12-1274

OCD Artesia

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-029342D	TCS 2/13/2013
6. If Indian, Allotee or Tribe Name N/A	
7. If Unit or CA Agreement, Name and No. N/A	
8. Lease Name and Well No. Miranda Federal #12H	< 37868 >
9. API Well No. 30-015- 41102	
10. Field and Pool, or Exploratory Loco Hills; Glorieta-Yeso < 96718 >	
11. Sec., T. R. M. or Blk. and Survey or Area Sec 9, T17S, R30E	
12. County or Parish EDDY	13. State NM

1a. Type of work: [✓] DRILL [ ] REENTER

1b. Type of Well: [✓] Oil Well [ ] Gas Well [ ] Other [ ] Single Zone [ ] Multiple Zone

2. Name of Operator: COG Operating LLC < 229137 >

3a. Address: One Concho Center, 600 W Illinois Ave. Midland, Texas 79701

3b. Phone No. (include area code): 432-685-4385

4. Location of Well (Report location clearly and in accordance with any State requirements.*)
At surface: SHL: 330' FNL & 330' FEL, UL A
At proposed prod. zone: BHL: 330' FNL & 1650' FWL, UL C

14. Distance in miles and direction from nearest town or post office*: 2 miles north of Loco Hills, NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)	330'	16. No. of acres in lease: 240	17. Spacing Unit dedicated to this well: 120
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.	175'	19. Proposed Depth: Upper: 5051'TVD; 8200'MD Lower: 5551'TVD; 8700'MD	20. BLM/BIA Bond No. on file: NMB000215; NMB000740
21. Elevations (Show whether DF, KDB, RT, GL, etc.): 3695' GL		22. Approximate date work will start*: 11/30/2012	23. Estimated duration: 20 days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, shall be attached to this form:

1. Well plat certified by a registered surveyor.
2. A Drilling Plan.
3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO shall be filed with the appropriate Forest Service Office).
4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5. Operator certification
6. Such other site specific information and/or plans as may be required by the authorized officer.

25. Signature: Kacie Connally	Name (Printed/Typed): Kacie Connally	Date: 09/12/2012
Title: Permitting Tech		
Approved by (Signature): /s/ Don Peterson	Name (Printed/Typed): /s/ Don Peterson	Date: FEB - 8 2013
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
FEB 11 2013
NMOCD ARTESIA

Approval Subject to General Requirements & Special Stipulations Attached

SEE ATTACHED FOR CONDITIONS OF APPROVAL

DISTRICT I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
DISTRICT II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
DISTRICT III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
30-015- 41102	96718	Loco Hills; Glorieta-Yeso

Property Code	Property Name	Well Number
37868	MIRANDA FEDERAL	12H

OGRID No.	Operator Name	Elevation
229137	COG OPERATING, LLC	3691'

Surface Location

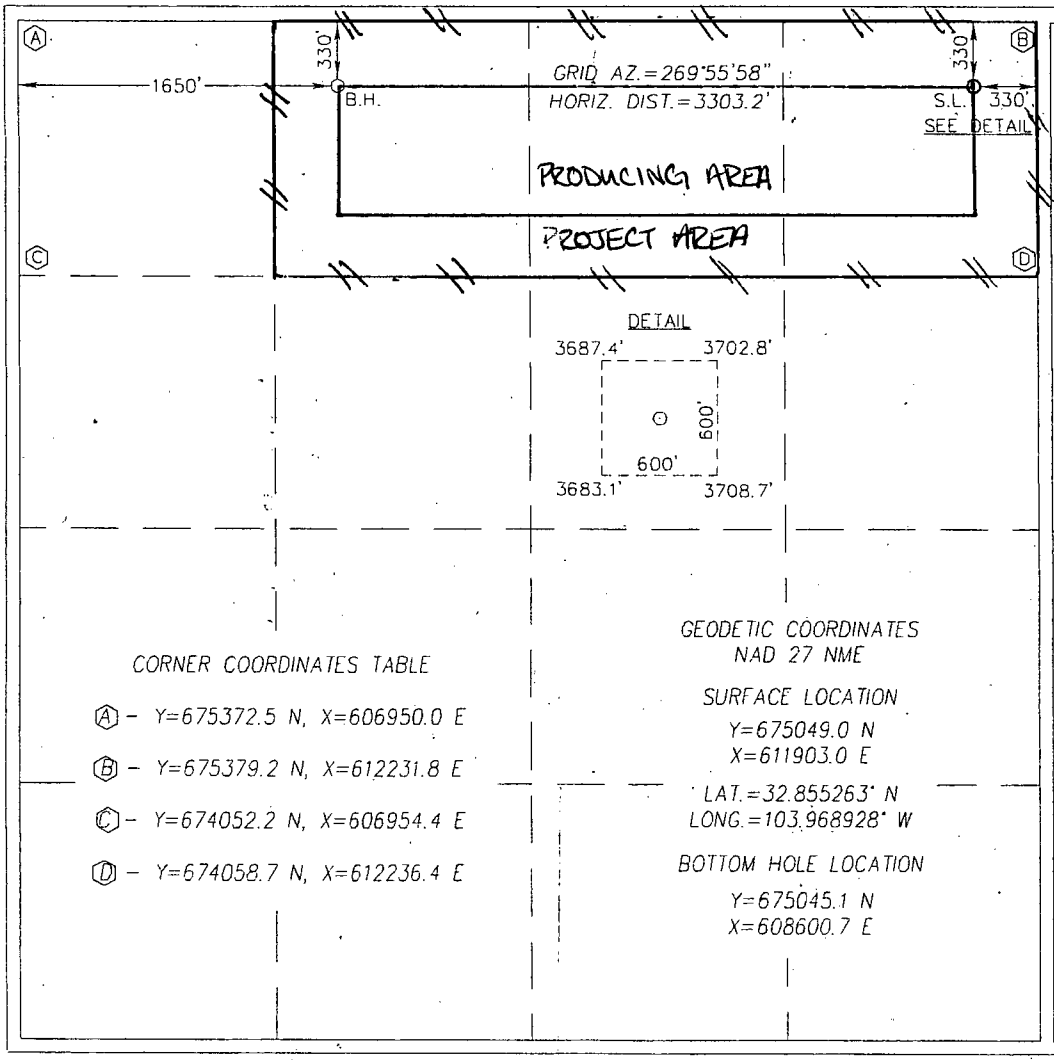
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	9	17-S	30-E		330	NORTH	330	EAST	EDDY

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
C	9	17-S	30-E		330	NORTH	1650	WEST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
120			

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



CORNER COORDINATES TABLE

(A) - Y=675372.5 N, X=606950.0 E
(B) - Y=675379.2 N, X=612231.8 E
(C) - Y=674052.2 N, X=606954.4 E
(D) - Y=674058.7 N, X=612236.4 E

GEODETIC COORDINATES
NAD 27 NME

SURFACE LOCATION
Y=675049.0 N
X=611903.0 E
LAT.=32.855263° N
LONG.=103.968928° W

BOTTOM HOLE LOCATION
Y=675045.1 N
X=608600.7 E

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.

Kacie Connally 4-18-12
Signature Date

Kacie Connally
Printed Name

Kconnally@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.

APRIL 3, 2012
Date of Survey

Signature & Seal of Professional Surveyor:

RONALD J. EIDSON
NEW MEXICO
3239
REGISTERED PROFESSIONAL SURVEYOR

Ronald J. Eidson 4/13/2012

Certificate Number: Gary L. Eidson 12641
Ronald J. Eidson 3239

AF JWSC W.O.: 12.11.0664

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

Signed: Carl Bird

Printed Name: Carl Bird

Position: Drilling Engineer

Address: One Concho Center 600 W Illinois Ave Midland, Texas 79701

Telephone: (432) 683-7443

Field Representative (if not above signatory): Same

E-mail: cbird@concho.com

ATTACHMENT TO FORM 3160-3
COG Operating, LLC
MIRANDA FEDERAL #12H
SHL: 330' FNL & 330' FEL, Unit A
BHL: 330' FNL & 1650' FWL, Unit C
Sec 9, T17S, R30E
Eddy County, NM

Note: This will be a dual lateral well.

