ATS-10-680

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Form 3160 - 3 (April 2004)		FORM APPROVED OMB No. 1004-0137 Expires March 31, 2007				
UNITED STATES DEPARTMENT OF THE I		5. Lease Serial No. NMNM-98122	-			
BUREAU OF LAND MAN. APPLICATION FOR PERMIT TO I	6. If Indian, Allotee or Tribe Name	_				
la. Type of work: DRILL REENTE	7. If Unit or CA Agreement, Name and No. NMNM - 71030C	-				
1b. Type of Well: Oil Well Gas Well Other	Single Zone Multiple	8. Lease Name and Well No.	1607			
2. Name of Operator Chevron USA Agent: COG O	perating LLC 22913	9. API Well No. 30-015- 38378				
3a. Address Agent Address: 550 W. Texas Ave., Suite 1300 Midland, TX 79701	3b. Phone No. (include area code) 432-685-4385	10. Field and Pool, or Exploratory Fren; Glorieta-Yeso 26770	-			
4. Location of Well (Report location clearly and indecordance with any At surface SHL: 2585' FAL & 1290' FEL Un	, ,	11. Sec., T. R. M. or Blk and Survey of Area	-			
At proposed prod. zone BHL: 2310' FNL & 1650' FEL, Un		Sec 21 T17S R31E				
 Distance in miles and direction from nearest town or post office* 9 miles East of Loco Hills, 	NM	12. County or Parish 13. State EDDY NM	_			
15. Distance from proposed* location to nearest	,	7. Spacing Unit dedicated to this well	-			
property or lease line, ft. (Also to nearest drig, unit line, if any)	720	40				
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 200'	19. Proposed Depth 2	0. BLM/BIA Bond No. on file NMB000215				
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3816' GL	(Show whether DF, KDB, RT, GL, etc.) 22 Approximate date work will start*					
	24. Attachments		-			
 A Drilling Plan. A Surface Use Plan (if the location is on National Forest System I SUPO shall be filed with the appropriate Forest Service Office). Signature 		ecific information and/or plans as may be required by the	=			
File Jon Son	Robyn M. Odom	10/21/2010	-			
Regulatory Analyst			_			
Approved by (Signature) /s/ Don Peterson	Name (Printed/Typed)	DEC 1 0 2	2010			
FIELD MANAGER	Office CARLS	SBAD FIELD OFFICE				
Application approval does not warrant or certify that the applicant holds conduct operations thereon. Conditions of approval, if any, are attached.	legal or equitable title to those rights	in the subject lease which would entitle the applicant to ROVAL FOR TWO YEARS	-			
Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a cristates any false, fictitious or fraudulent statements or representations as to	me for any person knowingly and will any matter within its jurisdiction.	Ifully to make to any department or agency of the United	=			
*(Instructions on page 2)	HEC	EIVED	=			
ROSWELL CONTROLLED WATER BASIN		1 6 2010				
	W	The state of the s				
		APPROVAL SUBJECT TO GENERAL REQUIREMEN	TC			
EE ATTACHED FUR		AND SPECIAL STIPULAT	IUN: 12			
CONDITIONS OF APPROVAL		ATTACHED	* O145			

MASTER DRILLING PROGRAM

1. Geologic Name of Surface Formation

Quaternary

2. Estimated Tops of Important Geologic Markers:

Quaternary	Surface
Top of Salt	560'
Base of Salt	1150'
Yates	1770'
Seven Rivers	2100'
Queen	2715'
Grayburg	3100'
San Andres	3450'
Glorietta	4950'
Yeso Group	4995'

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

Water Sand	150'	Fresh Water
Grayburg	3100'	Oil/Gas
San Andres	3450'	Oil/Gas
Glorieta	4950'	Oil/Gas
Yeso Group	4995'	Oil/Gas

No other formations are expected to give up oil, gas or fresh water in measurable quantities. Setting 13 3/8" casing to 450' 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 1650' 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, 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

