

OCD-ARTESIA

ATS-08-118  
E1-08-1146

S

AUG - 6 2008

Form 3160-3  
(February 2005)

OCD-ARTESIA

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

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

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5 Lease Serial No. NM <del>400844</del> 95630
1b Type of Well <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other <input checked="" type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		6 If Indian, Allottee or Tribe Name N/A
2 Name of Operator COG OPERATING, LLC 229137		7 If Unit or CA Agreement, Name and No
3a Address 550 W. Texas Suite 1300 Midland, Texas 79701	3b Phone No. (include area code) 432-683-7443	8 Lease Name and Well No. 37327 Blackhawk "11" Federal Com #1
4. Location of Well (Report location clearly and in accordance with any State requirements *) At surface 430' FSL & 430' FWL At proposed prod zone 330' FSL & 330' FEL		9 API Well No. 30-015-36541
14 Distance in miles and direction from nearest town or post office*		10 Field and Pool, or Exploratory Wolfcamp- Crow Flats
15 Distance from proposed* location to nearest property or lease line, ft (Also to nearest drig unit line, if any) 330'		11 Sec, T R M or Blk and Survey or Area Section 11 T16S R28E
16 No of acres in lease	17 Spacing Unit dedicated to this well 160	12 County or Parish Eddy County
18 Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft	19 Proposed Depth 11130' MD 6680' TVD	13 State NM
20 BLM/BIA Bond No. on file NMB 000215	21 Elevations (Show whether DF, KDB, RT, GL, etc) 3570 GL	22 Approximate date work will start* 06/01/2008
23 Estimated duration 45 days	24. Attachments	

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

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

25 Signature	Name (Printed Typed) Lee Ann Rollins	Date 04/30/2008
Title Agent		

Approved by (Signature) /s/ James Stovall	Name (Printed Typed) /s/ James Stovall	Date AUG 04 2008
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 USC Section 1001 and Title 43 USC Section 1212, make it a crime for any person knowingly and States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction

NOTE: NEW PIT RULE  
19-15-17 NMAC PART 17

\*(Instructions on page 2)

A form C-144 must be approved before starting drilling operations.

ROSWELL CONTROLLED WATER BASIN

SEE ATTACHED FOR  
CONDITIONS OF APPROVAL

APPROVAL SUBJECT TO  
GENERAL REQUIREMENTS  
AND SPEC  
ATTACHE

NMOCD Case No. 14323  
August 20, 2009  
COG Operating LLC Ex. No. 2

RKD

STATEMENT ACCEPTING RESPONSIBILITY FOR OPERATIONS

C.O.G. Operating, LLC (229137)  
550 W. Texas Avenue, Ste. 1300  
Midland, TX 79701

The undersigned accepts all applicable terms, conditions, stipulations and restrictions covering operations conducted on the leased land or portion thereof, as described below:

Lease No – Surface Location: State Of New Mexico <sup>10-4932</sup>  
Lease No – Bottom Hole Location: NM 103873 s/b VB-1111

Well Name: Blackhawk "11" Federal #1

Legal Description of Land: SL: 430' FSL & 430' FWL, Unit M  
BHL: 330' FSL & 330' FWL, Unit P  
Sec 11, T16S, R28E  
Eddy County, New Mexico

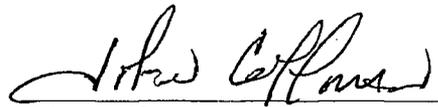
Formation(s) (if applicable): Wolfcamp – Crow Flats

Bond Coverage: \$25,000 statewide bond of C.O.G. Operating, LLC

BLM Bond File No: NMB 000215

Date

5-2-08



John Coffman  
C.O.G. Operating, LLC



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

OCD-ARTESIA

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

**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.

**SUBMIT IN TRIPLICATE- Other instructions on reverse side.**

1 Type of Well  Oil Well  Gas Well  Other AUG - 6 2008

2 Name of Operator **COG Operating LLC** **OCD-ARTESIA**

3a Address 550 W. Texas Ave., Suite 1300 Midland, TX 79701 3b Phone No. (include area code) 432-685-4340

4 Location of Well (Footage, Sec., T., R., M., or Survey Description)  
VARIOUS NM COUNTY LOCATIONS

5 Lease Serial No

6. If Indian, Allottee or Tribe Name

7 If Unit or CA/Agreement, Name and/or No

8. Well Name and No

9 API Well No.

10 Field and Pool, or Exploratory Area

11. County or Parish, State  
Various NM Counties

12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION			
<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production (Start/Resume)	<input type="checkbox"/> Water Shut-Off
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing	<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete	<input type="checkbox"/> Other <u>Drill with</u>
	<input type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon	<u>Closed Loop</u>
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water Disposal	<u>System</u>

13. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplate horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

*B. Hunt*  
*6/25/08*

COG Operating LLC respectfully requests permission to drill the attached list of Eddy County wells with a closed loop system.

14. I hereby certify that the foregoing is true and correct  
Name (Printed/Typed)

Phyllis Edwards

Title Regulatory Analyst

Signature *Phyllis Edwards*

Date

06/23/2008

**THIS SPACE FOR FEDERAL OR STATE OFFICE USE**

Approved by *James G. Chis*

Title *SEAS*

Date *6-27-08*

Conditions of approval, if any, are attached. Approval of this notice 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.

Office

**CARLSBAD FIELD OFFICE**

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)

