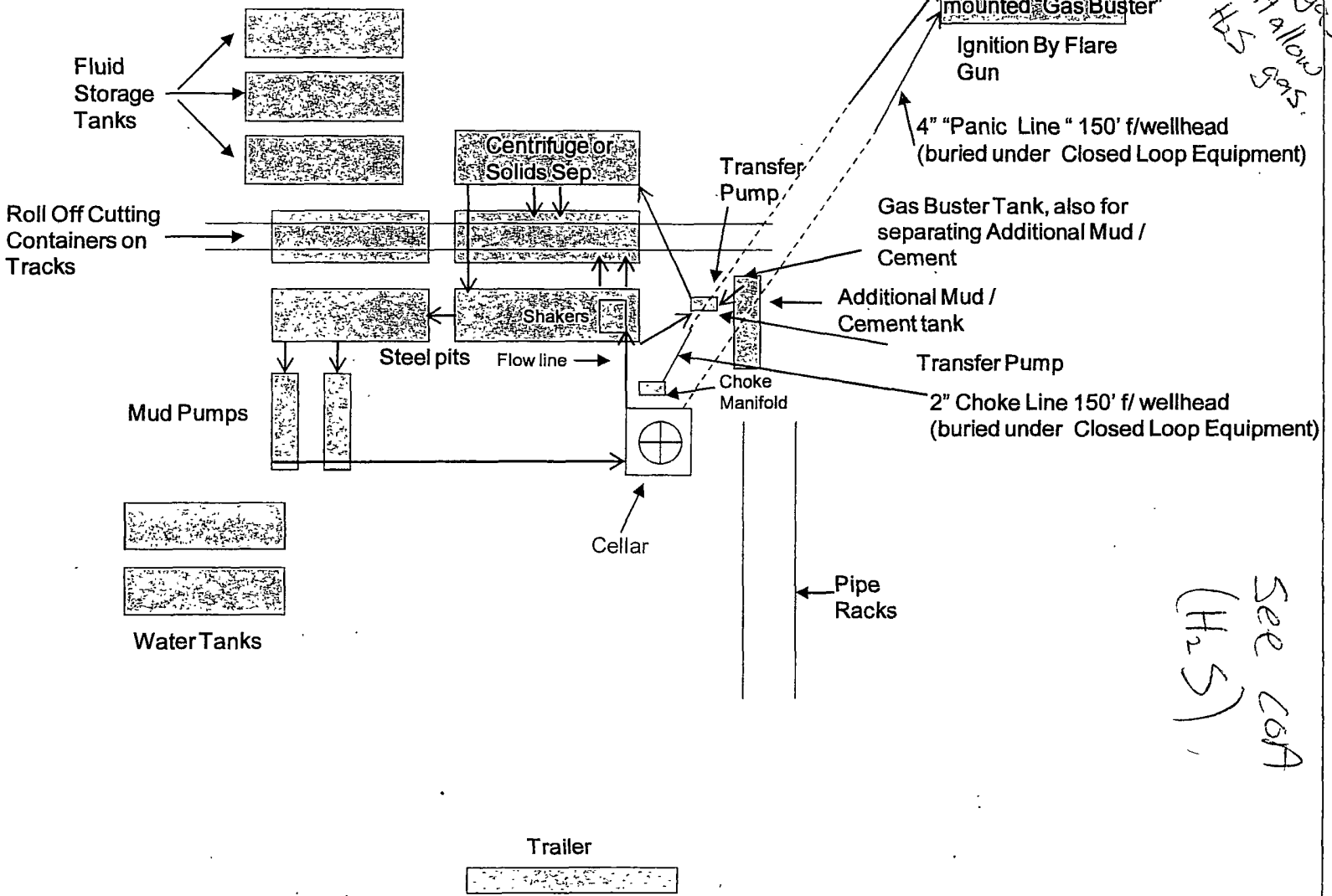
Adjustable Choke
(or Positive)

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.