1. Proration Unit Spacing: 120 Acres

2. Ground Elevation: 3691'

3. Proposed Depths:

   Upper Lateral: Horizontal TVD = 5051', MD =8200'

   Lower Lateral: Horizontal TVD = 5551', MD =8700'

4. Estimated tops of geological markers:

Rustler	300' (est)
Top of Salt	900' (est)
Base of Salt	1178' (est)
Yates	1246'
Seven Rivers	1540'
Queen	2143'
Grayburg	2550'
San Andres	2874'
Glorieta	4288'
Paddock	4394'
Blinebry	4788'
Tubb	5825'

5. Possible mineral bearing formations:

Water Sand	120'	Fresh Water
Grayburg	2550'	
San Andres	2874'	
Glorieta	4288'	
Paddock	4394'	
Blinebry	4788'	
Tubb	5825'	

No other formations are expected to give up oil, gas or fresh water in measurable quantities. Setting 13 3/8" casing to ~~325~~' (25' into Rustler) and circulating cement back to the surface will protect the surface fresh water sand. The Salt Section will be protected by setting 9 5/8" casing to ~~1400~~' and circulating cement back to surface in a single or multi-stage job and/or with an ECP. Any shallower zones above TD, which contain commercial quantities of oil and/or gas, will be isolated with 7" casing set at 5000' with cement circulated to a minimum of 200' above the 9 5/8" casing shoe. Cement volumes will be calculated to surface. A 6 1/8" openhole will then be drilled to approximately 5121' and then kicked off building curve at 12°/100' over +/- 498' of horizontal section in a westerly direction to 5894' MD/ 5600' TVD. Continue drilling a 6 1/8" lateral to new BHL at 8780' MD/5551' TVD. As per attached directional plan. Then a 4 ½" production liner will be run in the uncemented open hole lateral utilizing open hole packers and liner top packer for isolation. Request approval of liner overlap of 125' to facilitate pumping .

8700' per dir. plan

A retrievable bridge plug will be set at +/- 4800' MD. Followed by a hydraulic whipstock set at 4621' MD/4621' TVD. A window will be milled in 7' casing starting at 4590' and ending at +/- 4621'. Kick off at 4621' building curve at 12°/100'over +/- 498' of horizontal section in a westerly direction to 5394'MD/5100'TVD. Continue drilling a second 6 1/8" lateral from 5394' MD/5100' TVD to 8200'MD/5051'TVD as per attached drilling plan. A second 4 ½" uncemented production liner using open hole packers will be run in hole. J off liner and leave top of liner at 4651 MD" (+/- 30' outside of casing window).

See COA

If wellbore conditions arise that require immediate action and/or a change to this program, COG Operating LLC personnel will always react to protect the wellbore and/or environment.

6. Proposed Mud System

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

DEPTH (MD)	TYPE	WEIGHT	VISCOSITY	WATERLOSS
0-~~325~~ 350	Fresh Water	8.5	28	N.C.
~~325'-1400'~~ 1200	Brine	10	30	N.C.
~~1400'~~-5000'	Cut Brine	8.7-9.2	30	N.C.
Lower Lateral 5000'-8700'MD	Cut Brine/polymer mud	8.7-9.2	30	N.C.
Upper Lateral 4621'-8200'MD	Cut Brine/polymer mud	8.7-9.2	30	N.C.

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

6. Proposed Casing Program

See COA

Hole Size	Interval MD	OD Casing	Weight	Grade	Condition	Jt.	brst/clps/ten
17 ½"	0-325 350	13 3/8"	48#	H-40/J-55 Hybrid	New	ST&C	12.1/5.17/23.7
12 ¼"	325'-1400' 1200	9 5/8"	40#	J/K-55	New	ST&C	3.76/3.53/9.50
8 ¾"	1400'-5000'	7"	26#	L-80	New	LT&C	1.45/2.30/4.56
Lwer 6 1/8"	5000'-8700'MD	4 ½"	11.6#	L-80	New	LT&C	1.56/2.65/3.15
Upper 6 1/8"	4621'-8200' MD	4 ½"	11.6#	L-80	New	LT&C	1.56/2.65/3.15

7. Proposed Cement Program See COA

13 3/8" SURFACE: **(Circulate to Surface)**

Tail: 0-~~325~~' Excess 98%	400 sks	Class C w/2% CaCl2	1.32 cf/sk	14.8 ppg

9 5/8" INTERMEDIATE:

Option #1: Single Stage (Circulate to Surface)

Lead: 0'-900' Excess 148%	300 sks	50:50:10 C:Poz:Gel w/ 5% Salt+ 0.25% CF +5 pps LCM	2.45 cf/sk	11.8 ppg
Tail: 900'-1400' Excess 52%	200 sks	Class C w/2% CaCl2	1.32 cf/sk	14.8 ppg

Option #2: Multi-stage w/ DV Tool @ +/-~~375~~ 400'(DV Tool 50' below 13 3/8" csg. Shoe) (Circulate to Surface)

Stage #1: 375'-1400' Excess 56%	200 sks	Class "C" w/2% CaCl2	1.32 cf/sk	14.8 ppg
Stage #2 0'-375' Excess 366%	200 sks	50:50:10 C:Poz:Gel w/5% salt+ 0.25% CF	2.45 cf/sk	11.8 ppg

Note: Multi-stage tool to be set depending on hole conditions at approximately 375' (50' below the surface casing shoe). Cement volumes will be adjusted proportionately for depth changes of multi-stage tool.

7" PRODUCTION CASING:

Option #1: Single Stage (Cement cal to Surface)
7" Casing set at 5000' MD/TVD

Lead: 1200'-3000' (min. tie back 200' above 9 5/8"shoe) Excess 122.0%	500 sks	35:65:6 C:Poz Gel w/5% salt+ 5 pps LCM+ 0.2 % SMS+ 0.3% FL-52A+ 0.125 pps CF+1 % BA-58+ 1% FL-25	2.05 cf/sk	12.5 ppg
Tail: 3000'-5000' Excess 36.0%	300 sks	50:50:2 C:Poz Gel w/5% salt+ 3 pps LCM+ 0.6 % SMS+ 0.3% FL-52A+ 0.125 pps CF+1% FL-25+ 1% BA-58	1.37 cf/sk	14.0 ppg

Option #2: Multi-stage (2 Stages) DV Tool at 1450' (50' below 9 5/8" csg shoe)

Stage #1:

Lead: 1450'-3000' Excess 165%	450 sks	50:50:2 C:Poz Gel w/5% salt+ 3 pps LCM+ 0.6 % SMS+ 0.3% FL-52A+ 0.125 pps CF+1% FL-25+ 1% BA-58	1.37 cf/sk	14.0 ppg
Tail: 3000'-5000' Excess 36.5%	400 sks	Class "C" w/0.3% R-3+ 1.5% CD-32	1.02 cf/sk	16.8 ppg

Stage #2: (Cement cal to Surface)

Lead: 1200'-1450' (min. tie back 200' above 9 5/8" shoe) Excess 600%	200 sks	50:50:2 C:Poz Gel w/5% salt+ 3 pps LCM+ 0.6 % SMS+ 0.3% FL-52A+ 0.125 pps CF+1% FL-25+ 1% BA-58	1.37 cf/sk	14.0 ppg

Note for Lower Lateral: 4 ½" casing liner will be run from 4875' thru curve and lateral to TD of 8700' MD.(125'of over lap) Productive intervals will be isolated by a Peak Packer system or similar.

Note for Upper Lateral: 4 ½" casing liner will be run thru window at 4621' thru curve and lateral to TD of 8200' MD/5050'TVD. Liner top will be +/- 30' outside of casing window Productive intervals will be isolated by a Peak Packer system or similar.