**CLOSED LOOP SYSTEM - ATTACHMENT TO BLM SUNDRY DATED 6-23-08**

<u>WELL NAME</u>	<u>CTY</u>	<u>LEASE #</u>	<u>API #</u>	<u>FOOTAGES</u>	<u>SECTION, TWN, RNG, UL</u>
Andromeda Federal #1H	Chaves	NM105887	3000527975	660 FNL, 330 FEL	Sec 14, T15S, R31E, Unit A
Andromeda Federal #2H	Chaves	NM105887	3000527976	1980 FNL, 850 FEL	Sec 14, T15S, R31E, Unit H
Andromeda Federal #3H	Chaves	NM105887	3000527977	1650 FSL, 330 FWL	Sec 14, T15S, R31E, Unit L
Gemini Federal #1H	Chaves	NM105886	3000527972	330 FSL, 330 FEL	Sec 12, T15S, R31E, Unit P
Hercules Federal Com #2H	Chaves	NM105885		660 FNL, 430 FWL	Sec 15, T15S, R31E, Unit D
Hercules Federal Com #3H	Chaves	NM105885		1980 FSL, 430 FWL	Sec 15, T15S, R31E, Unit L
Hercules Federal Com #4H	Chaves	NM105885		660 FSL, 330 FEL	Sec 15, T15S, R31E, Unit P
Orion Federal #1H	Chaves	NM105887	3000527978	1980 FNL, 330 FEL	Sec 13, T15S, R31E, Unit H
Orion Federal #2H	Chaves	NM105887	3000527994	1980 FSL, 330 FEL	Sec 13, T15S, R31E, Unit I
Orion Federal #3H	Chaves	NM105887	3000528001	660 FSL, 330 FEL	Sec 13, T15S, R31E, Unit P
Polaris Federal #1	Chaves	NM105885	3000527999	1980 FNL, 330 FWL	Sec 15, T15S, R31E, Unit E
Taurus Federal #1H	Chaves	NM105885	3000528000	330 FSL, 330 FWL	Sec 10, T15S, R31E, Unit M
Blue Thunder 5 Fed #2	Eddy	LC069033	3001535550	1200 FNL, 1980 FWL	Sec 5, T19S, R31E, Unit C
Blackhawk 11 Federal 1	Eddy	NM 95630		430 FSL, 430 FWL	Sec 11, T16S, R28E, Unit M
Blitzen 35 Federal 1	Eddy	NM103876	3001536044	330 FNL, 990 FEL	Sec 35, T16S, R28E, Unit A
Blitzen 35 Federal 2	Eddy	NM103876	3001536058	1800 FNL, 330 FEL	Sec 35, T16S, R28E, Unit H
Caribou 19 Federal #1	Eddy	NM103872		430 FSL, 430 FEL	Sec 19, T16S, R28E, Unit P
Caribou 19 Federal #2	Eddy	NM103872		1980 FSL, 790 FEL	Sec 19, T16S, R28E, Unit I
Comet 22 Federal #1	Eddy	NM100844	3001535832	660 FSL, 330 FWL	Sec 22, T16S, R28E, Unit
Comet 22 Federal #2	Eddy	NM100844	3001535818	1980 FSL, 330 FWL	Sec 22, T16S, R28E, Unit
Comet 22 Federal #3	Eddy	NM100844	3001535821	1980 FNL, 330 FWL	Sec 22, T16S, R28E, Unit
Comet 22 Federal #4	Eddy	NM100844	3001535716	330 FNL, 1650 FWL	Sec 22, T16S, R28E, Unit C
Donner 30 Federal #1	Eddy	NM054856	3001535826	330 FSL, 330 FEL	Sec 30, T16S, R28E, Unit
Donner 30 Federal #2	Eddy	NM054856	3001535819	1800 FSL, 330 FEL	Sec 30, T16S, R28E, Unit
Donner 30 Federal #3	Eddy	NM054856	3001535807	1800 FNL, 1980 FEL	Sec 30, T16S, R28E, Unit
Donner 30 Federal #4	Eddy	NM054856	3001535715	330 FNL, 330 FEL	Sec 30, T16S, R28E, Unit A
High Lonesome 23 Fed Com 1H	Eddy	LC118710	3001535949	900 FSL, 330 FEL	Sec 23, T16S, R29E, Unit P
High Lonesome 26 Fed Com 1H	Eddy	LC118710	3001535893	660 FNL, 1150 FEL	Sec 26, T16S, R29E, Unit A
High Lonesome 26 Fed Com 2H	Eddy	LC118710	3501535894	2030 FNL, 530 FEL	Sec 26, T16S, R29E, Unit H
Reindeer 21 Federal #3	Eddy	NM100844	7874	1980 FNL, 430 FWL	Sec 21, T16S, R28E, Unit E
Reindeer 21 Federal #4	Eddy	NM100844		1980 FSL, 430 FWL	Sec 21, T16S, R28E, Unit L
Eagle Feather State #1	Lea	LC13430	3002538272	1650 FSL, 1600 FEL	Sec 16, T26S, R36E, Unit J
Eagle Feather State #2	Lea	LC13430	3002538885	660 FNL, 1630 FEL	Sec 21, T26S, R36E, Unit H

DISTRICT I  
1626 N. French Dr., Hobbs, NM 88240

DISTRICT II  
1301 W. Grand Avenue, Artesia, NM 88210

DISTRICT III  
1000 Rio Brazos Rd., Aztec, NM 87410

DISTRICT IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico  
Energy, Minerals and Natural Resources Department

Form C-102  
Revised October 12, 2005

Submit to Appropriate District Office  
State Lease - 4 Copies  
Fee Lease - 3 Copies

**S** OIL CONSERVATION DIVISION  
1220 South St. Francis Dr.  
Santa Fe, New Mexico 87505

**AUG 15 2008**

**OCC-ARTESIA** AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-015-	Pool Code 97102	Pool Name CROW FLATS: WOLFCAMP
Property Code	Property Name BLACKHAWK "11" FEDERAL COM	Well Number 1
OGRID No. 229137	Operator Name C.O.G.: OPERATING L.L.C.	Elevation 3570'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	11	16 S	28 E		430	SOUTH	430	WEST	EDDY

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	11	16 S	28 E		330	SOUTH	330	EAST	EDDY

Dedicated Acres 160	Joint or Infill	Consolidation Code	Order No.
------------------------	-----------------	--------------------	-----------

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

	<p><b>OPERATOR CERTIFICATION</b></p> <p>I hereby certify that the information contained 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 pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.</p> <p><i>Phyllis A. Edwards</i> 8-14-08 Signature Date</p> <p>Phyllis A. Edwards Printed Name Regulatory Analyst</p>
	<p><b>SURVEYOR CERTIFICATION</b></p> <p>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</p> <p>DECEMBER 16, 2007 Date Surveyed</p> <p>GARY L. JONES Signature Professional Surveyor</p> <p>W. O. [unclear] 18 [unclear] Professional Surveyor</p> <p>Certificate No. Gary L. Jones 7977</p> <p>BASIN SURVEYS</p>

**ATTACHMENT TO FORM 3160-3**  
**COG Operating LLC**  
**Blackhawk "11" Federal Com # 1**  
**SL: 430' FSL & 430' FWL Unit M**  
**BHL: 330' FSL & 330' FEL Unit P**  
**Sec 11, T16S, R28E**  
**Eddy County, NM**

1. Proration Unit Spacing: 160 Acres

2. Ground Elevation: 3570'

3. Proposed Depths: Pilot hole TD = 6835', Horizontal TVD = 6680', Horizontal MD = 11130'

4. Estimated tops of geological markers:

Quaternary	Surface
Yates/Seven Rivers	385'
Queens	1120'
San Andres	1850'
Glorietta	3375'
Abo	5370'
Wolfcamp	6585'

5. Possible mineral bearing formations:

Water Sand	Fresh Water	150'
San Andres	Oil / Gas	1850'
Glorietta	Oil / Gas	3375'
Abo	Oil / Gas	5370'
Wolfcamp	Oil / Gas	6585'

6. Casing Program

<u>Hole size</u>	<u>Interval</u>	<u>OD of Casing</u>	<u>Weight</u>	<u>Cond.</u>	<u>Collar</u>	<u>Grade</u>
17-1/2"	0' - +/-500'	13-3/8"	48#	New	STC	H40
Collapse sf - 2.98, Burst sf - 2.33, Tension sf - 13.42						
12 1/4"	0' - 2300'	9-5/8"	40#	New	STC	J-55
Collapse sf - 2.46, Burst sf - 1.35, Tension sf - 6.48						
8-3/4"	0' - 6000'MD	5-1/2"	17#	New	LTC	L-80
Collapse sf - 2.08, Burst sf - 2.35, Tension sf - 2.92						
7-7/8"	6000' - <sup>10856</sup> 11130'MD	5-1/2"	17#	New	BTC	L-80
Collapse sf - 1.85, Burst sf - 2.28, Tension sf - 29.19						

**ATTACHMENT TO FORM 3160-3  
COG Operating LLC  
Blackhawk "11" Federal Com # 1  
Page 2 of 3**

**7. Cement Program**

13 3/8" Surface Casing set at +/- 500', Circ to Surf with +/- 500 sx Class "C" w/ 2% CaCl<sub>2</sub>, 1.35 yd.

9 5/8" Intermediate Casing set at +/- 2300', Circ. to Surf with +/- 700 sx 50/50 Poz "C", 2.45 yd. & 200 sx Class "C" w/ 2% CaCl<sub>2</sub>, 1.35 yd.

5 1/2" Production Casing set at +/- 11130' MD, 6680' TVD, Cement with +/- 200 sx. 50/50/2 "C", 1.37 yd & +/- 650 sx Class "H", 1.18 yd. Est. TOC @ 6000'. *See COA*

**8. Pressure Control Equipment:**

After setting 13 3/8" casing and installing 3000 psi casing head, NU 13 5/8" 3000 psi annular BOP. Test annular BOP, casing and manifold with clear fluid to 1000 psi w/ rig pump.

After setting 9 5/8" casing and installing 3000 psi casing spool, NU 3000 psi double ram BOP and 3000 psi annular BOP. Test double ram BOP and manifold to 3000# with clear fluid and annular to 1500 psi. using an independent tester, this equipment will be used continuously until TD is reached. Blind rams will be operationally checked on each trip out of hole. Pipe rams will be operationally checked each 24 hour period. These checks will be noted on daily tour sheets. Other accessories to the BOP equipment include a Kelly cock and floor safety valves, choke lines and choke manifold with 3000 psi WP rating.

