OCD-ARTESIA

11-298

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

1a Type of work. ☑ DRILL ☐ REENTER NOS RCVD 11/19/11	5 Lease Serial No. **NMNM - 98120**
1b Type of Well ☑ Oil Well ☐ Gas Well ☐ Other ☐ Single Zone ☐ Multiple Zone	6. If Indian, Allotee or Tribe Name **N/A**
2. Name of Operator **COG Operating LLC** 229137	7 If Unit or CA Agreement, Name and No **NMNM - 71030X; Skelly Unit**
3a. Address **550 W. Texas Ave., Suite 1300 Midland, TX 79701**	8. Lease Name and Well No. **SKELLY UNIT #664** (305607)
3b. Phone No. *(include area code)* **432-685-4384** Mar Loco	9 API Well No. **30-015-** 39698
4 Location of Well *(Report location clearly and in accordance with any State requirements *)* At surface **1223 FNL & 169 FEL, Unit A** At proposed prod zone **1650 FNL & 330 FEL, Unit H**	10 Field and Pool, or Exploratory **Fren; Glorieta-Yeso** ~~26770~~ (97806) KZ
	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 drlg. unit line, if any) **169'**	16 No. of acres in lease **720**	17. Spacing Unit dedicated to this well **40**	
18 Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. **400'**	19 Proposed Depth **TVD: 6900' MD: 6927'**	20 BLM/BIA Bond No on file **NMB000740** & 215	
21 Elevations (Show whether DF, KDB, RT, GL, etc.) **3932' GL**	22. Approximate date work will start* **08/31/2011**	23. 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	Name *(Printed/Typed)* **Kelly J. Holly**	Date **06/13/2011**
Title **Permitting Tech**		

Approved by *(Signature)* **/s/ Don Peterson**	Name *(Printed/Typed)*	Date **AUG 23 2011**
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

RECEIVED
NOV 17 2011
NMOCD ARTESIA

Approval Subject to General Requirements & Special Stipulations Attached

SEE ATTACHED FOR CONDITIONS OF APPROVAL

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" 700	0-~~650~~'	13 3/8"	48#	H-40orJ-55	New	ST&C	8.71/3.724/14.91
11" 1920	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 6927

5. Cement Program

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.

See COA

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**

See COA

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' TW	Fresh Water	8.5	28	N.C.
650-1800' 1920	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.

CONCHO

COG Operating LLC

Eddy County, NM (NAN27 NME)
Skelly Unit #664
Skelly Unit #664

OH

Plan: Plan #1 7-7/8" Hole
SHL = 1223' FNL & 169' FEL
BHL = 1660' FNL & 380' FEL
Top of Paddock = 348' N of Surface & 166' W of Surface @ 5220' TVD

Standard Planning Report

11 April, 2011

Scientific Drilling
Directional Drilling Operations

Database:	EDM-Julio	**Local Co-ordinate Reference:**	Site Skelly Unit #664
Company:	COG Operating LLC	**TVD Reference:**	GL Elev @ 3932 00usft
Project:	Eddy County, NM (NAN27 NME)	**MD Reference:**	GL Elev @ 3932 00usft
Site:	Skelly Unit #664	**North Reference:**	Grid
Well:	Skelly Unit #664	**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 #664

Site Position:		**Northing:**	669,099 60 usft	**Latitude:**	32° 50' 18 367 N
From:	Map	**Easting:**	654,058 80 usft	**Longitude:**	103° 49' 54 285 W
Position Uncertainty:	0 00 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0 27 °

Well Skelly Unit #664

Well Position	**+N/-S**	0 00 usft	**Northing:**	669,099 60 usft	**Latitude:**	32° 50' 18 367 N
	+E/-W	0 00 usft	**Easting:**	654,058 80 usft	**Longitude:**	103° 49' 54 285 W
Position Uncertainty		0 00 usft	**Wellhead Elevation:**		**Ground Level:**	3,932 00 usft

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2011/04/11	7 77	60 71	48,972

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	205 47

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	
2,311 09	7 22	205 47	2,310 13	-20 52	-9 77	2 00	2 00	0 00	205 47	
5,052 79	7 22	205 47	5,030 08	-331 68	-158 00	0 00	0 00	0 00	0 00	
5,243 56	3 41	205 47	5,220 00	-347 62	-165 60	2 00	-2 00	0 00	180 00	TG1-Skelly #664
6,926 53	3 41	205 47	6,900 00	-437 90	-208 60	0 00	0 00	0 00	0 00	PBHL-Skelly #664