Note: Assumption for DV tool is water flow. This cement is used to combat water flows if they are encountered. This cement recipe also has a right angle set time and is mixed a little under saturated so the water flow will be absorbed by the cement. Cement volumes will be adjusted proportionately for depth changes of multi-stage tool.

Note: FL-52A is fluid loss additive, R-3 is retarder.

8. Pressure Control Equipment:

See COA

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 and 4 1/2" drill pipe rams on the bottom. A 13-5/8" BOP will be used during the drilling of the well. A 13 5/8" permanent casing head will be installed on the 13 3/8" casing. The BOP will be nippled up on the 13 5/8" permanent casing head and tested to 2000 psig. After setting 9-5/8", permanent "B section" well head will be installed and the BOP will then be nippled up on the permanent B . BOP and well head will be tested by a third party to 2000 psig 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 will include a Kelly cock and floor safety valve, choke lines and a choke manifold with a 2000 psi WP rating all of which will also be tested to working pressure by independent tester also.

9. Production Hole Drilling Summary:

Lower Lateral

Drill 6 ¼" hole from 5000' to +/-5121'. Kick off at +/- 5121', building curve at 12°/100' over +/- 774' to horizontal at 5895' MD/5600'TVD. Drill 6 1/8" lateral section in a easterly direction for +/2885' lateral to TD at +/-8700'MD/ 5551'TVD. Run 4 1/2" production liner from 4875'(125' liner overlap) to td with isolation packers set throughout lateral. .

Upper Lateral

Drill window in 7" casing from 4590' to 4621'. Kick off 6 1/8" OH at +/- 4621', building curve at 12° over +/- 774' to horizontal at 5395' MD/5100'TVD. Drill 6 1/8" lateral section in a easterly direction for +/2885' lateral to TD at +/-8200'MD/ 5051'TVD. Run 4 1/2" production liner from 4651' to 8200' TD. 4 ½" will be run from kickoff point to TD and isolation packers set throughout lateral. J off the liner and leave top of liner at +/- 30' outside of casing window.

10. 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.

11. Logging, Testing and Coring Program: See COA

A. The following logs will be run in the vertical portion of the hole to KOP: SLB-PEX/HRLA,HNGS.

B. The mud logging program will consist of lagged 10' samples from KOP to TD in Horizontal hole.

C. Drill Stem test is not anticipated.

D. No conventional coring is anticipated.

E. Further testing procedures will be determined after the 7" x 4 ½" production casing has been cemented at TD based on drill shows and log evaluation.

12. Abnormal Conditions, Pressures, Temperatures and Potential Hazards:

No abnormal pressures or temperatures are anticipated. The estimated bottom hole temperature at TD is 90° Fahrenheit and estimated maximum bottom hole pressure is 2594 psi. Wells in the Maljamar area will penetrate formations that are known or could reasonably be expected to contain Hydrogen Sulfide. Measurable gas volumes or Hydrogen Sulfide levels have not been encountered during drilling operations in this area, However as per Onshore order No. 6 a H2S drilling operations plan is included with this APD. No major loss circulation zones have been reported in offsetting wells.

13. Anticipated Starting Date

Drilling operations will commence approximately on **November 30, 2012** with drilling and completion operations lasting approximately **90** days.

COG Operating LLC

Eddy County, NM
Miranda Federal 12H
Miranda Federal 12H

Wellbore #2

Surface: 330' FNL, 330' FEL, Sec 9, T17S, R30E, Unit A
BHL: 330' FNL, 1650' FWL, Sec 9, T17S, R30E, Unit C

Plan: Upper Lateral Plan #1

Standard Planning Report

20 April, 2012

Crescent Directional Drilling

Planning Report

Database:	R5000 Houston DB	**Local Co-ordinate Reference:**	Site Miranda Federal 12H
Company:	COG Operating LLC	**TVD Reference:**	WELL @ 3709.00ft (Original Well Elev)
Project:	Eddy County, NM	**MD Reference:**	WELL @ 3709.00ft (Original Well Elev)
Site:	Miranda Federal 12H	**North Reference:**	Grid
Well:	Miranda Federal 12H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #2		
Design:	Upper Lateral Plan #1		

Project Eddy County, NM

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 Miranda Federal 12H

Site Position:		**Northing:**	675,049.00 ft	**Latitude:**	32.855259
From:	Map	**Easting:**	611,903.00 ft	**Longitude:**	-103.968932
Position Uncertainty:	0.00 ft	**Slot Radius:**	13.200 in	**Grid Convergence:**	0.20 °

Well Miranda Federal 12H

Well Position	**+N/-S**	0.00 ft	**Northing:**	675,049.00 ft	**Latitude:**	32.855259
	+E/-W	0.00 ft	**Easting:**	611,903.00 ft	**Longitude:**	-103.968932
Position Uncertainty		0.00 ft	**Wellhead Elevation:**		**Ground Level:**	3,691.00 ft

Wellbore Wellbore #2

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	4/20/2012	7.71	60.68	48,865

Design Upper Lateral Plan #1

Audit Notes:

Version:		**Phase:**	PLAN	**Tie On Depth:**	4,620.77

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	269.93

Plan Sections

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
4,620.77	0.00	0.00	4,620.77	0.00	0.00	0.00	0.00	0.00	0.00	
5,245.77	75.00	263.09	5,081.97	-42.58	-351.32	12.00	12.00	0.00	263.09	
5,393.99	91.00	270.94	5,100.00	-50.03	-497.65	12.00	10.80	5.30	26.56	
8,199.45	91.00	270.94	5,051.00	-3.90	-3,302.30	0.00	0.00	0.00	0.00	UL PBHL (Miranda Fe