**9. Proposed Mud Circulating System**

<u>Interval</u>	<u>Mud Wt.</u>	<u>Visc.</u>	<u>FL</u>	<u>Type Mud System</u>
0' - 500'	8.5	28	NC	Fresh water native mud w/ paper for seepage and sweeps. Lime for PH.
<i>Casing</i> 500' - <del>1800'</del> <i>Cement</i> <i>Plan</i> 2300	9.1	30	NC	Cut brine mud, lime for PH and paper for seepage and sweeps. <i>See COA</i>
1800' - 5300' 2300	9.1	29	NC	Drill section with fresh water/cut brine circulating the reserve utilizing periodic sweeps of paper as needed for seepage control and solids removal.
5300' - <del>11130'</del> 10856	9.5	36	10	Drill horizontal section with XCD polymer / cut brine / starch.

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

**10. Production Hole Drilling Summary:**

Drill 8-3/4" hole thru Wolfcamp, run open hole logs. Spot 150 sx. "H" Kick off plug from +/- 6500' to +/- 6100'. Time drill and kick off 7-7/8" hole at +/- 6100', building curve over +/- 475' to horizontal at 6610' TVD. Drill horizontal section in an easterly direction for +/-4500' lateral. Run production casing and cement.

**ATTACHMENT TO FORM 3160-3**  
**COG Operating LLC**  
**Blackhawk "11" Federal # 1**  
**Page 3 of 3**

11. 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.

12. Logging, Testing and Coring Program:

- A. The electric logging program will consist of GR-Dual Laterolog, Spectral Density, Dual Spaced Neutron, CSNG Log and will be ran from T.D. in Pilot hole to 9 5/8" casing shoe.
- B. The mud logging program will consist of lagged 10' samples from intermediate casing point to T.D. in vertical pilot hole and from Kick off point 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 5 1/2" production casing has been cemented at TD based on drill shows and log evaluation.

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

No abnormal pressures or temperatures are anticipated. The estimated bottom hole at TD is 110 degrees and estimated maximum bottom hole pressure is 2838 psig. Low levels of Hydrogen sulfide have been monitored in producing wells in the area, so H<sub>2</sub>S may be present while drilling of the well. An H<sub>2</sub>S plan is attached to the Drilling Program. No major loss of circulation zones has been reported in offsetting wells.

14. Anticipated Starting Date

Drilling operations will commence approximately on July 1, 2008 with drilling and completion operations lasting approximately 45 days.

# **COG Operating LLC**

**Eddy County**

**S11T16S R28E**

**Blackhawk 11 Federal Com 1**

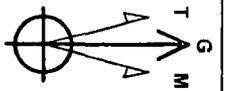
**Original Hole**

**Plan: Plan #1**

## **Pathfinder Survey Report**

**21 February, 2008**

# C.O.G. Operating L.L.C.



Azimuths to Grid North  
 True North: -0.10°  
 Magnetic North: 8.19°  
 Magnetic Field  
 Strength: 48331.587 T  
 Dip Angle: 60.83° Jan: Plan #1 (Blackhawk 11 Federal Com 1/Original Hole)  
 Date: 2/21/2008  
 Model: IGRF200510

Project: Eddy County  
 Site: S11 T16S R28E  
 Well: Blackhawk 11 Federal Com 1  
 Wellbore: Original Hole  
 Wellbore: Blackhawk 11 Federal Com 1/Original Hole



PROJECT DETAILS: Eddy County  
 Geodetic System: US State Plane 1983  
 Datum: North American Datum 1983  
 Ellipsoid: GRS 1980  
 System Datum: Mean Sea Level  
 Local North: Grid

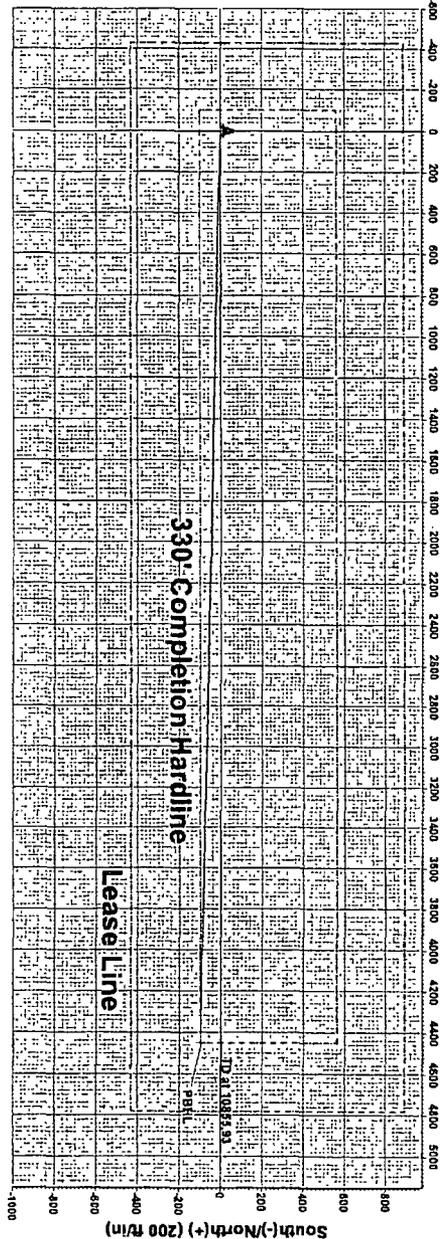
### WELL DETAILS Blackhawk11FederalCom1

Ground Elevation: 3570.00  
 RKB Elevation: EST RKB @ 3570.00ft  
 Rig Name:  
 +N/S: 0.00  
 +E/W: 702970.827  
 Easting: 595395.029  
 Latitude: 32° 55' 55.470" N  
 Longitude: 104° 9' 13.977" W  
 Spt:

Sec	MD	Inc	API	TVD	+N/S	+E/W	Diag	Trace	USEC	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	6132.61	0.00	6132.61	0.00	0.00	0.00	0.00	0.00	0.00	
3	6874.19	88.99	91.27	6810.20	-10.40	468.83	12.00	91.27	468.05	
4	6925.74	88.99	91.27	6810.91	-11.54	520.48	0.00	27.51	520.35	
5	10855.33	88.99	91.27	6880.20	-8.54	448.28	0.00	0.00	448.11	PWHL

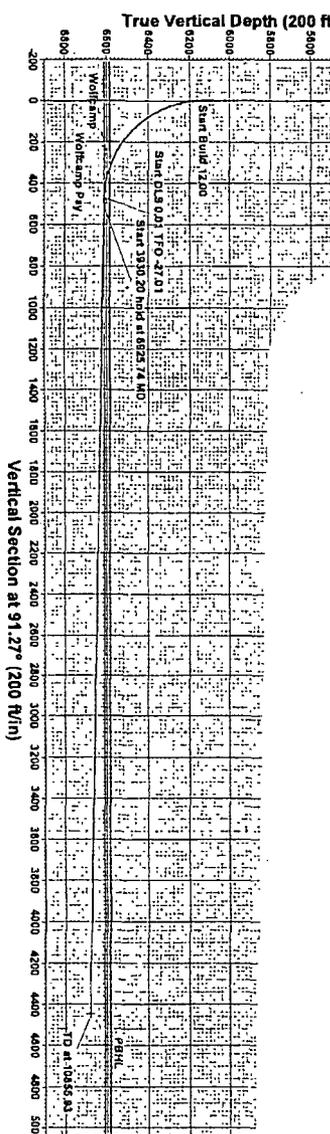
Name	TVD	+N/S	+E/W	Easting	Shape
Pwh	6880.00	-8.54	448.08	702772.089	500254.111