See

4. Casing Program

Hole Size	Interval	OD Casing	Weight	Grade	Jt., Condition	Jt.	burst/collapse/tension
17 ½"	0-450'	13 3/8"	48#	H-40orJ-55	New	ST&C	8.71/3.724/14.91
11" or121/4 "	0-1650'	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 -

5. Cement Program

13 3/8" Surface Casing:

Class C, 500 sx, yield 1.32, back to surface

8 5/8" Intermediate Casing:

11" Hole:

Single Stage: 50:50:10, 350 sx lead, yield-2.45 + Class C, 200 sx tail, yield-1.32, back to surface.

Multi-Stage: Stage 1: Class C, 350 sx, yield-1.32. Stage 2: 50:50:10, 200 sx, yield-2.45, back to surface. Multi stage tool to be set at approximately, depending on hole conditions, 450 See COA

5 1/2" Production Casing:

Single Stage: 35:65:6, 500 sx Lead, yield-2.05 + 50:50:2, 400 sx Tail, yield-1.37, to 200' minimum tie back to intermediate casing.

Multi-Stage: Stage 1: 50:50:2, 400 sx,— See yield - 1.37; Stage 2: 35:65:6, 500 sx, yield - 2.05, to 200' minimum tie back to intermediate casing. Multi stage tool to be set at approximately, depending on hole conditions, TD-2000': See COA

Minimum Specifications for Pressure Control 6.

The blowout preventer equipment (BOP) shown in Exhibit #9 will consist of a double ram-type (2000 psi WP) preventer. 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. The BOP will be nippled up on the 13 3/8" surface casing with BOP equipment and tested together to 1000 psi-by-rig pump Sec COA in one test. 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. All BOP's and accessory equipment will be tested to 2000 psi before drilling out of the intermediate casing. 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.

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
0-450'	Fresh Water	8.5	28	N.C.
450-1800" 1650)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**

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

9. Logging, Testing and Coring Program

See -

- 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.



COG Operating LLC

Eddy County, NM (NAN27 NME) Skelly Unit #725 Skelly Unit #725

OH

Plan: Plan #2 - 7-7/8" Hole SHL = 2585' FSL & 1290' FEL BHL = 2300' FNL & 1660' FEL

Top of Paddock = 321' North of Surface & 304' West of Surface @ 4800' TVD

Standard Planning Report

28 September, 2010





Scientific Drilling

Planning Report



Database: Company: Project: Site:

EDM-Julio

COG Operating LLC

Eddy County, NM (NAN27 NME)

Skelly Unit #725 Skelly Unit #725

Well: Wellbore: ΟН

Design: Plan #2 - 7-7/8" Hole Local Co-ordinate Reference: **TVD Reference:**

MD Reference: North Reference: Survey Calculation Method: Site Skelly Unit #725 GL Elev @ 3816.00usft GL Elev @ 3816.00usft

Grid

Minimum Curvature

Project

Eddy County, NM (NAN27 NME)

Map System: Geo Datum:

US State Plane 1927 (Exact solution)

NAD 1927 (NADCON CONUS) New Mexico East 3001

System Datum:

Mean Sea Level

Map Zone:

Skelly Unit #725 Site

Site Position: From:

Мар

Northing: Easting:

662,263.80 usft

Latitude: 642,416.90 usft

Longitude:

32° 49' 11.252 N 103° 52' 11.087 W

Position Uncertainty:

0.00 usft

Slot Radius:

13-3/16 "

Grid Convergence:

0.25

Well Position

Well

Skelly Unit #725

0.00 usft 0.00 usft

0.00 usft

Northing:

662,263.80 usft

Latitude:

32° 49' 11.252 N

Position Uncertainty

Easting:

Wellhead Elevation:

642,416.90 usft Longitude: Ground Level: 103° 52' 11.087 W 3,816.00 usft

Walls and Coll

+N/-S

+E/-W

Wellbore OH		20seuginatuurustoologi	and Alexander and Annalis of the	
Magnetics Model Name	Sample Date	Declination D	ip Angle (°)	Field Strength (nT)
BGGM2010	2010/09/28	7 92	60.71	49 049

Design Plan #2 - 7-7/8" Hole-				
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section: Depth F	rom (TVD)	+N/-S	+E/-W	Direction
(ι	isft)	(usft)	(usft)	(°)
0		0.00	0.00	316.64

Measured			Vertical			Dogleg	Build	Turn		
Depth	Inclination	Azimuth	Depth	+N/-S	+E/-W	Rate	Rate	Rate	TFO	
(usft)	(°)	(°)	(usft)	(usft)	(usft)	(°/100usft)	(°/100usft)	(°/100usft)	(°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	00000000000000000000000000000000000000
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,520.40	10.41	316.64	2,517.55	34.27	-32.36	2.00	2.00	0.00	316.64	
4,467.92	10.41	316.64	4,433.02	290.09	-273.90	0.00	0.00	0.00	0.00	
4,837.69	3.01	316.64	4,800.00	321.49	-303.55	2.00	-2.00	0.00	-180.00	TG1-SU #725
6.740.32	3.01	316.64	6,700.00	394.20	-372.20	0.00	0.00	0.00	0.00	PBHL-SU #725



Scientific Drilling

Planning Report



Database: Company: Project: Site: Well:

Wellbore:

Design:

EDM-Julio

COG Operating LLC
Eddy County, NM (NAN27 NME)

Skelly Unit #725 Skelly Unit #725 OH

Plan #2 - 7-7/8" Hole

Local Co-ordinate Reference: TVD Reference:

MD Reference: North Reference: Survey Calculation Method: Site Skelly Unit #725 GL Elev @ 3816.00usft GL Elev @ 3816.00usft

Grid Minimum Curvature

East HL-SU #725 · South HL-SU #725	Turn Rate t) (°/100usft) 00 0.00
Depth Inclination Azimuth Depth +N/-S +E/-W Section Rate Rate (usft) (°) (°) (usft) (usft) (usft) (usft) ("/100usft) ("/	Rate t) (°/100usft) 00 0.00
0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	0.00
East HL-SU #725 - South HL-SU #725	oudding of the second s
1,900.00 0.00 0.00 1,900.00 0.00 0.00 0.00 0.00 0.	Sar - Sarkana Alakana - Alakaha - Asakaha - Asakaha
0 5/0" Cocked 10 10 10 10 10 10 10 10 10 10 10 10 10	
ELC. T. SECRETARIO CONTROL DE CON	0.00
KOP Start Build 2.00°/100'	África a da Calad ia Consta rba a da 12 4 0
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	00 0.00
	00 0.00 00 0.00
· · · · · · · · · · · · · · · · · · ·	00 0.00
EOC hold 10.412	
2,600.00 10.41 316.64 2,595.83 44.73 -42.23 61.52 0.00 0.	00 0.00
2,700.00 10.41 316.64 2,694.19 57.86 -54.64 79.58 0.00 0.	00 0.00
	0.00
	0.00
	0.00
	00 0.00
	0.00
·	0.00
	00 0.00 00 0.00
	00 0.00
	00 0.00 00 0.00
	00 0.00
	0.00
4,100.00 10.41 316.64 4,071.15 241.77 -228.27 332.50 0.00 0.	00.00
4,200.00 10.41 316.64 4,169.51 254.90 -240.68 350.57 0.00 0.	0.00
	0.00
	0.00
10000000000000000000000000000000000000	0.00
Start DLS 2.00°/100'	0.00
	00 0.00 00 0.00
·	.00 0.00
	.00 0.00
EOC hold 3.01° - Top of Paddock - TG1-SU #725	
4,900.00 3.01 316.64 4,862.22 323.87 -305.80 445.42 0.00 0.	0.00
5,000.00 3.01 316.64 4,962.09 327.69 -309.40 450.68 0.00 0.	0.00
5,100.00 3.01 316.64 5,061.95 331.51 -313.01 455.94 0.00 0.	.00 0.00
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Scientific Drilling