Database:	R5000 Houston DB	**Local Co-ordinate Reference:**	Site Miranda Federal 12H
Company:	COG Operating LLC	**TVD Reference:**	WELL @ 3709.00ft (Original Well Elev)
Project:	Eddy County, NM	**MD Reference:**	WELL @ 3709.00ft (Original Well Elev)
Site:	Miranda Federal 12H	**North Reference:**	Grid
Well:	Miranda Federal 12H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #2		
Design:	Upper Lateral Plan #1		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,620.77	0.00	0.00	4,620.77	0.00	0.00	0.00	0.00	0.00	0.00
KOP - Start Build @ 12.00°/100'									
4,700.00	9.51	263.09	4,699.64	-0.79	-6.51	6.51	12.00	12.00	0.00
4,800.00	21.51	263.09	4,795.82	-4.00	-33.00	33.01	12.00	12.00	0.00
4,900.00	33.51	263.09	4,884.35	-9.55	-78.77	78.78	12.00	12.00	0.00
5,000.00	45.51	263.09	4,961.37	-17.19	-141.81	141.83	12.00	12.00	0.00
5,100.00	57.51	263.09	5,023.49	-26.59	-219.37	219.40	12.00	12.00	0.00
5,200.00	69.51	263.09	5,068.02	-37.33	-308.06	308.10	12.00	12.00	0.00
5,245.77	75.00	263.09	5,081.97	-42.58	-351.32	351.37	12.00	12.00	0.00
Continue Build & Turn @ 12.00°/100'									
5,300.00	80.84	266.03	5,093.31	-47.58	-404.08	404.14	12.00	10.76	5.43
5,393.99	91.00	270.94	5,100.00	-50.03	-497.65	497.71	12.00	10.81	5.22
Landing Point - Hold @ 91.00° INC, 270.94° AZ									
5,400.00	91.00	270.94	5,099.89	-49.93	-503.66	503.71	0.00	0.00	0.00
5,500.00	91.00	270.94	5,098.15	-48.29	-603.63	603.68	0.00	0.00	0.00
5,600.00	91.00	270.94	5,096.40	-46.64	-703.60	703.65	0.00	0.00	0.00
5,700.00	91.00	270.94	5,094.65	-45.00	-803.57	803.62	0.00	0.00	0.00
5,800.00	91.00	270.94	5,092.91	-43.35	-903.54	903.59	0.00	0.00	0.00
5,900.00	91.00	270.94	5,091.16	-41.71	-1,003.51	1,003.56	0.00	0.00	0.00
6,000.00	91.00	270.94	5,089.41	-40.07	-1,103.48	1,103.53	0.00	0.00	0.00
6,100.00	91.00	270.94	5,087.67	-38.42	-1,203.45	1,203.50	0.00	0.00	0.00
6,200.00	91.00	270.94	5,085.92	-36.78	-1,303.43	1,303.47	0.00	0.00	0.00
6,300.00	91.00	270.94	5,084.17	-35.13	-1,403.40	1,403.44	0.00	0.00	0.00
6,400.00	91.00	270.94	5,082.43	-33.49	-1,503.37	1,503.41	0.00	0.00	0.00
6,500.00	91.00	270.94	5,080.68	-31.84	-1,603.34	1,603.38	0.00	0.00	0.00
6,600.00	91.00	270.94	5,078.93	-30.20	-1,703.31	1,703.35	0.00	0.00	0.00
6,700.00	91.00	270.94	5,077.19	-28.56	-1,803.28	1,803.31	0.00	0.00	0.00
6,800.00	91.00	270.94	5,075.44	-26.91	-1,903.25	1,903.28	0.00	0.00	0.00
6,900.00	91.00	270.94	5,073.69	-25.27	-2,003.22	2,003.25	0.00	0.00	0.00
7,000.00	91.00	270.94	5,071.95	-23.62	-2,103.20	2,103.22	0.00	0.00	0.00
7,100.00	91.00	270.94	5,070.20	-21.98	-2,203.17	2,203.19	0.00	0.00	0.00
7,200.00	91.00	270.94	5,068.46	-20.33	-2,303.14	2,303.16	0.00	0.00	0.00
7,300.00	91.00	270.94	5,066.71	-18.69	-2,403.11	2,403.13	0.00	0.00	0.00
7,400.00	91.00	270.94	5,064.96	-17.05	-2,503.08	2,503.10	0.00	0.00	0.00
7,500.00	91.00	270.94	5,063.22	-15.40	-2,603.05	2,603.07	0.00	0.00	0.00
7,600.00	91.00	270.94	5,061.47	-13.76	-2,703.02	2,703.04	0.00	0.00	0.00
7,700.00	91.00	270.94	5,059.72	-12.11	-2,802.99	2,803.01	0.00	0.00	0.00
7,800.00	91.00	270.94	5,057.98	-10.47	-2,902.97	2,902.98	0.00	0.00	0.00
7,900.00	91.00	270.94	5,056.23	-8.82	-3,002.94	3,002.95	0.00	0.00	0.00
8,000.00	91.00	270.94	5,054.48	-7.18	-3,102.91	3,102.91	0.00	0.00	0.00
8,100.00	91.00	270.94	5,052.74	-5.54	-3,202.88	3,202.88	0.00	0.00	0.00
8,193.34	91.00	270.94	5,051.11	-4.00	-3,296.19	3,296.19	0.00	0.00	0.00
LL PBHL (Miranda Federal 12H LL Plan 1)									
8,199.45	91.00	270.94	5,051.00	-3.90	-3,302.30	3,302.30	0.00	0.00	0.00
TD @ 8199.45' MD, 5051.00' TVD - UL PBHL (Miranda Federal 12H UL Plan 1)									

Database:	R5000 Houston DB	**Local Co-ordinate Reference:**	Site Miranda Federal 12H
Company:	COG Operating LLC	**TVD Reference:**	WELL @ 3709.00ft (Original Well Elev)
Project:	Eddy County, NM	**MD Reference:**	WELL @ 3709.00ft (Original Well Elev)
Site:	Miranda Federal 12H	**North Reference:**	Grid
Well:	Miranda Federal 12H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #2		
Design:	Upper Lateral Plan #1		

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
UL PBHL (Miranda Fede - plan hits target center - Point	0.00	0.01	5,051.00	-3.90	-3,302.30	675,045.10	608,600.70	32.855280	-103.979686

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
4,620.77	4,620.77	0.00	0.00	KOP - Start Build @ 12.00°/100'
5,245.77	5,081.97	-42.58	-351.32	Continue Build & Turn @ 12.00°/100'
5,393.99	5,100.00	-50.03	-497.65	Landing Point - Hold @ 91.00° INC, 270.94° AZ
8,199.45	5,051.00	-3.90	-3,302.30	TD @ 8199.45' MD, 5051.00' TVD

CRESCENT DIRECTIONAL DRILLING

COG Operating LLC
Miranda Federal 12H
Eddy County, NM
Upper Lateral Plan #1

CONCHO

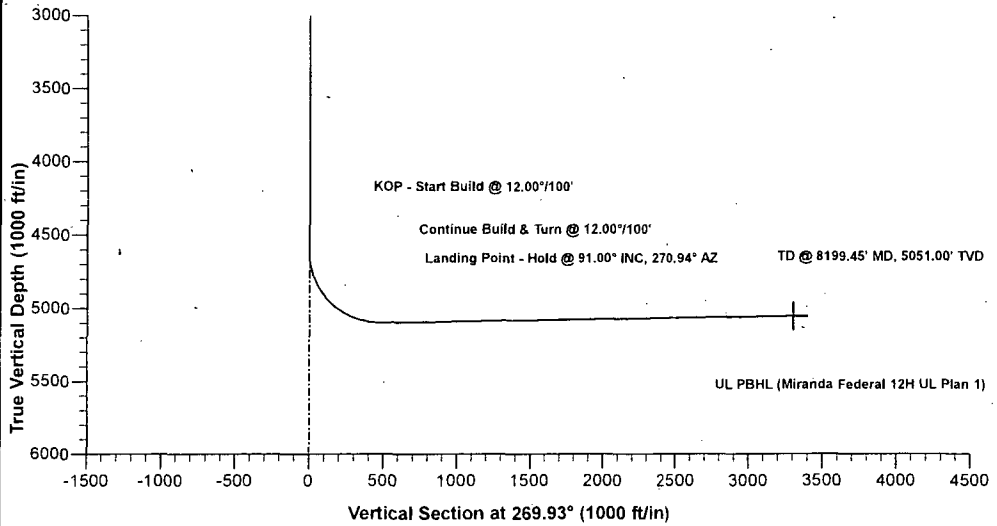
Surface Location		Ground Elev: 3691.00 WELL @ 3709.00ft (Original Well Elev)			
+N/-S	+E/-W	Northing	Easting	Latittude	Longitude
0.00	0.00	675049.00	611903.00	32.855259	-103.968932

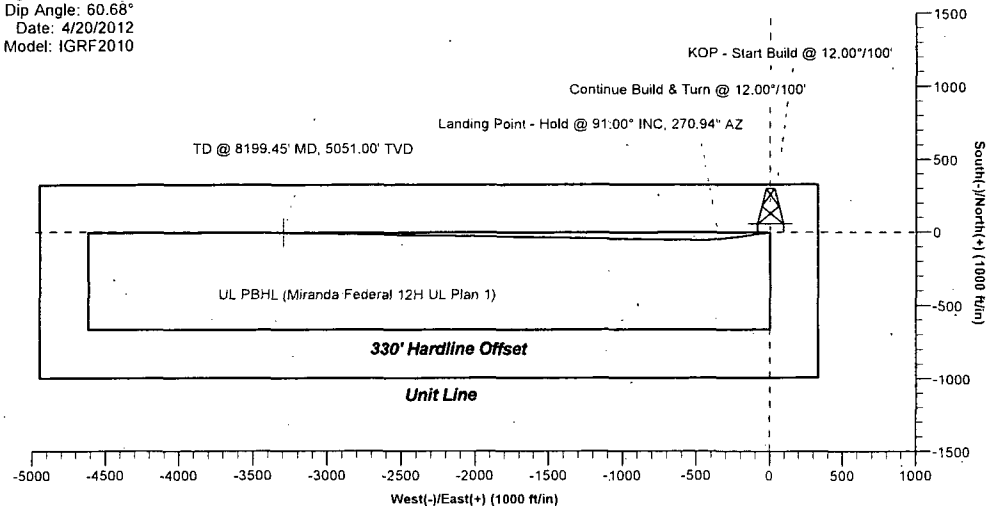
TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
UL PBHL (Miranda Federal 12H UL Plan 1)	5051.00	-3.90	-3302.30	675045.10	608600.70	32.855279	-103.979685