Database:	EDM-Julio	**Local Co-ordinate Reference:**	Site Skelly Unit #664
Company:	COG Operating LLC	**TVD Reference:**	GL Elev @ 3932 00usft
Project:	Eddy County, NM (NAN27 NME)	**MD Reference:**	GL Elev @ 3932 00usft
Site:	Skelly Unit #664	**North Reference:**	Grid
Well:	Skelly Unit #664	**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
East HL-Skelly #664 - North HL-Skelly #664									
1,900 00	0 00	0 00	1,900 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
KOP Start Build 2.00°/100'									
2,000 00	1 00	205 47	2,000 00	-0 39	-0 19	0 44	2 00	2 00	0 00
2,100 00	3 00	205 47	2,099 93	-3 54	-1 69	3 93	2 00	2 00	0 00
2,200 00	5 00	205 47	2,199 68	-9 84	-4 69	10 90	2 00	2 00	0 00
2,300 00	7 00	205 47	2,299 13	-19 28	-9 18	21 35	2 00	2 00	0 00
2,311 09	7 22	205 47	2,310 13	-20 52	-9 77	22 73	2 00	2 00	0 00
EOC hold 7.22°									
2,400 00	7 22	205 47	2,398 34	-30 61	-14 58	33 90	0 00	0 00	0 00
2,500 00	7 22	205 47	2,497 55	-41 96	-19 99	46 47	0 00	0 00	0 00
2,600 00	7 22	205 47	2,596 75	-53 31	-25 39	59 05	0 00	0 00	0 00
2,700 00	7 22	205 47	2,695 96	-64 66	-30 80	71 62	0 00	0 00	0 00
2,800 00	7 22	205 47	2,795 17	-76 00	-36 21	84 19	0 00	0 00	0 00
2,900 00	7 22	205 47	2,894 37	-87 35	-41 61	96 76	0 00	0 00	0 00
3,000 00	7 22	205 47	2,993 58	-98 70	-47 02	109 33	0 00	0 00	0 00
3,100 00	7 22	205 47	3,092 79	-110 05	-52 42	121 90	0 00	0 00	0 00
3,200 00	7 22	205 47	3,191 99	-121 40	-57 83	134 47	0 00	0 00	0 00
3,300 00	7 22	205 47	3,291 20	-132 75	-63 24	147 04	0 00	0 00	0 00
3,400 00	7 22	205 47	3,390 41	-144 10	-68 64	159 61	0 00	0 00	0 00
3,500 00	7 22	205 47	3,489 61	-155 45	-74 05	172 18	0 00	0 00	0 00
3,600 00	7 22	205 47	3,588 82	-166 80	-79 46	184 76	0 00	0 00	0 00
3,700 00	7 22	205 47	3,688 03	-178 15	-84 86	197 33	0 00	0 00	0 00
3,800 00	7 22	205 47	3,787 23	-189 50	-90 27	209 90	0 00	0 00	0 00
3,900 00	7 22	205 47	3,886 44	-200 84	-95 68	222 47	0 00	0 00	0 00
4,000 00	7 22	205 47	3,985 65	-212 19	-101 08	235 04	0 00	0 00	0 00
4,100 00	7 22	205 47	4,084 85	-223 54	-106 49	247 61	0 00	0 00	0 00
4,200 00	7 22	205 47	4,184 06	-234 89	-111 89	260 18	0 00	0 00	0 00
4,300 00	7 22	205 47	4,283 27	-246 24	-117 30	272 75	0 00	0 00	0 00
4,400 00	7 22	205 47	4,382 47	-257 59	-122 71	285 32	0 00	0 00	0 00
4,500 00	7 22	205 47	4,481 68	-268 94	-128 11	297 89	0 00	0 00	0 00
4,600 00	7 22	205 47	4,580 89	-280 29	-133 52	310 47	0 00	0 00	0 00
4,700 00	7 22	205 47	4,680 09	-291 64	-138 93	323 04	0 00	0 00	0 00
4,800 00	7 22	205 47	4,779 30	-302 99	-144 33	335 61	0 00	0 00	0 00
4,900 00	7 22	205 47	4,878 51	-314 33	-149 74	348 18	0 00	0 00	0 00
5,000 00	7 22	205 47	4,977 71	-325 68	-155 14	360 75	0 00	0 00	0 00
5,052 79	7 22	205 47	5,030 08	-331 68	-158 00	367 39	0 00	0 00	0 00
Start Drop 2.00°/100'									
5,100 00	6 28	205 47	5,076 97	-336 68	-160 38	372 93	2 00	-2 00	0 00
5,200 00	4 28	205 47	5,176 54	-344 99	-164 34	382 13	2 00	-2 00	0 00
5,243 56	3 41	205 47	5,220 00	-347 62	-165 60	385 05	2 00	-2 00	0 00
EOC hold 3.41° - TG1-Skelly #664									
5,300 00	3 41	205 47	5,276 34	-350 65	-167 04	388 40	0 00	0 00	0 00
5,400 00	3 41	205 47	5,376 16	-356 01	-169 59	394 35	0 00	0 00	0 00
5,500 00	3 41	205 47	5,475 99	-361 38	-172 15	400 29	0 00	0 00	0 00
5,600 00	3 41	205 47	5,575 81	-366 74	-174 70	406 23	0 00	0 00	0 00
5,700 00	3 41	205 47	5,675 63	-372 11	-177 26	412 17	0 00	0 00	0 00
5,800 00	3 41	205 47	5,775 46	-377 47	-179 81	418 11	0 00	0 00	0 00
5,900 00	3 41	205 47	5,875 28	-382 84	-182 37	424 05	0 00	0 00	0 00
6,000 00	3 41	205 47	5,975 10	-388 20	-184 92	430 00	0 00	0 00	0 00