Planning Report



Database: Company: Project:

Site:

Well:

Wellbore:

Design:

EDM-Julio COG Operating LLC

Eddy County, NM (NAN27 NME)

Skelly Unit #725 Skelly Unit #725 OH

Plan #2 - 7-7/8" Hole

Local Co-ordinate Reference: TVD Reference: MD Reference:

North Reference: Survey Calculation Method: Site Skelly Unit #725 GL Elev @ 3816.00usft GL Elev @ 3816.00usft Grid

Minimum Curvature

Planned Survey									
Measured		2,00	Vertical			Vertical	Dogleg	Build	Turn
Depth	Inclination	Azimuth	Depth	+N/-S	+E/-W	Section	Rate	Rate	Rate
(usft)	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(°/100usft)	(°/100usft)	(°/100usft)
6,200.00	3.01	316.64	6,160.43	373.55	-352,70	513.75	0.00	0.00	0.00
6,300.00	3.01	316.64	6,260.29	377.37	-356.31	519.01	0.00	0.00	0.00
6,400.00	3.01	316.64	6,360.15	381.19	-359.92	524.26	0.00	0.00	0.00
6,500.00	3.01	316.64	6,460.01	385.02	-363.53	529.52	0.00	0.00	0.00
6,600.00	3.01	316.64	6,559.87	388.84	-367.14	534.77	0.00	0.00	0.00
6,700.00	3.01	316.64	6,659.74	392.66	-370.75	540.03	0.00	0.00	0.00
6,740.32	3.01	316.64	6,700.00	394.20	-372.20	542.15	0.00	0.00	0.00
PBHL-SU #7	25							NEEDELLA SERVICE	

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-SU #725 - plan misses target ce - Rectangle (sides W0.	•		0.00 Dousft MD (0	384.20 .00 TVD, 0.00	-362.20 N, 0.00 E)	662,648.00	642,054.70	32° 49′ 15.070 N	103° 52' 15.311 W
South HL-SU #725 - plan misses target ce - Rectangle (sides W20	•		0.00 Dousft MD (0	384.20 .00 TVD, 0.00	-362.20 N, 0.00 E)	662,648.00	642,054.70	32° 49' 15.070 N	103° 52' 15.311 W
TG1-SU #725 - plan hits target center - Point	0.00 r	0.01	4,800.00	321.49	-303.55	662,585.29	642,113.36	32° 49′ 14.447 N	103° 52' 14.627 W
PBHL-SU #725 - plan hits target center - Circle (radius 10.00)	0.00 r	0.00	6,700.00	394.20	-372.20	662,658.00	642,044.70	32° 49' 15.169 N	103° 52' 15.428 W

С	(usft) (usft) Name	Casing Diameter (")	Hole Diameter ('')	
	1,900.00 1,900.00 8-5/8" Casing	8-5/8	12-1/4	İ

Formations Measured Vertical Depth Depth (usft) (usft) Name	Dip Direction Eithology (°) (°)
4,837.69 4,800.00 Top of Paddock	0.00

**************************************		MAXIX AND	
Vertical	Local Coordin	ates	
Depth	+N/-S	+E/-W	
(usft)	(usft)	(usft)	Comment
			SSEED 5.1
2,000.00	0.00	0.00	KOP Start Build 2.00°/100'
2,517.54	34.27	-32.36	EOC hold 10.41°
4,433.02	290.09	-273.90	Start DLS 2.00°/100'
4,800.00	321.49	-303.55	EOC hold 3.01°
	Depth. (usft) 2,000.00 2,517.54 4,433.02	Depth (usft) +N/-S (usft) 2,000.00 0.00 2,517.54 34.27 4,433.02 290.09	Depth +N/-S +E/-W (usft) (usft) (usft) 2,000.00 0.00 0.00 2,517.54 34.27 -32.36 4,433.02 290.09 -273.90