Azimuths to Grid North
True North: -0.20°
Magnetic North: 7.52°

Magnetic Field
Strength: 48865.4snT
Dip Angle: 60.68°
Date: 4/20/2012
Model: IGRF2010





SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
1	4620.77	0.00	0.00	4620.77	0.00	0.00	0.00	0.00	0.00	KOP - Start Build @ 12.00°/100'
2	5245.77	75.00	263.09	5081.97	-42.58	-351.32	12.00	263.09	351.37	Continue Build & Turn @ 12.00°/100'
3	5393.99	91.00	270.94	5100.00	-50.03	-497.65	12.00	26.56	497.71	Landing Point - Hold @ 91.00° INC, 270.94° AZ
4	8199.45	91.00	270.94	5051.00	-3.90	-3302.30	0.00	0.00	3302.30	TD @ 8199.45' MD, 5051.00' TVD

COG Operating LLC

Eddy County, NM
Miranda Federal 12H
Miranda Federal 12H

Wellbore #1

Plan: Lower Lateral Plan #2

Surface: 330' FNL, 330' FEL, Sec 9, T17S, R30E, Unit A
BHL: 330' FNL, 1650' FWL, Sec 9, T17S, R30E, Unit C

Standard Planning Report

10 September, 2012

Database:	Houston R5000 Database	**Local Co-ordinate Reference:**	Site Miranda Federal 12H
Company:	COG Operating LLC	**TVD Reference:**	WELL @ 3709.00ft (Original Well Elev)
Project:	Eddy County, NM	**MD Reference:**	WELL @ 3709.00ft (Original Well Elev)
Site:	Miranda Federal 12H	**North Reference:**	Grid
Well:	Miranda Federal 12H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Lower Lateral Plan #2		

Project Eddy County, NM

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 Miranda Federal 12H

Site Position:		**Northing:**	675,049.00 ft	**Latitude:**	32.855259
From:	Map	**Easting:**	611,903.00 ft	**Longitude:**	-103.968932
Position Uncertainty:	0.00 ft	**Slot Radius:**	13.200 in	**Grid Convergence:**	0.20 °

Well Miranda Federal 12H

Well Position	**+N/-S**	0.00 ft	**Northing:**	675,049.00 ft	**Latitude:**	32.855259
	+E/-W	0.00 ft	**Easting:**	611,903.00 ft	**Longitude:**	-103.968932
Position Uncertainty		0.00 ft	**Wellhead Elevation:**		**Ground Level:**	3,691.00 ft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	4/20/2012	7.71	60.68	48,865

Design Lower Lateral Plan #2

Audit Notes:

Version:		**Phase:**	PLAN	**Tie On Depth:**	0.00

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	269.93

Plan Sections

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,120.77	0.00	0.00	5,120.77	0.00	0.00	0.00	0.00	0.00	0.00	
5,745.77	75.00	263.09	5,581.97	-42.58	-351.32	12.00	12.00	0.00	263.09	
5,894.01	91.00	270.94	5,600.00	-50.03	-497.67	12.00	10.80	5.30	26.56	
8,699.45	91.00	270.94	5,550.84	-3.90	-3,302.30	0.00	0.00	0.00	0.00	LL PBHL (Miranda Fe

Database:	Houston R5000 Database	**Local Co-ordinate Reference:**	Site Miranda Federal 12H
Company:	COG Operating LLC	**TVD Reference:**	WELL @ 3709.00ft (Original Well Elev)
Project:	Eddy County, NM	**MD Reference:**	WELL @ 3709.00ft (Original Well Elev)
Site:	Miranda Federal 12H	**North Reference:**	Grid
Well:	Miranda Federal 12H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Lower Lateral Plan #2		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
5,120.77	0.00	0.00	5,120.77	0.00	0.00	0.00	0.00	0.00	0.00
KOP - Start Build @ 12.00°/100'									
5,200.00	9.51	263.09	5,199.64	-0.79	-6.51	6.51	12.00	12.00	0.00
5,300.00	21.51	263.09	5,295.82	-4.00	-33.00	33.01	12.00	12.00	0.00
5,400.00	33.51	263.09	5,384.35	-9.55	-78.77	78.78	12.00	12.00	0.00
5,500.00	45.51	263.09	5,461.37	-17.19	-141.81	141.83	12.00	12.00	0.00
5,600.00	57.51	263.09	5,523.49	-26.59	-219.37	219.40	12.00	12.00	0.00
5,700.00	69.51	263.09	5,568.02	-37.33	-308.06	308.10	12.00	12.00	0.00
5,745.77	75.00	263.09	5,581.97	-42.58	-351.32	351.37	12.00	12.00	0.00
Continue Build & Turn @ 12.00°/100'									
5,800.00	80.84	266.03	5,593.31	-47.59	-404.08	404.14	12.00	10.76	5.43
5,894.01	91.00	270.94	5,600.00	-50.03	-497.67	497.73	12.00	10.81	5.22
Landing Point - Hold @ 91.00° INC, 270.94° AZ									
5,900.00	91.00	270.94	5,599.89	-49.93	-503.66	503.71	0.00	0.00	0.00
6,000.00	91.00	270.94	5,598.14	-48.29	-603.63	603.68	0.00	0.00	0.00
6,100.00	91.00	270.94	5,596.39	-46.64	-703.60	703.65	0.00	0.00	0.00
6,200.00	91.00	270.94	5,594.63	-45.00	-803.57	803.62	0.00	0.00	0.00
6,300.00	91.00	270.94	5,592.88	-43.36	-903.54	903.59	0.00	0.00	0.00
6,400.00	91.00	270.94	5,591.13	-41.71	-1,003.51	1,003.56	0.00	0.00	0.00
6,500.00	91.00	270.94	5,589.38	-40.07	-1,103.48	1,103.53	0.00	0.00	0.00
6,600.00	91.00	270.94	5,587.63	-38.42	-1,203.45	1,203.50	0.00	0.00	0.00
6,700.00	91.00	270.94	5,585.87	-36.78	-1,303.43	1,303.47	0.00	0.00	0.00
6,800.00	91.00	270.94	5,584.12	-35.13	-1,403.40	1,403.44	0.00	0.00	0.00
6,900.00	91.00	270.94	5,582.37	-33.49	-1,503.37	1,503.41	0.00	0.00	0.00
7,000.00	91.00	270.94	5,580.62	-31.84	-1,603.34	1,603.37	0.00	0.00	0.00
7,100.00	91.00	270.94	5,578.87	-30.20	-1,703.31	1,703.34	0.00	0.00	0.00
7,200.00	91.00	270.94	5,577.11	-28.56	-1,803.28	1,803.31	0.00	0.00	0.00
7,300.00	91.00	270.94	5,575.36	-26.91	-1,903.25	1,903.28	0.00	0.00	0.00
7,400.00	91.00	270.94	5,573.61	-25.27	-2,003.22	2,003.25	0.00	0.00	0.00
7,500.00	91.00	270.94	5,571.86	-23.62	-2,103.19	2,103.22	0.00	0.00	0.00
7,600.00	91.00	270.94	5,570.10	-21.98	-2,203.17	2,203.19	0.00	0.00	0.00
7,700.00	91.00	270.94	5,568.35	-20.33	-2,303.14	2,303.16	0.00	0.00	0.00
7,800.00	91.00	270.94	5,566.60	-18.69	-2,403.11	2,403.13	0.00	0.00	0.00
7,900.00	91.00	270.94	5,564.85	-17.05	-2,503.08	2,503.10	0.00	0.00	0.00
8,000.00	91.00	270.94	5,563.10	-15.40	-2,603.05	2,603.07	0.00	0.00	0.00
8,100.00	91.00	270.94	5,561.34	-13.76	-2,703.02	2,703.04	0.00	0.00	0.00
8,200.00	91.00	270.94	5,559.59	-12.11	-2,802.99	2,803.00	0.00	0.00	0.00
8,300.00	91.00	270.94	5,557.84	-10.47	-2,902.96	2,902.97	0.00	0.00	0.00
8,400.00	91.00	270.94	5,556.09	-8.82	-3,002.93	3,002.94	0.00	0.00	0.00
8,500.00	91.00	270.94	5,554.33	-7.18	-3,102.91	3,102.91	0.00	0.00	0.00
8,600.00	91.00	270.94	5,552.58	-5.54	-3,202.88	3,202.88	0.00	0.00	0.00
8,699.45	91.00	270.94	5,550.84	-3.90	-3,302.30	3,302.30	0.00	0.00	0.00
TD @ 8699.45' MD, 5550.84' TVD - LL PBHL (Miranda Federal 12H LL Plan 2)									