West(-)/East(+) (200 ft/in)



### FORMATION TOP DETAILS

TOP of MDP	Formation
1130.00	Green
1810.00	San Andres D
2315.00	San Andres
2315.00	Green
5810.00	Workamp
6415.00	Workamp Pay



Vertical Section at 91.27° (200 ft/in)

Plan: Plan #1 (Blackhawk 11 Federal Com 1/Original Hole)  
 Created By: Mark Freeman Date: 14:00, February 21, 2008  
 Checked: \_\_\_\_\_ Date: \_\_\_\_\_

**WHS**  
Pathfinder Survey Report

<b>Company:</b> COG Operating LLC	<b>Local Co-ordinate Reference:</b> Well Blackhawk 11 Federal Com 1
<b>Project:</b> Eddy County	<b>TVD Reference:</b> EST RKB @ 3570.00ft
<b>Site:</b> S11 T16S R28E	<b>MD Reference:</b> EST RKB @ 3570.00ft
<b>Well:</b> Blackhawk 11 Federal Com 1	<b>North Reference:</b> Grid
<b>Wellbore:</b> Original Hole	<b>Survey Calculation Method:</b> Minimum Curvature
<b>Design:</b> Plan #1	<b>Database:</b> EDM 2003.16 Single User Db

<b>Project:</b> Eddy County	
<b>Map System:</b> US State Plane 1983	<b>System Datum:</b> Mean Sea Level
<b>Geo Datum:</b> North American Datum 1983	
<b>Map Zone:</b> New Mexico Eastern Zone	

<b>Site:</b> S11 T16S R28E		
<b>Site Position:</b>	<b>Northing:</b> 702,870.627 ft	<b>Latitude:</b> 32° 55' 55.470 N
<b>From:</b> Map	<b>Easting:</b> 596,395.029 ft	<b>Longitude:</b> 104° 9' 13.977 W
<b>Position Uncertainty:</b> 0.00 ft	<b>Slot Radius:</b> "	<b>Grid Convergence:</b> 0.10 °

<b>Well:</b> Blackhawk 11 Federal Com 1			
<b>Well Position</b>	<b>+N/-S</b> 0.00 ft	<b>Northing:</b> 702,870.627 ft	<b>Latitude:</b> 32° 55' 55.470 N
	<b>+E/-W</b> 0.00 ft	<b>Easting:</b> 596,395.029 ft	<b>Longitude:</b> 104° 9' 13.977 W
<b>Position Uncertainty</b>	0.00 ft	<b>Wellhead Elevation:</b> ft	<b>Ground Level:</b> 3,570.00 ft

<b>Wellbore:</b> Original Hole
--------------------------------

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	2/21/2008	8.29	60.83	49,331

<b>Design:</b> Plan #1
------------------------

<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b> PLAN	<b>Tie On Depth:</b> 0.00		
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	91.27

<b>Survey Tool Program</b>	<b>Date:</b> 2/21/2008			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.00	10,855.86	Plan #1 (Original Hole)	MWD	MWD - Standard

<b>Planned Survey</b>									
MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)		
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00

**WHS**  
Pathfinder Survey Report

<b>Company:</b>	COG Operating LLC	<b>Local Co-ordinate Reference:</b>	Well Blackhawk 11 Federal Com 1
<b>Project:</b>	Eddy County	<b>TVD Reference:</b>	EST RKB @ 3570.00ft
<b>Site:</b>	S11 T16S R28E	<b>MD Reference:</b>	EST RKB @ 3570.00ft
<b>Well:</b>	Blackhawk 11 Federal Com 1	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Hole	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Plan #1	<b>Database:</b>	EDM 2003.16 Single User Db

Planned Survey									
MD (ft)	Inc. (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	D/leg (°/100ft)		
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.00
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,800.00	0.00	0.00	0.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,900.00	0.00	0.00	0.00	0.00	0.00	0.00
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,100.00	0.00	0.00	0.00	0.00	0.00	0.00
5,200.00	0.00	0.00	5,200.00	0.00	0.00	0.00	0.00	0.00	0.00
5,300.00	0.00	0.00	5,300.00	0.00	0.00	0.00	0.00	0.00	0.00
5,400.00	0.00	0.00	5,400.00	0.00	0.00	0.00	0.00	0.00	0.00
5,500.00	0.00	0.00	5,500.00	0.00	0.00	0.00	0.00	0.00	0.00

**WHS**  
Pathfinder Survey Report

<b>Company:</b>	COG Operating LLC	<b>Local Co-ordinate Reference:</b>	Well Blackhawk 11 Federal Com 1
<b>Project:</b>	Eddy County	<b>TVD Reference:</b>	EST RKB @ 3570.00ft
<b>Site:</b>	S11 T16S R28E	<b>MD Reference:</b>	EST RKB @ 3570.00ft
<b>Well:</b>	Blackhawk 11 Federal Com 1	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Hole	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Plan #1	<b>Database:</b>	EDM 2003.16 Single User Db

Planned Survey									
MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	EW (ft)	V. Sec (ft)	DLeg ("/100ft)		
5,600.00	0.00	0.00	5,600.00	0.00	0.00	0.00	0.00	0.00	0.00
5,700.00	0.00	0.00	5,700.00	0.00	0.00	0.00	0.00	0.00	0.00
5,800.00	0.00	0.00	5,800.00	0.00	0.00	0.00	0.00	0.00	0.00
5,900.00	0.00	0.00	5,900.00	0.00	0.00	0.00	0.00	0.00	0.00
6,000.00	0.00	0.00	6,000.00	0.00	0.00	0.00	0.00	0.00	0.00
6,100.00	0.00	0.00	6,100.00	0.00	0.00	0.00	0.00	0.00	0.00
6,132.61	0.00	0.00	6,132.61	0.00	0.00	0.00	0.00	0.00	0.00
6,150.00	2.09	91.27	6,150.00	-0.01	0.32	0.32	12.00		
6,175.00	5.09	91.27	6,174.94	-0.04	1.88	1.88	12.00		
6,200.00	8.09	91.27	6,199.78	-0.11	4.75	4.75	12.00		
6,225.00	11.09	91.27	6,224.42	-0.20	8.91	8.91	12.00		
6,250.00	14.09	91.27	6,248.82	-0.32	14.35	14.36	12.00		
6,275.00	17.09	91.27	6,272.90	-0.47	21.07	21.07	12.00		
6,300.00	20.09	91.27	6,296.59	-0.64	29.04	29.04	12.00		
6,325.00	23.09	91.27	6,319.84	-0.85	38.23	38.24	12.00		
6,350.00	26.09	91.27	6,342.57	-1.08	48.63	48.64	12.00		
6,375.00	29.09	91.27	6,364.72	-1.33	60.20	60.22	12.00		
6,400.00	32.09	91.27	6,386.24	-1.62	72.92	72.94	12.00		
6,425.00	35.09	91.27	6,407.06	-1.92	86.74	86.76	12.00		
6,450.00	38.09	91.27	6,427.14	-2.25	101.64	101.66	12.00		
6,475.00	41.09	91.27	6,446.40	-2.61	117.56	117.59	12.00		
6,500.00	44.09	91.27	6,464.80	-2.98	134.48	134.51	12.00		
6,525.00	47.09	91.27	6,482.30	-3.38	152.33	152.36	12.00		
6,550.00	50.09	91.27	6,498.83	-3.79	171.07	171.11	12.00		
6,575.00	53.09	91.27	6,514.37	-4.23	190.65	190.70	12.00		
6,600.00	56.09	91.27	6,528.85	-4.68	211.02	211.07	12.00		
6,625.00	59.09	91.27	6,542.25	-5.15	232.12	232.17	12.00		
6,650.00	62.09	91.27	6,554.53	-5.63	253.89	253.95	12.00		
6,675.00	65.09	91.27	6,565.65	-6.12	276.27	276.34	12.00		
6,700.00	68.09	91.27	6,575.58	-6.63	299.20	299.27	12.00		
6,725.00	71.09	91.27	6,584.30	-7.15	322.62	322.70	12.00		
6,750.00	74.09	91.27	6,591.78	-7.68	346.47	346.55	12.00		
6,775.00	77.09	91.27	6,598.00	-8.22	370.67	370.76	12.00		
6,800.00	80.09	91.27	6,602.95	-8.76	395.17	395.27	12.00		
6,825.00	83.09	91.27	6,606.60	-9.31	419.89	419.99	12.00		
6,850.00	86.09	91.27	6,608.96	-9.86	444.77	444.88	12.00		
6,874.19	88.99	91.27	6,610.00	-10.40	468.93	469.05	12.00		
6,900.00	88.99	91.27	6,610.46	-10.97	494.73	494.85	0.01		
6,925.74	88.99	91.27	6,610.91	-11.54	520.46	520.59	0.01		
7,000.00	88.99	91.27	6,612.21	-13.18	594.69	594.84	0.00		
7,100.00	88.99	91.27	6,613.97	-15.40	694.65	694.82	0.00		
7,200.00	88.99	91.27	6,615.73	-17.61	794.61	794.80	0.00		
7,300.00	88.99	91.27	6,617.49	-19.82	894.57	894.79	0.00		
7,400.00	88.99	91.27	6,619.25	-22.04	994.53	994.77	0.00		

