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BUREAU OF LAND MANAGEMENT SUNDRY NOTICES AND REPORTS ON WELLS Do not use this form for proposals to drill or to re-enter an abandoned well. Use Form 3160-3 (APD) for such proposals. I Tokan, Aldeze or Tribe Nar NA SUBMIT IN TRIPLICATE: Other instructions on reverse side. N A N 1 Type of Vell Generating LLC NA NA 2 Name of Operating LC Sold Watus D Generating NA 3 Votes Generating Setter NA 4 Location of Well (Flooringe, Sec. 7, R. M., or Survey Description) Sec. 7, TS, RUBE, UNIT C Sec. 7, TS, RUBE, UNIT C Lee Ham Polic Conformers 5 SULE 3990 FNL & 1890 FWL Sec. 7, TS, RUBE, UNIT C Sec. 7, TS, RUBE, UNIT C II Comport Privals, Nate Lee of Interd Actor: Sec. 7, TS, RUBE, UNIT C Production (StartResame) Water Shac-OT VPE OF SUBMISSION TYPE OF SUBMISSION TyPE OF SU				FORM APPROVED OM B No 1004-0137 Expures March 31 2007
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(Instructions on page 2)



LOCATION VERIFICATION MAP



DESCRIPTION 990' FNL & 1890' FWL

ELEVATION <u>3692</u>

COG OPERATOR OPERATING, INC.

EDDYSE MIRANDA FEDERAL

U.S.G.S. TOPOGRAPHIC MAP LOCOHILLS, N.M.



<i>≫"СОПСНО</i>	7	Scientific Drilling Planning Report		Scientific Drilling
Database: Company: Project: Site Well: Wiranda Feder Well: Well: Design Plan #1 - 8%"	NM (NAN27 NME) ai #4H al #4H	Local Co-ordinate R TVD Reference: MD Reference: North Reference: Survey Calculation I	RKB Elev (13') RKB Elev (13') Grid	@ 3705 00usft (JW #4) @ 3705 00usft (JW #4)
Project Eddy County, N	M (NAN27 NME)	,	······································	
Map System: US State Plane 1 Geo Datum: NAD 1927 (NADC Map Zone: New Mexico East	,	System Datum:	Mean Sea Level	
Site Mıranda Federa	1 #4H		· · · · · · · · · · · · · · · · · · ·	t 2 , althouse trap and a to a
Site Position: From: Map Position Uncertainty:	Northing: Easting: 0 00 usft Slot Radius:	674,385 60 ust 608,842 80 ust 0	t Longitude:	32° 51' 12 485 N 103° 58' 44 041 W 0 19 °
Well Miranda Federal	#4H			· · ·
Well Position +N/-S +E/-W Position Uncertainty	0 00 usft Northing: 0 00 usft Easting: 0 00 usft Wellhead El	674,385 608,842 evation:		32° 51' 12 485 N 103° 58' 44 041 W 3,692 00 usft
Wellbore				· · · · · · · · · · · · · · · · · · ·
Model Nam		Declination (9) 7 91	Dip Angle () 60 74	Field Strength (nT) 49,062
Design	61⁄8"		,,,	
Audit Notes:			T: 0. D. 4.	0.00
Version Vertical Section:	Phase: Depth From (TVD) (usft) 0 00	PLAN +N/S. (usft) 0 00	(usft)	0 00 rection .(⁶)
Plan Sections Measured Depth Inclination Azimut		Doğleg +E/-W Rate	Rate Rate	TĘO
,		(usft) (°/100usft		. Tarĝęt
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Project Eddy Co Site Miranda Well: Miranda Wellbore: OH	lio perating LLC unity, NM (NAN27 NM Federal #4H Federal #4H - 83/4" & 61/4"	ME)	TVD Refe MD Refe North Re	Gordinate Reference: Prence: Prence: Prence: Alculation Method:		⊉ 3705 00usft (JW #4) ⊉ 3705 00usft (JW #4)	
Casing Points, Measured, Depth (usft) 4,474 98	Vertical Depth (ust) 4,450 00 7	' Casing	Name		Casing Diameter C ⁽³⁾	Hole Diameter 7 8-3/4	
Plan Annotations Measured Depthic (ust)	シンクしきか こうさくく とず	Łoccal Coordii ŧN∕-S (usft)	iates +E/-W (usft)	Comment			
4,148 00 4,879 49	4,148 00 4,625 00	0 00 0 54	0 00 459 03	KOP Start Build 12 00°/ EOC hold 87 80°	100'		