Database:	EDM-Julio	**Local Co-ordinate Reference:**	Site Skelly Unit #664
Company:	COG Operating LLC	**TVD Reference:**	GL Elev @ 3932 00usft
Project:	Eddy County, NM (NAN27 NME)	**MD Reference:**	GL Elev @ 3932 00usft
Site:	Skelly Unit #664	**North Reference:**	Grid
Well:	Skelly Unit #664	**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)
6,100.00	3 41	205 47	6,074 93	-393 56	-187 48	435 94	0 00	0 00	0 00
6,200 00	3 41	205 47	6,174 75	-398 93	-190 03	441 88	0.00	0 00	0 00
6,300 00	3 41	205 47	6,274 57	-404 29	-192 59	447 82	0 00	0 00	0 00
6,400 00	3.41	205 47	6,374 40	-409 66	-195 15	453 76	0 00	0 00	0 00
6,500 00	3 41	205 47	6,474 22	-415 02	-197 70	459 70	0 00	0 00	0 00
6,600 00	3 41	205 47	6,574 04	-420 38	-200 26	465 65	0 00	0 00	0 00
6,700 00	3 41	205.47	6,673 87	-425 75	-202 81	471 59	0.00	0 00	0 00
6,800 00	3 41	205 47	6,773 69	-431 11	-205 37	477 53	0 00	0 00	0.00
6,900 00	3 41	205 47	6,873 51	-436 48	-207 92	483 47	0 00	0 00	0 00
6,926 53	3 41	205 47	6,900 00	-437 90	-208.60	485 05	0 00	0 00	0 00
PBHL-Skelly #664									

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
East HL-Skelly #664	0 00	0 00	0 00	-427 90	-158 60	668,671 70	653,900 20	32° 50' 14 140 N	103° 49' 56 168 W
- plan misses target center by 456 35usft at 0 00usft MD (0 00 TVD, 0 00 N, 0 00 E)									
- Rectangle (sides W0 00 H100 00 D0 00)									
North HL-Skelly #664	0 00	0 00	0 00	-427 90	-158 60	668,671.70	653,900 20	32° 50' 14 140 N	103° 49' 56 168 W
- plan misses target center by 456.35usft at 0 00usft MD (0.00 TVD, 0 00 N, 0 00 E)									
- Rectangle (sides W150 00 H0 00 D0 00)									
TG1-Skelly #664	0 00	0 00	5,220 00	-347 62	-165 60	668,751 98	653,893 21	32° 50' 14 935 N	103° 49' 56 245 W
- plan hits target center									
- Point									
PBHL-Skelly #664	0 00	0 01	6,900 00	-437.90	-208 60	668,661 70	653,850 20	32° 50' 14 044 N	103° 49' 56 754 W
- plan hits target center									
- Circle (radius 50 00)									