**WHS**  
Pathfinder Survey Report

<b>Company:</b>	COG Operating LLC	<b>Local Co-ordinate Reference:</b>	Well Blackhawk 11 Federal Com 1
<b>Project:</b>	Eddy County	<b>TVD Reference:</b>	EST RKB @ 3570.00ft
<b>Site:</b>	S11 T16S R28E	<b>MD Reference:</b>	EST RKB @ 3570.00ft
<b>Well:</b>	Blackhawk 11 Federal Com 1	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Hole	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Plan #1	<b>Database:</b>	EDM 2003.16 Single User Db

Planned Survey								
MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	
7,500.00	88.99	91.27	6,621.00	-24.25	1,094.49	1,094.76	0.00	
7,600.00	88.99	91.27	6,622.76	-26.46	1,194.45	1,194.74	0.00	
7,700.00	88.99	91.27	6,624.52	-28.68	1,294.41	1,294.73	0.00	
7,800.00	88.99	91.27	6,626.28	-30.89	1,394.37	1,394.71	0.00	
7,900.00	88.99	91.27	6,628.04	-33.10	1,494.33	1,494.70	0.00	
8,000.00	88.99	91.27	6,629.79	-35.32	1,594.29	1,594.68	0.00	
8,100.00	88.99	91.27	6,631.55	-37.53	1,694.25	1,694.67	0.00	
8,200.00	88.99	91.27	6,633.31	-39.75	1,794.21	1,794.65	0.00	
8,300.00	88.99	91.27	6,635.07	-41.96	1,894.17	1,894.63	0.00	
8,400.00	88.99	91.27	6,636.83	-44.17	1,994.13	1,994.62	0.00	
8,500.00	88.99	91.27	6,638.58	-46.39	2,094.09	2,094.60	0.00	
8,600.00	88.99	91.27	6,640.34	-48.60	2,194.05	2,194.59	0.00	
8,700.00	88.99	91.27	6,642.10	-50.81	2,294.01	2,294.57	0.00	
8,800.00	88.99	91.27	6,643.86	-53.03	2,393.97	2,394.56	0.00	
8,900.00	88.99	91.27	6,645.62	-55.24	2,493.93	2,494.54	0.00	
9,000.00	88.99	91.27	6,647.37	-57.45	2,593.89	2,594.53	0.00	
9,100.00	88.99	91.27	6,649.13	-59.67	2,693.85	2,694.51	0.00	
9,200.00	88.99	91.27	6,650.89	-61.88	2,793.81	2,794.50	0.00	
9,300.00	88.99	91.27	6,652.65	-64.10	2,893.77	2,894.48	0.00	
9,400.00	88.99	91.27	6,654.41	-66.31	2,993.73	2,994.46	0.00	
9,500.00	88.99	91.27	6,656.16	-68.52	3,093.69	3,094.45	0.00	
9,600.00	88.99	91.27	6,657.92	-70.74	3,193.65	3,194.43	0.00	
9,700.00	88.99	91.27	6,659.68	-72.95	3,293.61	3,294.42	0.00	
9,800.00	88.99	91.27	6,661.44	-75.16	3,393.57	3,394.40	0.00	
9,900.00	88.99	91.27	6,663.19	-77.38	3,493.53	3,494.39	0.00	
10,000.00	88.99	91.27	6,664.95	-79.59	3,593.49	3,594.37	0.00	
10,100.00	88.99	91.27	6,666.71	-81.80	3,693.45	3,694.36	0.00	
10,200.00	88.99	91.27	6,668.47	-84.02	3,793.41	3,794.34	0.00	
10,300.00	88.99	91.27	6,670.23	-86.23	3,893.37	3,894.33	0.00	
10,400.00	88.99	91.27	6,671.98	-88.45	3,993.33	3,994.31	0.00	
10,500.00	88.99	91.27	6,673.74	-90.66	4,093.29	4,094.29	0.00	
10,600.00	88.99	91.27	6,675.50	-92.87	4,193.25	4,194.28	0.00	
10,700.00	88.99	91.27	6,677.26	-95.09	4,293.21	4,294.26	0.00	
10,800.00	88.99	91.27	6,679.02	-97.30	4,393.17	4,394.25	0.00	
10,855.93	88.99	91.27	6,680.00	-98.54	4,449.08	4,450.17	0.00	

**WHS**  
Pathfinder Survey Report

<b>Company:</b>	COG Operating LLC	<b>Local Co-ordinate Reference:</b>	Well Blackhawk 11 Federal Com 1
<b>Project:</b>	Eddy County	<b>TVD Reference:</b>	EST RKB @ 3570.00ft
<b>Site:</b>	S11 T16S R28E	<b>MD Reference:</b>	EST RKB @ 3570 00ft
<b>Well:</b>	Blackhawk 11 Federal Com 1	<b>North Reference:</b>	Grid
<b>Wellbore:</b>	Original Hole	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Plan #1	<b>Database:</b>	EDM 2003.16 Single User Db

Targets										
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)			
- Shape										
PbHl	0.00	0.00	6,680.00	-98.54	4,449.08	702,772.089	600,844.111	32° 55' 54.417 N	104° 8' 21.776 W	
- plan hits target										
- Point										

Formations							
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction		
(ft)	(ft)			(°)	(°)		
1,850.00	1,850.00	San Andres D		0.00			
6,874.16	6,610.00	Wolfcamp Pay		0.00			
3,375.00	3,375.00	Glorieta		0.00			
385.00	385.00	Yates		0.00			
1,120.00	1,120.00	Queen		0.00			
6,727.18	6,585.00	Wolfcamp		0.00			
5,370.00	5,370.00	Abo Shale		0.00			

Checked By: _____	Approved By: _____	Date: _____
-------------------	--------------------	-------------

EXHIBIT "F"