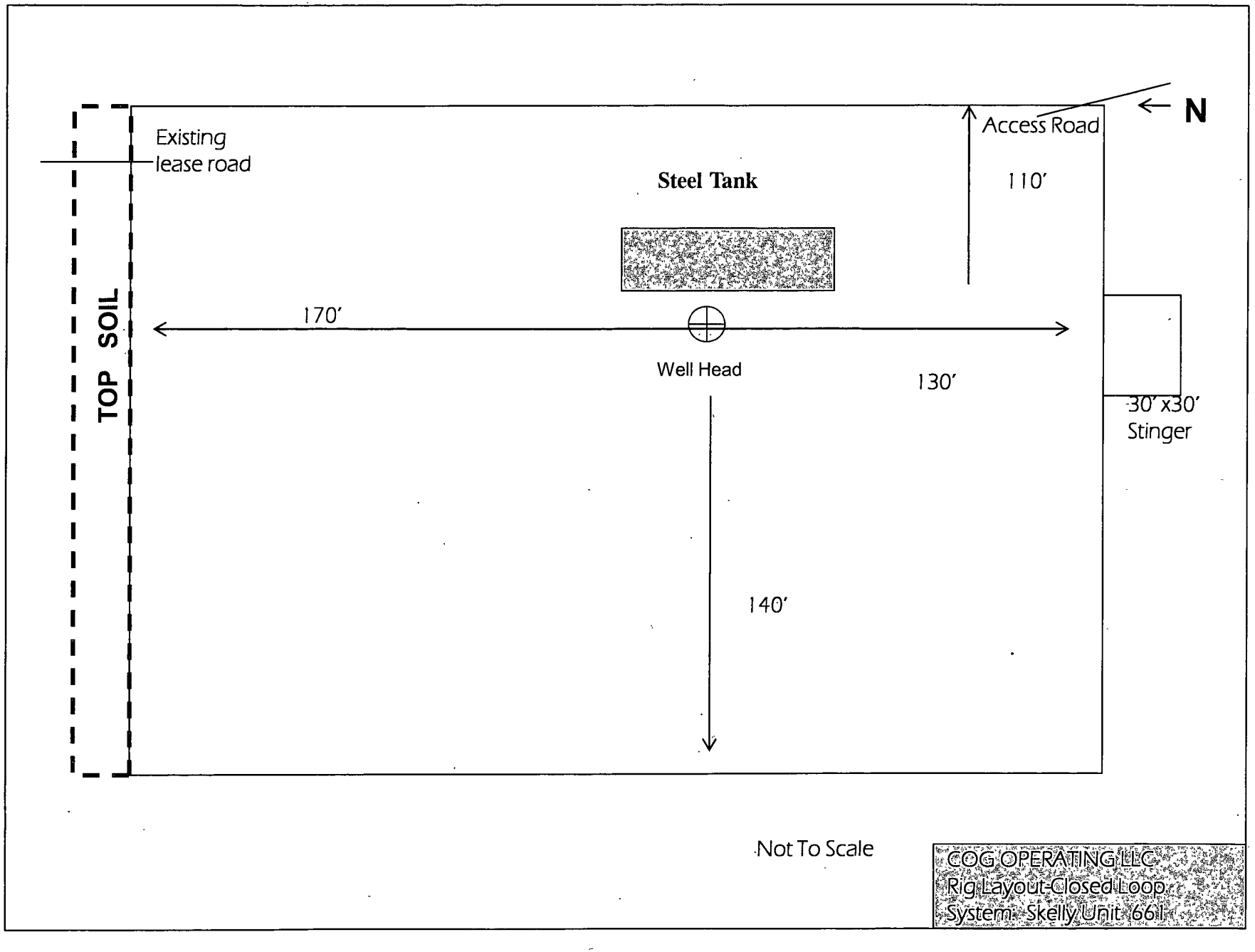
COG Operating LLC

Closed Loop Equipment Diagram



Open bottom gas buster won't allow ignition of H_2S gas.

See COA (H_2S)


N
Existing
lease road
Access Road
110'
Steel Tank
TOP SOIL
170'
Well Head
130'
30' x30'
Stinger
140'
Not To Scale
COG OPERATING LLC
Rig Layout-Closed Loop
System- Skelly Unit 661

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 an 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 well 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.

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 H_2S

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

a. First stage to DV tool:

☒ Cement to circulate. If cement does not circulate, contact the appropriate BLM office before proceeding with second stage cement job. Operator should have plans as to how they will achieve circulation on the next stage.

b. Second stage above DV tool:

☒ Cement to surface. If cement does not circulate, contact the appropriate BLM office. **Additional cement may be required – excess calculates to -3%.**

3. The minimum required fill of cement behind the **5-1/2** inch production casing is:

☒ As proposed. Operator shall provide method of verification.