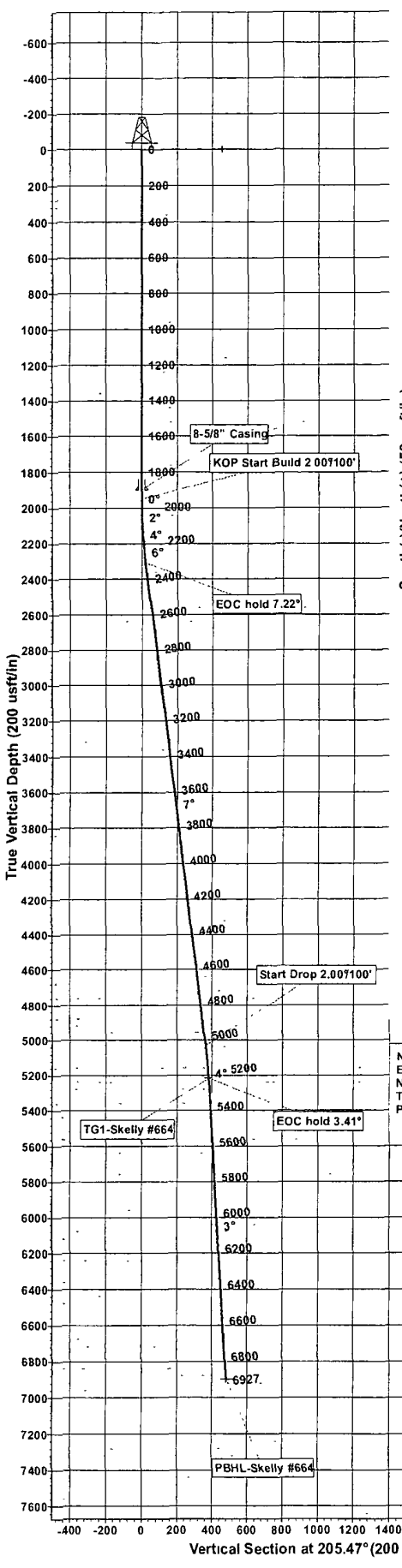
Casing Points

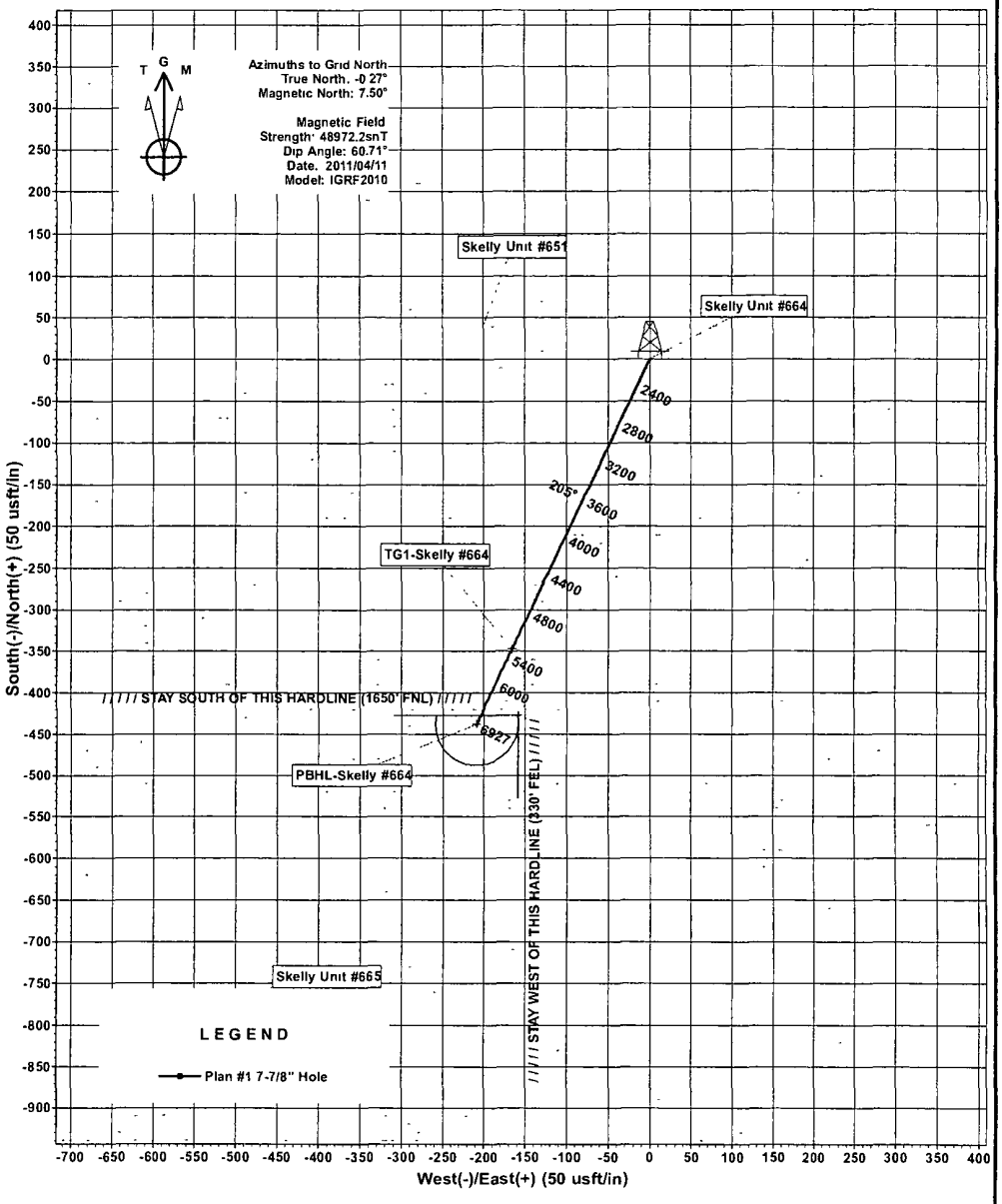
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,900 00	1,900 00	8-5/8" Casing	8-5/8	12-1/4