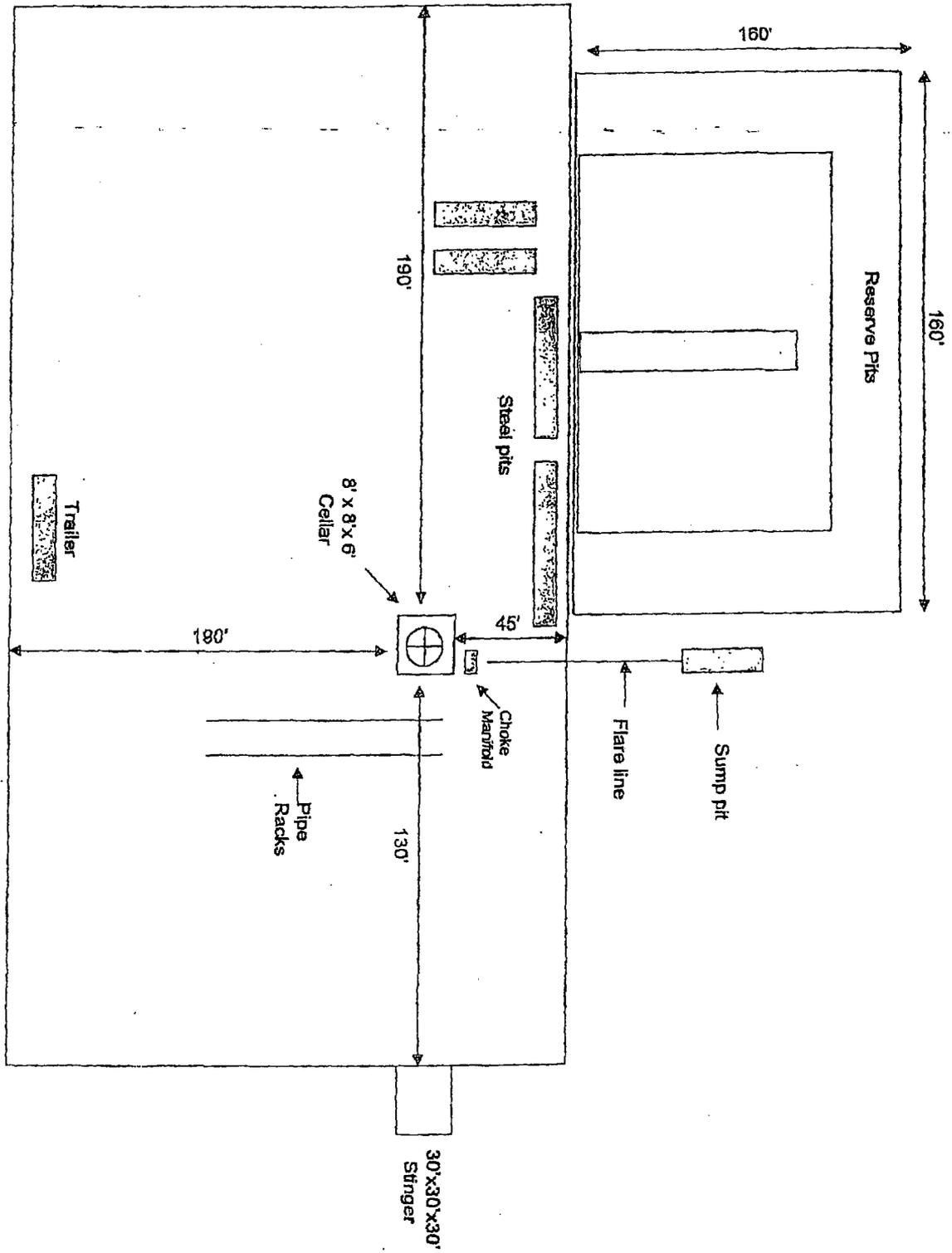
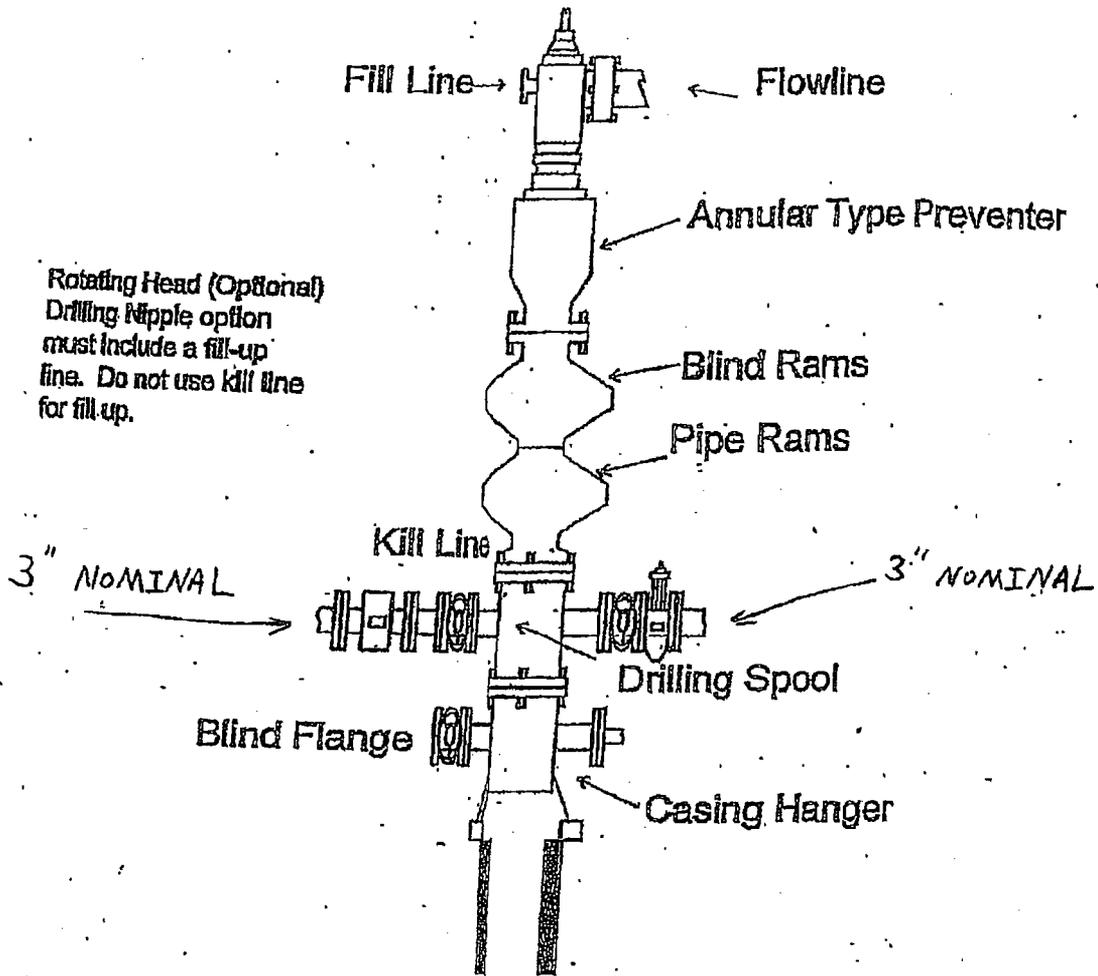


EXHIBIT "G"