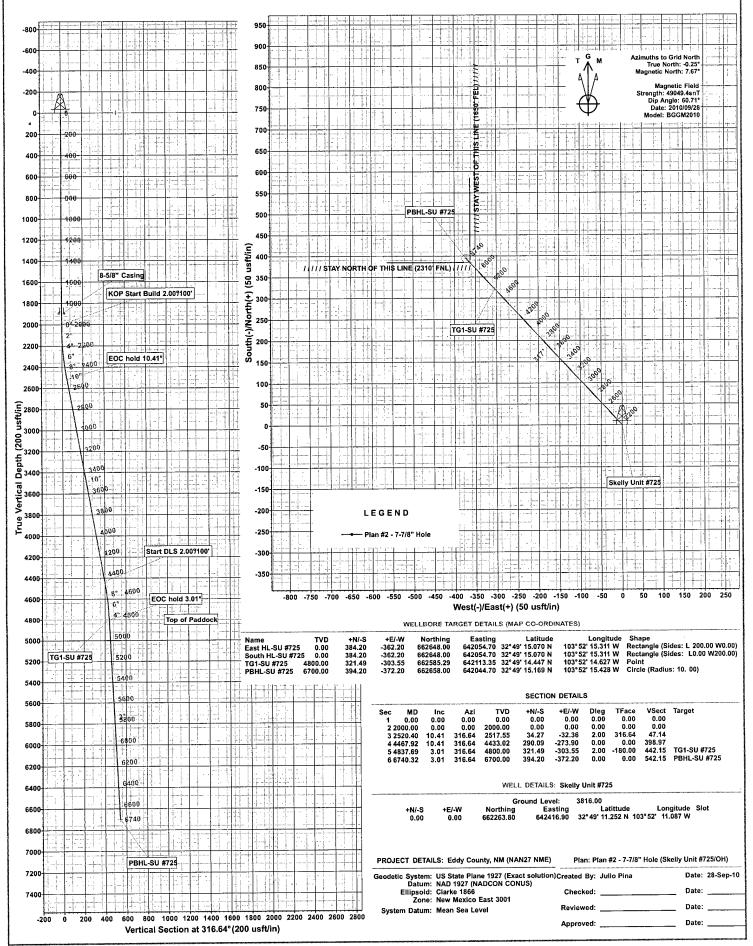
Scientific Drilling for COG Operating LLC Site: Eddy County, NM (NAN27 NME)

Well: Skelly Unit #725

Wellbore: OH

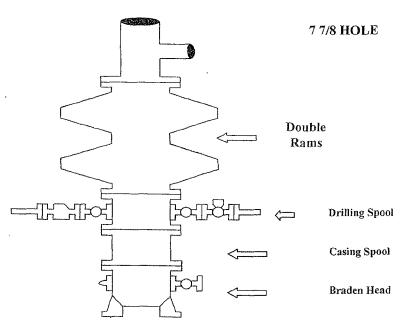
Design: Plan #2 - 7-7/8" Hole





COG Operating LLC

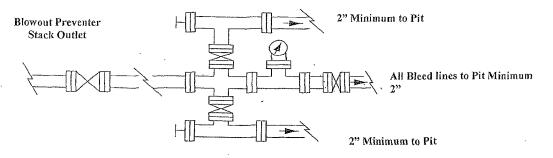
Exhibit #9 BOPE and Choke Schematic



Minimum 4" Nominal choke and kill lines

Choke Manifold Requirement (2000 psi WP) No Annular Required

Adjustable Choke



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 1.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.

Blowout Preventers Page 2