Database:	Houston R5000 Database	**Local Co-ordinate Reference:**	Site Miranda Federal 12H
Company:	COG Operating LLC	**TVD Reference:**	WELL @ 3709.00ft (Original Well Elev)
Project:	Eddy County, NM	**MD Reference:**	WELL @ 3709.00ft (Original Well Elev)
Site:	Miranda Federal 12H	**North Reference:**	Grid
Well:	Miranda Federal 12H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Lower Lateral Plan #2		

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
LL PBHL (Miranda Fede - plan hits target center - Point	0.00	0.01	5,550.84	-3.90	-3,302.30	675,045.10	608,600.70	32.855280	-103.979686

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates +N/-S (ft)	Local Coordinates +E/-W (ft)	Comment
5,120.77	5,120.77	0.00	0.00	KOP - Start Build @ 12.00°/100'
5,745.77	5,581.97	-42.58	-351.32	Continue Build & Turn @ 12.00°/100'
5,894.01	5,600.00	-50.03	-497.67	Landing Point - Hold @ 91.00° INC, 270.94° AZ
8,699.45	5,550.84	-3.90	-3,302.30	TD @ 8699.45' MD, 5550.84' TVD

CRESCENT DIRECTIONAL DRILLING

COG Operating LLC
Miranda Federal 12H
Eddy County, NM
Lower Lateral Plan #2

CONCHO

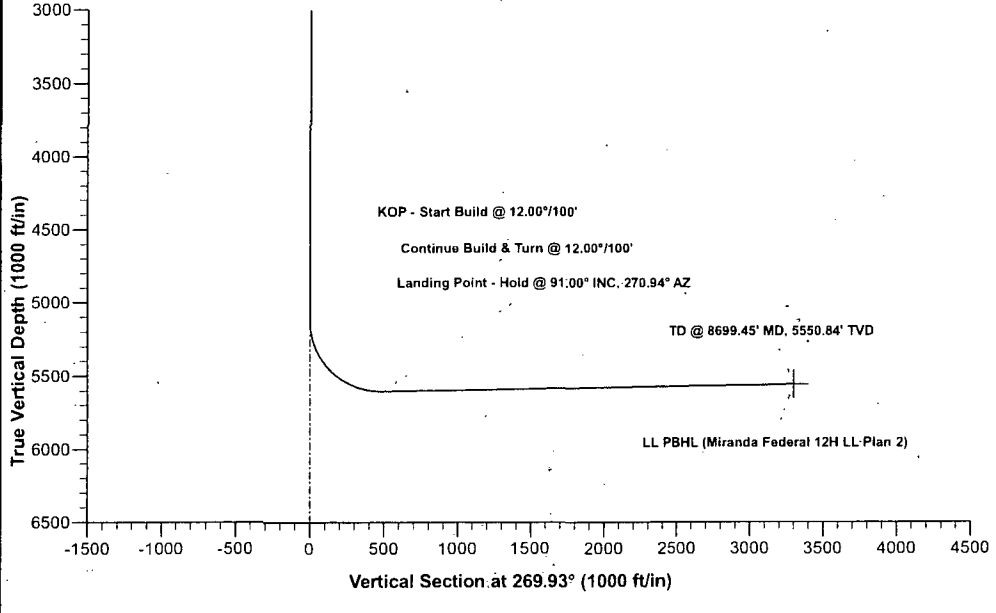
Surface Location		Ground Elev: 3691.00 WELL @ 3709.00ft (Original Well Elev)			
+N/-S	+E/-W	Northing	Easting	Latittude	Longitude
0.00	0.00	675049.00	611903.00	32.855259	-103.968932

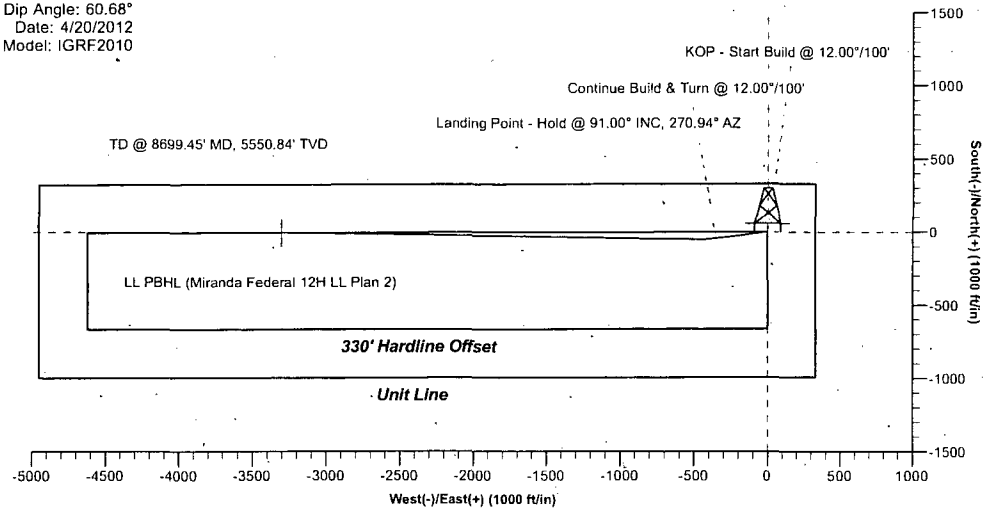
TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
LL PBHL (Miranda Federal 12H LL Plan 2)	5550.84	-3.90	-3302.30	675045.10	608600.70	32.855279	-103.979685

Azimuths to Grid North
True North: -0.20°
Magnetic North: 7.52°

Magnetic Field
Strength: 48865.4snT
Dip Angle: 60.68°
Date: 4/20/2012
Model: IGRF2010