BOPE SCHEMATIC



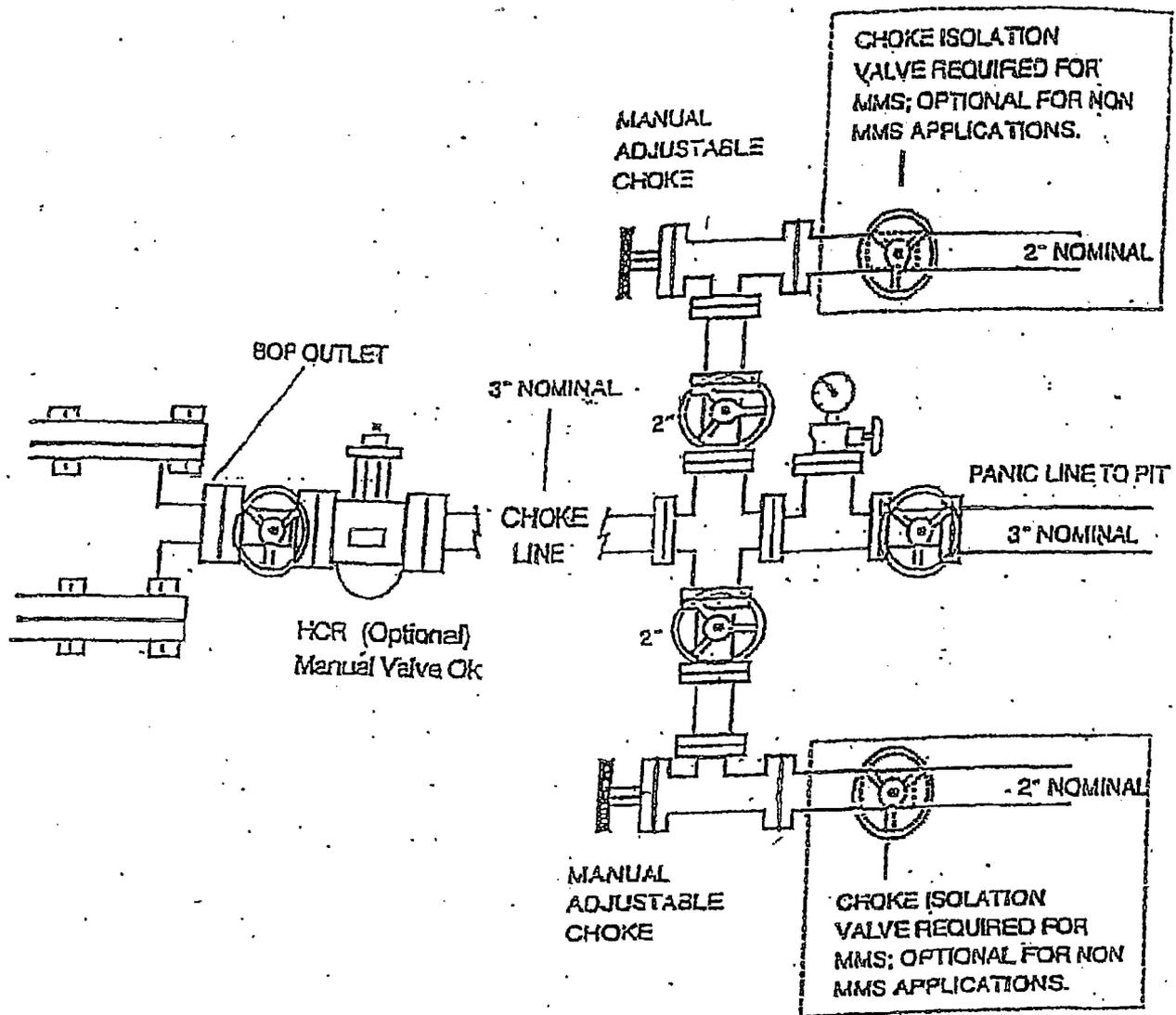
Rotating Head (Optional)  
Drilling Nipple option  
must include a fill-up  
line. Do not use kill line  
for fill up.

900 SERIES

EXHIBIT "H"

CHOKE MANIFOLD

3M SERVICE



# **COG OPERATING, LLC**

**HYDROGEN SULFIDE (H<sub>2</sub>S) CONTINGENCY PLAN  
FOR DRILLING / COMPLETING / WORKOVER / FACILITY  
WITH THE EXPECTATION OF H<sub>2</sub>S IN EXCESS OF 100 PPM**

**C.O.G. Operating, LLC  
NEW DRILL WELL  
Blackhawk "11" Federal #1  
SL: 430' FSL & 430' FWL, Unit M  
BHL: 330' FSL & 330' FWL, Unit P  
Sec 11, T16S, R28E  
Eddy County, New Mexico**

**This well / facility is not expected to have H<sub>2</sub>S, but the following is submitted as requested.**

## TABLE OF CONTENTS

I.	General Emergency Plan	Page 3
II.	Emergency Procedure for Uncontrolled Release of H <sub>2</sub> S	Page 3
III.	Emergency Numbers for Notification	Page 4
IV.	Protection of the General (ROE) Radius of Exposure	Page 5
V.	Public Evacuation Plan	Page 6
VI.	Procedure for Igniting an Uncontrollable Condition	Page 7
VII.	Required Emergency Equipment	Page 8
VIII.	Using Self-Contained Breathing Air Equipment (SCBA)	Page 9
IX.	Rescue & First Aid for Victims of H <sub>2</sub> S Poisoning	Page 10
X.	H <sub>2</sub> S Toxic Effects	Pages 11-12
XI.	H <sub>2</sub> S Physical Effects	Pages 13-14
XII.	Location Map	Page 15
XIII.	Vicinity Map	Page 16

## **GENERAL H2S EMERGENCY ACTIONS**

In the event of any evidence of H2S emergency, the following plan will be initiated:

1. All personnel will immediately evacuate to an up-wind and if possible up-hill "safe area".
2. If for any reason a person must enter the hazardous area, they must wear a SCBA (self-contained breathing apparatus).
3. Always use the "buddy system".
4. Isolate the well / problem if possible.
5. Account for all personnel.
6. Display the proper colors warning all unsuspecting personnel of the danger at hand.
7. Contact the company representative as soon as possible if not at the location (use the enclosed call list as instructed).

At this point the company representative will evaluate the situation and coordinate the necessary duties to bring the situation under control, and if necessary, the notification of emergency response agencies and residents.

## **EMERGENCY PROCEDURES FOR AN UNCONTROLLABLE RELEASE OF H2S**

1. All personnel will don the self-contained breathing apparatus.
2. Remove all personnel to the "safe area: (always use the "buddy system").
3. Contact company representative if not on location.
4. Set in motion the steps to protect and / or remove the general public to any upwind "safe are". Maintain strict security and safety procedures while dealing with the source.
5. No entry to any unauthorized personnel.
6. Notify the appropriate agencies:      City Police - City streets  
   State Police - State Roads  
   County Sheriff - County Roads
7. Call the NMOCD.

If at this time the supervising person determines the release of H2S cannot be contained to the site location and the general public is in harms way, he will immediately notify public safety personnel.

**EMERGENCY CALL LIST**

	<u>Office</u>	<u>Cell</u>	<u>Home</u>
John Coffman	432-683-7443	432-631-9762	432-699-5552
Erick Nelson	432-683-7443	432-238-7591	
Matt Corser	432-683-7443	432-413-0071	

**EMERGENCY RESPONSE NUMBERS**

**Eddy County, New Mexico**

<b>State Police</b>	<b>505-748-9718</b>
<b>Eddy County Sheriff</b>	<b>505-746-2701</b>
<b>Emergency Medical Services (Ambulance)</b>	<b>911 or 505-746-2701</b>
<b>Eddy County Emergency Management (Harry Burgess)</b>	<b>505-887-9511</b>
<b>State Emergency Response Center (SERC)</b>	<b>505-476-9620</b>
<b>Carlsbad Police Department</b>	<b>505-885-2111</b>
<b>Carlsbad Fire Department</b>	<b>505-885-3125</b>
<b>New Mexico Oil Conservation Division</b>	<b>505-748-1283</b>
<b>Callaway Safety Equipment, Inc.</b>	<b>505-392-2973</b>

## PROTECTION OF THE GENERAL (ROE) RADIUS OF EXPOSURE

In the event greater than 100 ppg H<sub>2</sub>S is present, the ROE calculations will be done to determine if the following is warranted:

- \* 100 ppm at any public area (any place not associated with this site)
- \* 500 ppm at any public road (any road which the general public may travel).
- \* 100 ppm radius of 3000' will be assumed if there is insufficient data to do the calculations, and there is a reasonable expectation that H<sub>2</sub>S could be present in concentrations greater than 100 ppm in the gas mixture.