Operator has proposed DV tool at depth of 3000', but will adjust cement proportionately if moved. DV tool shall be set a minimum of 50' below previous shoe and a minimum of 200' above current shoe. Operator shall submit sundry if DV tool depth cannot be set in this range.

a. First stage to DV tool:

☒ Cement to circulate. If cement does not circulate, contact the appropriate BLM office before proceeding with second stage cement job. Operator should have plans as to how they will achieve tie-back on the next stage. **Additional cement may be required – excess calculates to 13%.**

b. Second stage above DV tool:

☒ Cement as proposed. Operator shall provide method of verification.

4. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

C. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17. **Operator approved for either 13-5/8" or 11" BOP stack.**

2. Proposed blowout preventer (BOP) and related equipment (BOPE) meets minimum requirement.

    a. **For surface casing only:** If the BOP/BOPE is to be tested against casing, the wait on cement (WOC) time for that casing is to be met (see WOC statement at start of casing section). Independent service company required.

3. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.

    a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

    b. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (18 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).

    c. The results of the test shall be reported to the appropriate BLM office.

    d. All tests are required to be recorded on a calibrated test chart. **A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.**

    e. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug.

D. DRILL STEM TEST

If drill stem tests are performed, Onshore Order 2.III.D shall be followed.

E. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

CRW 031912

6. All construction and maintenance activity will be confined to the authorized right-of-way width of **20** feet.

7. No blading or clearing of any vegetation will be allowed unless approved in writing by the Authorized Officer.

8. The holder shall install the pipeline on the surface in such a manner that will minimize suspension of the pipeline across low areas in the terrain. In hummocky of duney areas, the pipeline will be "snaked" around hummocks and dunes rather then suspended across these features.

9. The pipeline shall be buried with a minimum of **24** inches under all roads, "two-tracks," and trails. Burial of the pipe will continue for 20 feet on each side of each crossing. The condition of the road, upon completion of construction, shall be returned to at least its former state with no bumps or dips remaining in the road surface.

10. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

11. In those areas where erosion control structures are required to stabilize soil conditions, the holder will install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound resource management practices.

12. Excluding the pipe, all above-ground structures not subject to safety requirement shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be a color which simulates "Standard Environmental Colors" – **Shale Green**, Munsell Soil Color No. 5Y 4/2; designated by the Rocky Mountain Five State Interagency Committee.

13. The pipeline will be identified by signs at the point of origin and completion of the right-of-way and at all road crossings. At a minimum, signs will state the holder's name, BLM serial number, and the product being transported. Signs will be maintained in a legible condition for the life of the pipeline.

14. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway.

15. Any cultural and/or paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the authorized officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the authorized officer. An evaluation of the discovery will be made by the authorized officer to determine appropriate cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the authorized officer after consulting with the holder.

C. ELECTRIC LINES (not applied for in APD)

IX. INTERIM RECLAMATION

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce the size of the location. Interim reclamation should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche that is free of contaminants may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

All disturbed areas after they have been satisfactorily prepared need to be reseeded with the seed mixture provided below.

Upon completion of interim reclamation, the operator shall submit a Sundry Notices and Reports on Wells, Subsequent Report of Reclamation (Form 3160-5).

X. FINAL ABANDONMENT & RECLAMATION

At final abandonment, well locations, production facilities, and access roads must undergo "final" reclamation so that the character and productivity of the land are restored.

Earthwork for final reclamation must be completed within six (6) months of well plugging. All pads, pits, facility locations and roads must be reclaimed to a satisfactory

revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

After all disturbed areas have been satisfactorily prepared, these areas need to be revegetated with the seed mixture provided below. Seeding should be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (Jim Amos: 575-234-5909).

Ground-level Abandoned Well Marker to avoid raptor perching: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well.

Seed Mixture for LPC Sand/Shinnery Sites

The holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

Species	lb/acre
Plains Bristlegrass	5lbs/A
Sand Bluestem	5lbs/A
Little Bluestem	3lbs/A
Big Bluestem	6lbs/A
Plains Coreopsis	2lbs/A
Sand Dropseed	1lbs/A

*Pounds of pure live seed: Pounds of seed **x** percent purity **x** percent germination = pounds pure live seed