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	KOP Start Build 2 00°/100'
2,311 09	2,310 13	-20 52	-9 77	EOC hold 7 22°
5,052 79	5,030 08	-331 68	-158 00	Start Drop 2 00°/100'
5,243.56	5,220 00	-347 62	-165 60	EOC hold 3 41°

Scientific Drilling for COG Operating LLC
Site: Eddy County, NM (NAN27 NME)
Well: Skelly Unit #664
Wellbore: OH
Design: Plan #1 7-7/8" Hole





WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
East HL-Skelly #664	0.00	-427.90	-158.60	668671.70	653900.20	32°50' 14.140 N	103°49' 56.168 W	Rectangle (Sid es. L100.00 W0.00)
North HL-Skelly #664	0.00	-427.90	-158.60	668671.70	653900.20	32°50' 14.140 N	103°49' 56.168 W	Rectangle (Si des. L0.00 W150.00)
TG1-Skelly #664	5220.00	-347.62	-165.60	668751.98	653893.20	32°50' 14.935 N	103°49' 56.245 W	Point
PBHL-Skelly #664	6900.00	-437.90	-208.60	668661.70	653850.20	32°50' 14.044 N	103°49' 56.754 W	Circle (Radius : 50.00)

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	2311.09	7.22	205.47	2310.13	-20.52	-9.77	2.00	205.47	22.73	
4	5052.79	7.22	205.47	5030.08	-331.68	-158.00	0.00	0.00	367.39	
5	5243.56	3.41	205.47	5220.00	-347.62	-165.60	2.00	180.00	385.05	TG1-Skelly #664
6	6926.53	3.41	205.47	6900.00	-437.90	-208.60	0.00	0.00	485.05	PBHL-Skelly #664

WELL DETAILS: Skelly Unit #664

Ground Level 3932.00

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	669099.60	654058.80	32°50' 18.367 N	103°49' 54.285 W	

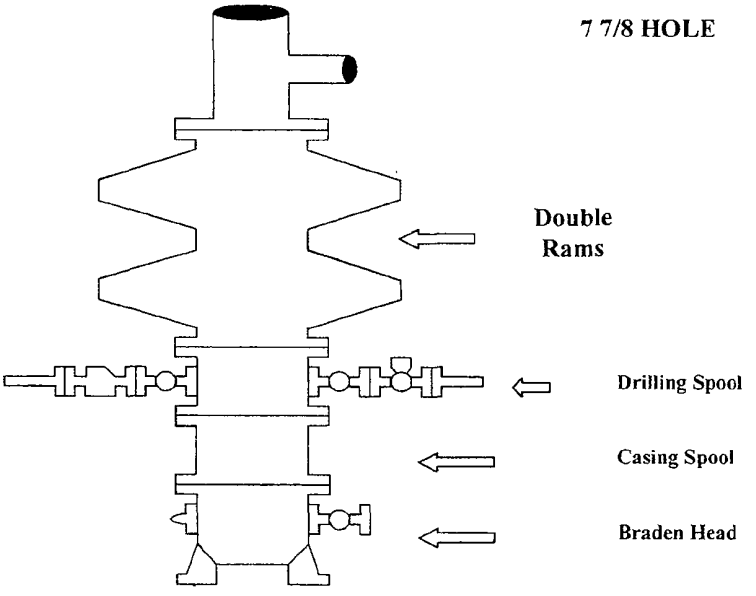
PROJECT DETAILS: Eddy County, NM (NAN27 NME)