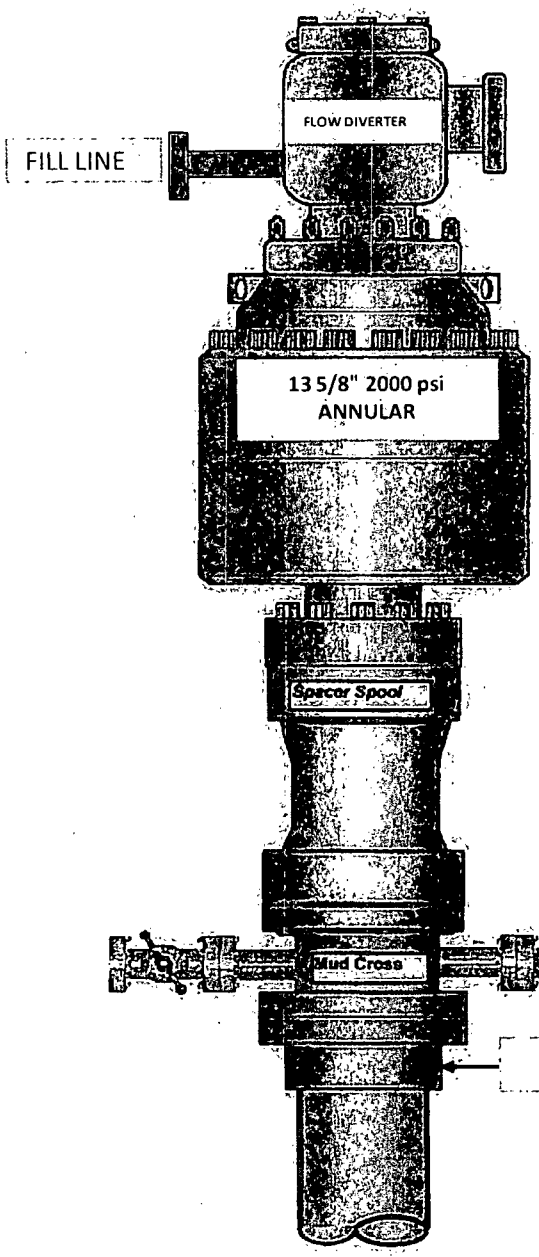




SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	5120.77	0.00	0.00	5120.77	0.00	0.00	0.00	0.00	0.00	KOP - Start Build @ 12.00°/100'
3	5745.77	75.00	263.09	5581.97	-42.58	-351.32	12.00	263.09	351.37	Continue Build & Turn @ 12.00°/100'
4	5894.01	91.00	270.94	5600.00	-50.03	-497.67	12.00	26.56	497.73	Landing Point - Hold @ 91.00° INC, 270.94° AZ
5	8699.45	91.00	270.94	5550.84	-3.90	-3302.30	0.00	0.00	3302.30	TD @ 8699.45' MD, 5550.84' TVD

13 5/8" 2K ANNULAR



See COA

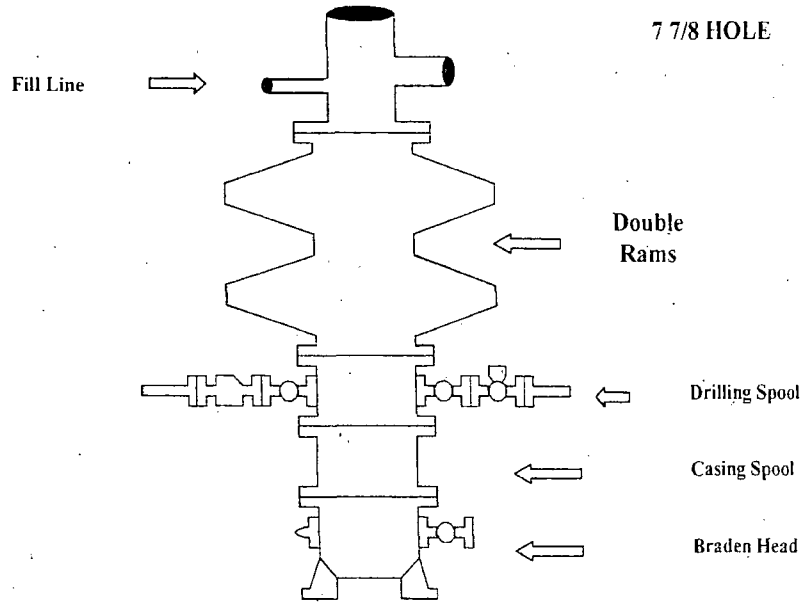
4-1/16",2K VALVES

13 5/8" 3K "A" SECTION

COG Operating LLC

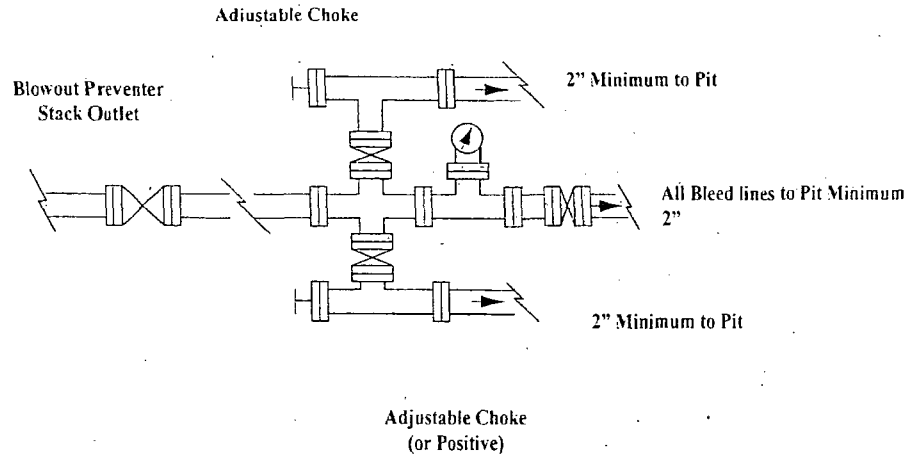
Exhibit #9

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

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. w/remotely operated choke

   C. Closed Loop Blow Down Tank

   D. Blind rams and pipe rams to accommodate all pipe sizes with properly sized closing unit.

   E. Auxiliary equipment may include if applicable: annular preventer & rotating head.

2. **Protective equipment for essential personnel:**

   A. SCBA (Self contained breathing apparatus) 30-minute units located in the doghouse and at briefing areas, as indicated on well site diagram.

3. **H2S detection and monitoring equipment:**

   A. 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.

   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 H2S

AUTHORIZED PERSONNEL ONLY

1. **BEARDS OR CONTACT LENSES NOT ALLOWED**
2. **HARD HATS REQUIRED**
3. **SMOKING IN DESIGNATED AREAS ONLY**
4. **BE WIND CONSCIOUS AT ALL TIMES**
5. **CHECK WITH COG OPERATING FOREMAN AT**

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

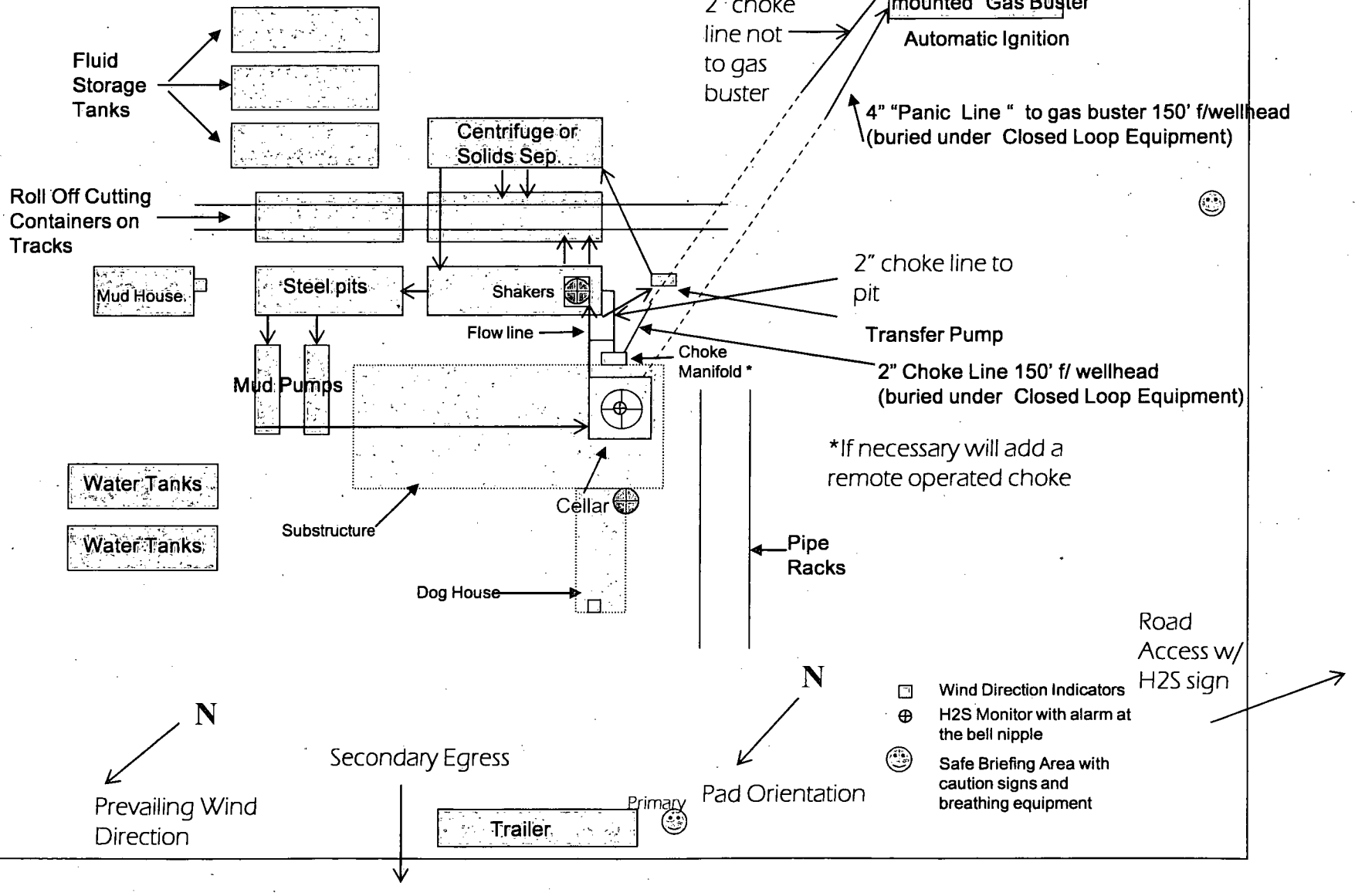
EDDY COUNTY EMERGENCY NUMBERS
ARTESIA FIRE DEPT. 575-746-5050
ARTESIA POLICE DEPT. 575-746-5000
EDDY CO. SHERIFF DEPT. 575-746-9888