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COG Operating LLC Horizontal Drilling Plan Loco Hills; Yeso Use for Sections 3-30, T-17-S, R-30-E Eddy County, NM

4. Casing Program

14	Hole Size	Interval	OD Casing	Weight	Grade	Jt., Condition	Jt.	burst/collapse/tension
Sae Cott	17 1⁄2"	0-400' 360	13 3/8"	48#	J-55	New	ST&C	8.71/3.724/14.91
	12 1/4"	0-1400	9 5/8"	40#	J or K-55	New	ST&C	4.43/3.45/5.68
	8 ³ /4"	0-4700'	7"	29#	L-80	New	LT&C	4.43/3.45/5.68
	6 1/8"	4700-T.D.	4 1/2"	13.5#	L-80	New	LT&C	4.75/4.20/4.80
	· · · · · · · · · · · · · · · · · · ·	4600		1	l	d	L	

5. Cement Program

13 3/8" Surface Casing:	Class C, 500 sx, yield 1.32, back to surface
9 5/8" Intermediate Casing:	<u>12-1/4" Hole:</u> Single Stage: $50:50:10$, 200 sx lead, yield- 2.45 + Class C, 200 sx tail, yield-1.32, back to surface.
7" Production Casing:	8-3/4" Hole: Single Stage: C w/4% gel, 500 sx Lead, yield-1.72 + 50:50:2, 200 sx Tail, yield-1.33, circulated to surface.
4-1/2" Production Liner:	<u>6-1/8" Hole:</u> Uncemented, with packers for isolation, and requesting permission for only 100' liner

overlap.

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. 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 2000 psi by rig pump-in-one test. The BOP will then be nippled up on the 9 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.

CONDITIONS OF APPROVAL

OPERATOR'S NAME:	COG Operating
LEASE NO.:	NMCL-029342D
WELL NAME & NO.:	Miranda Federal 4
API NUMBER:	30-015-37317
LOCATION:	Section 9, T. 17 S., R 30 E., NMPM
COUNTY:	Eddy County, New Mexico

I. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

The BLM is to be notified a minimum of 4 hours in advance for a representative to witness:

- a. Spudding well
- b. Setting and/or Cementing of all casing strings
- c. BOPE tests

Eddy County Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220, (575) 361-2822

- 1. A Hydrogen Sulfide (H2S) Drilling Plan should be activated 500 feet prior to drilling into the Grayburg formation. As a result, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.
- 2. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval. If the drilling rig is removed without approval an Incident of Non-Compliance will be written and will be a "Major" violation.
- 3. The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) will be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

B. CASING

Changes to the approved APD casing and cement program require submitting a sundry and receiving approval prior to work. Failure to obtain approval prior to work will result in an Incident of Non-Compliance being issued.

Centralizers required on surface casing per Onshore Order 2.III.B.1.f.

Wait on cement (WOC) time prior to drilling out for a primary cement job will be a minimum 18 hours for a water basin, 24 hours in the potash area, or 500 pounds compressive strength, whichever is greater for all casing strings. DURING THIS WOC TIME, NO DRILL PIPE, ETC. SHALL BE RUN IN THE HOLE. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. See individual casing strings for details regarding lead cement slurry requirements.

No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.

Possible water flows in the Salado and Artesia Groups. Possible lost circulation in the Grayburg and San Andres formations.

- 1. The 13-3/8 inch surface casing shall be set at approximately 380 feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface. If the salt is encountered at a shallower depth, the casing is to be set a minimum of 25' above the salt.
 - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
 - b. Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.
 - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
 - d. If cement falls back, remedial cementing will be done prior to drilling out that string.

2. The minimum required fill of cement behind the 9-5/8 inch intermediate casing is:

Cement to surface. If cement does not circulate see B.1.a, c-d above. This casing is to be set in the Tansill formation.

3. The minimum required fill of cement behind the 7 inch production casing is:

Cement to surface. If cement does not circulate, contact the appropriate BLM office.

Liner must tie back a minimum of 100 feet into previous casing.

- 4. Cement not required on the 4-1/2" casing. Packer system being used.
- 5. 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.
- 2. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **2000 (2M)** psi.
 - 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 or where the float does not hold, the minimum wait time before cut-off is eight hours after bumping the plug or when the cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. BOP/BOPE testing can begin after the above conditions are satisfied.

- 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) prior to initiating the test.
- 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.

CRW 092010