Plan: Plan #1 7-7/8" Hole (Skelly Unit #664/OH)

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

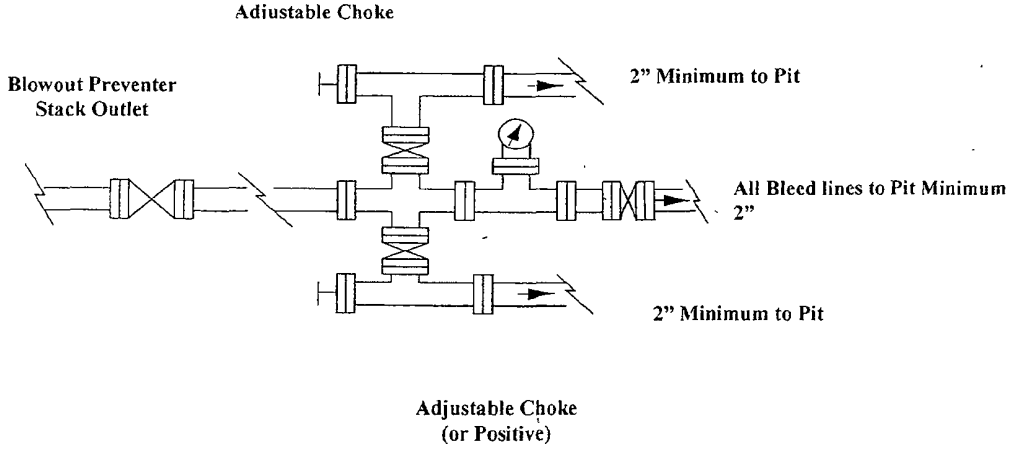
Created By: Julio Pina — Date: 11-Apr-11
Checked _____ Date: _____
Reviewed _____ Date: _____
Approved: _____ Date: _____

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



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.

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.

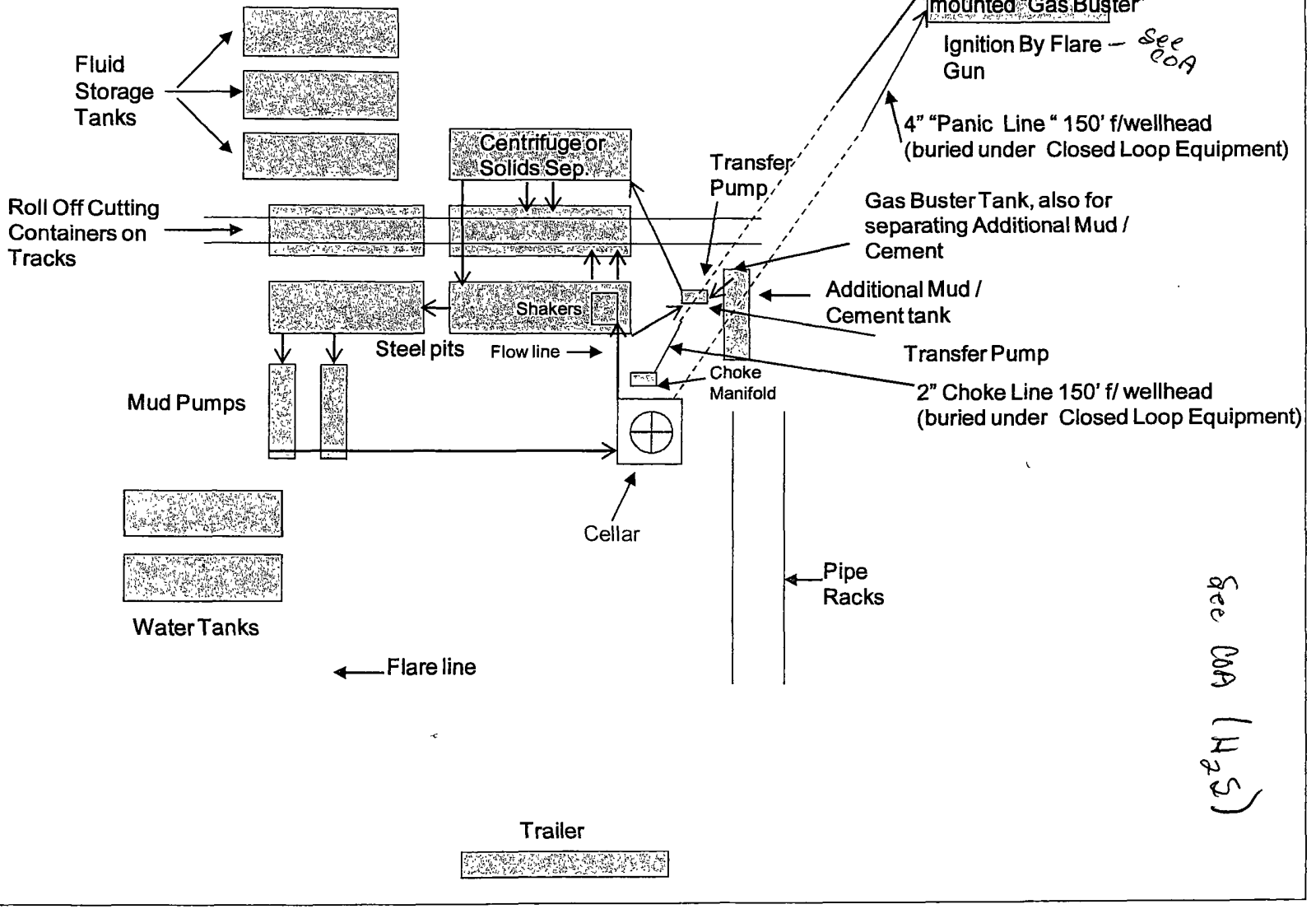
Cuttings will be hauled to either:

CRI (permit number R9166)
or
GMI (permit number 711-019-001)

dependent upon which rig is available to drill this well.

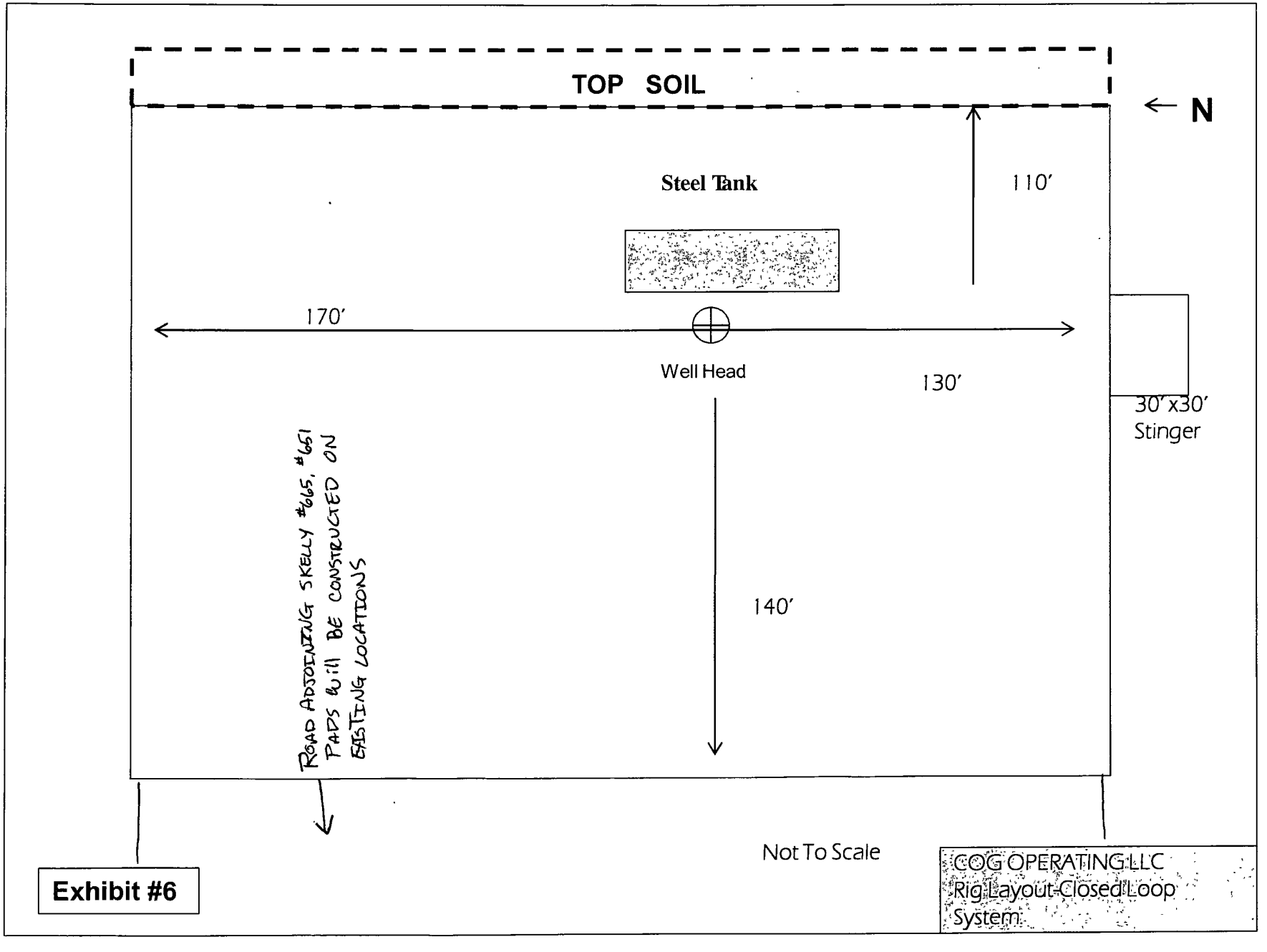
COG Operating LLC

Closed Loop Equipment Diagram



open bottom gas buster bowl allow ignition of H_2S.

See COA (H_2S)


TOP SOIL
N
Steel Tank
110'
170'
Well Head
130'
30' x30'
Stinger
140'
ROAD ADJOINING SKELLY #665, #651
PADS WILL BE CONSTRUCTED ON
EXISTING LOCATIONS
Not To Scale
COG OPERATING LLC
Rig Layout-Closed Loop
System
Exhibit #6

DISTRICT 2 -- CHECKLIST FOR INTENTS TO DRILL

[305607] Operator COG OPR OGRID # 229137
Well Name & # SKELLY UNIT 664 Surface Type (F) (S) (P)
Location: UL P Sect 14 Twnship 17 s, RNG 31 e, Sub-surface Type (F) (S) (P)

A. Date C101 rec'd 11/17/2011 C101 reviewed 11/28/2011
B. 1. Check mark, Information is OK on Forms:
OGRID ____, BONDING ____, PROP CODE ____, WELL # ____, SIGNATURE ____
2. Inactive Well list as of : 11/28/2011 # wells 367, # Inactive wells 8
a. District Grant APD but see number of inactive wells:
No letter required ✓; Sent Letter to Operator ____, to Santa Fe ____
3. Additional Bonding as of: 11/28/2011
a. District Denial because operator needs addition bonding:
No Letter required ✓; Sent Letter to Operator ____, To Santa Fe ____
b. District Denial because of Inactive well list and Financial Assurance:
No Letter required ✓; Sent Letter to Operator ____, To Santa Fe ____

C. C102 YES ✓, NO ___, Signature ✓
1. Pool: ~~LOCO HILLS~~ GLORIETA-YESO, Code ~~26770~~ 97866
a. Dedicated acreage 40, What Units A
b. SUR. Location Standard ____: Non-Standard Location ✓
c. Well shares acres: Yes ✓, No ___, # of wells ____ plus this well #____
2. 2nd. Operator in same acreage, Yes____, No ____
Agreement Letter ____, Disagreement letter____
3. Intent to Directional Drill Yes ____, No ____
a. Dedicated acreage ____, What Units ____
b. Bottomhole Location Standard ____, Non-Standard Bottomhole ____
4. Downhole Commingle: Yes____, No____
a. Pool #2____,Code____, Acres____
Pool #3____, Code ____, Acres ____
Pool #4____, Code____, Acres____
5. POTASH Area Yes ____, No ✓,
D. Blowout Preventer Yes ✓, No ____,
E. H2S Yes ✓, No ____,
F. C144 Pit Registration Yes ✓, No ____,
G. Does APD require Santa Fe Approval:
1. Non-Standard Location: Yes ____, No ✓, NSL #____
2. Non-Standard Proration: Yes____, No ✓, NSP # ____
3. Simultaneous Dedication: Yes ____, No ✓, SD # ____
Number of wells ____ Plus #____
4. Injection order Yes ____, No ✓; PMX #____ or WFX #____
5. SWD order Yes ____, NO ✓; SWD # ____
6. DHC from SF____; DHC-HOB____; Holding____

7. OCD Approval Date 11/28/2011 API #30-0 15-39658
8. Reviewers TCS