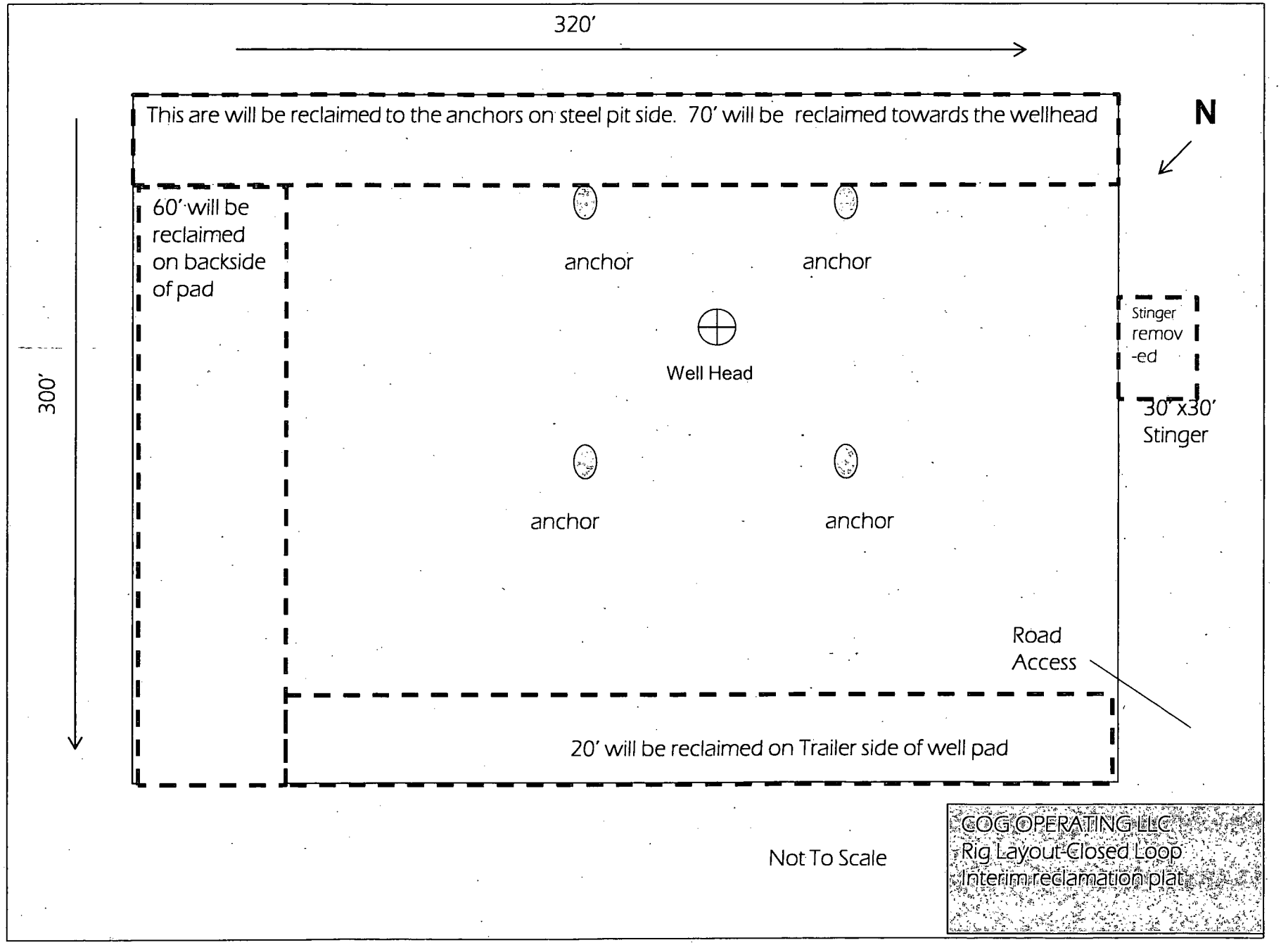
LEA COUNTY EMERGENCY NUMBERS
HOBBS FIRE DEPT. 575-397-9308
HOBBS POLICE DEPT. 575-397-9285
LEA CO. SHERIFF DEPT. 575-396-1196

COG Operating LLC

Drilling Location - H2S Safety Equipment Diagram

EXHIBIT 8- Miranda Fed 12H




320'
This are will be reclaimed to the anchors on steel pit side. 70' will be reclaimed towards the wellhead
N
60' will be reclaimed on backside of pad
anchor
anchor
Stinger removed
Well Head
30' x30' Stinger
300'
anchor
anchor
Road Access
20' will be reclaimed on Trailer side of well pad
Not To Scale
COG OPERATING LLC
Rig Layout Closed Loop
Interim reclamation plat

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	COG Operating
LEASE NO.:	LC029342D
WELL NAME & NO.:	12H Miranda Federal
SURFACE HOLE FOOTAGE:	330'/ FNL & 330'/ FEL
BOTTOM HOLE FOOTAGE	330'/ FNL & 1650'/ FWL
LOCATION:	Section 9, T.17 S., R.30 E., NMPM
COUNTY:	Eddy County, New Mexico

TABLE OF CONTENTS

Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

☐ **General Provisions**
☐ **Permit Expiration**
☐ **Archaeology, Paleontology, and Historical Sites**
☐ **Noxious Weeds**
☒ **Special Requirements**
- Well Pad Construction
- Interim Reclamation
- Lesser Prairie-Chicken Timing Stipulations
- Ground-level Abandoned Well Marker

☒ **Construction**
- Notification
- Topsoil
- Closed Loop System
- Federal Mineral Material Pits
- Well Pads
- Roads

☐ **Road Section Diagram**
☒ **Drilling**
- H2S requirement
- Logging requirement
- Waste Material and Fluids

☒ **Production (Post Drilling)**
- Well Structures & Facilities
- Pipelines

☐ **Interim Reclamation**
☒ **Final Abandonment & Reclamation**