**Calculation for the 100 ppm ROE:** (H<sub>2</sub>S concentrations in decimal form)

$$X = [(1.589)(\text{concentration})(Q)] (0.6258)$$

10,000 ppm + = .01  
1,000 ppm + = .001

**Calculation for the 500 ppm ROE:**

100 ppm + = .0001  
10 ppm + = .00001

$$X = [(0.4546)(\text{concentration})(Q)] (.06258)$$

EXAMPLE: If a well / facility has been determined to have 150 ppm H<sub>2</sub>S in the gas mixture and the well / facility is producing at a gas rate of 200 MCFD then:

ROE for 100 ppm     $X = [(1.589)(.00010)(200,000)] (0.6258)$   
                           $X = 8.8'$

ROE for 500 ppm     $X = [(0.4546)(.00050)(200,000)] (0.6258)$   
                           $X = 10.9'$

These calculations will be forwarded to the appropriate NMOCD district office when applicable.

## PUBLIC EVACUATION PLAN

When the supervisor has determined that the general public will be involved, the following plan will be implemented.

1. Notification of the emergency response agencies of the hazardous condition and implement evacuation procedures.
2. A trained person in H<sub>2</sub>S safety shall monitor with detection equipment the H<sub>2</sub>S concentration, wind and area of exposure. This person will determine the outer perimeter of the hazardous area. The extent of the evacuation area will be determined from the data being collected. Monitoring shall continue until the situation has been resolved. All monitoring equipment shall be UL approved for use in Class I Groups A, B, C & D, Division I hazardous locations. All monitors will have a minimum capability of measuring H<sub>2</sub>S, oxygen, and flammable values.
3. Law enforcement shall be notified to set up necessary barriers and maintain such for the duration of the situation as well as aid in the evacuation procedure.
4. The company representative shall stay in communication with all agencies throughout the duration of the situation and inform such agencies when the situation has been contained and the effected area is safe to enter.

## PROCEDURE FOR IGNITING AN UNCONTROLLABLE CONDITION

The decision to ignite a well should be a last resort and one, if not both, of the following pertain:

1. Human life and / or property are endangered.
2. There is no hope of bringing the situation under control with the prevailing conditions at the site.

### **Instructions for Igniting the Well:**

1. Two people are required. They must be equipped with positive pressure, self-contained breathing apparatus and "D"-ring style, full body, OSHA approved safety harness. Non-flammable rope will be attached.
2. One of the people will be a qualified safety person who will test the atmosphere for H<sub>2</sub>S, oxygen and LFL. The other person will be the company representative.
3. Ignite upwind from a distance no closer than necessary. Make sure that where you ignite from has the maximum escape avenue available. A 25mm flare gun with a range of approximately +/- 500 feet shall be used to ignite the gas.
4. Before igniting, check for the presence of combustible gases.
5. After igniting, continue emergency actions and procedures as before.

## REQUIRED EMERGENCY EQUIPMENT

### **1. Breathing Apparatus**

- \* Rescue Packs (SCBA) – 1 unit shall be placed at each breathing area, 2 shall be stored in the safety trailer.
- \* Work / Escape Packs – 4 packs shall be stored on the rig floor with sufficient air hose not to restrict work activity.
- \* Emergency Escape Packs – 4 packs shall be stored in the doghouse for emergency evacuation.

### **2. Signage and Flagging**

- \* One Color Code Condition Sign will be placed at the entrance to the site reflecting the possible conditions at the site.
- \* A Colored Condition flag will be on display reflecting the condition at the site at that time.

### **3. Briefing Area**

- \* Two perpendicular areas will be designated by signs and readily accessible.

### **4. Windsocks**

- \* Two windsocks will be placed in strategic locations, visible from all angles.

### **5. H2S Detectors and Alarms**

\* The stationary detector with three (3) sensors will be placed in the upper dog house if equipped, set to visually alarm @ 10 ppm and audible alarm @ 15 ppm. Calibrate a minimum of every 30 days or as needed. The three sensors will be placed in the following places: (Gas sample tubes will be stored in the safety trailer):

- \* Rig Floor
- \* Bell Nipple
- \* End of flow line or where well bore fluid is being discharged

### **6. Auxiliary Rescue Equipment**

- \* Stretcher
- \* Two OSHA full body harnesses
- \* 100' of 5/8" OSHA approved rope
- \* One 20 lb. Class ABC fire extinguisher
- \* Communication via cell phones on location and vehicles on location

## USING SELF-CONTAINED BREATHING AIR EQUIPMENT (SCBA)

1. SCBA should be worn when any of the following are performed:
  - \* Working near the top or on top of a tank
  - \* Disconnecting any line where H<sub>2</sub>S can reasonably be expected.
  - \* Sampling air in the area to determine if toxic concentrations of H<sub>2</sub>S exist.
  - \* Working in areas where over 10 ppm of H<sub>2</sub>S has been detected.
  - \* At any time there is a doubt of the level of H<sub>2</sub>S in the area.
2. All personnel shall be trained in the use of SCBA prior to working in a potentially hazardous location.
3. Facial hair and standard eyeglasses are not allowed with SCBA.
4. Contact lenses are never allowed with SCBA.
5. When breaking out any line where H<sub>2</sub>S can reasonably be expected.
6. After each use, the SCBA unit shall be cleaned, disinfected, serviced and inspected.
7. All SCBA shall be inspected monthly.

## RESCUE & FIRST AID FOR VICTIMS OF H<sub>2</sub>S POISONING

- \* Do not panic.
- \* Remain calm and think.
- \* Get on the breathing apparatus.
- \* Remove the victim to the safe breathing area as quickly as possible, upwind and uphill from source or crosswind to achieve upwind.
- \* Notify emergency response personnel.
- \* Provide artificial respiration and / or CPR as necessary.
- \* Remove all contaminated clothing to avoid further exposure.
- \* A minimum of two (2) personnel on location shall be trained in CPR and First Aid.

## Toxic Effects of H2S Poisoning

Hydrogen Sulfide is extremely toxic. The acceptable ceiling concentration for eight-hour exposure is 10 PPM, which is .001% by volume. Hydrogen Sulfide is heavier than air (specific gravity-1.192) and is colorless and transparent. Hydrogen Sulfide is almost as toxic as Hydrogen Cyanide and is 5-6 times more toxic than Carbon Monoxide. Occupational exposure limits for Hydrogen sulfide and other gasses are compared below in Table 1. Toxicity table for H2S and physical effects are shown in Table II.

**Table 1**  
Permissible Exposure Limits of Various Gasses

Common Name	Symbol	Sp. Gravity	TLV	STEL	IDLH
Hydrogen Cyanide	HCN	.94	4.7 ppm	C	
Hydrogen Sulfide	H2S	1.192	10 ppm	15 ppm	100 ppm
Sulfide Dioxide	SO2	2.21	2 ppm	5 ppm	
Chlorine	CL	2.45	.5 ppm	1 ppm	
Carbon Monoxide	CO	.97	25 ppm	200 ppm	
Carbon Dioxide	CO2	1.52	5000 ppm	30,000 ppm	
Methane	CH4	.55	4.7% LEL	14% UEL	

### Definitions

- A. TLV – Threshold Limit Value is the concentration employees may be exposed to based on a TWA (time weighted average) for eight (8) hours in one day for 40 hours in one (1) week. This is set by ACGIH (American Conference of Governmental Hygienists and regulated by OSHA.
- B. STEL – Short Term Exposure Limit is the 15 minute average concentration an employee may be exposed to providing that the highest exposure never exceeds the OEL (Occupational Exposure Limit). The OEL for H2S is 19 PPM.
- C. IDLH – Immediately Dangerous to Life and Health is the concentration that has been determined by the ACGIH to cause serious health problems or death if exposed to this level. The IDLH for H2S is 100 PPM.
- D. TWA – Time Weighted Average is the average concentration of any chemical or gas for an eight (8) hour period. This is the concentration that any employee may be exposed to based on an TWA.

**TABLE II**  
Toxicity Table of H<sub>2</sub>S

Percent %	PPM	Physical Effects
.0001	1	Can smell less than 1 ppm.
.001	10	TLV for 8 hours of exposure
.0015	15	STEL for 15 minutes of exposure
.01	100	Immediately Dangerous to Life & Health. Kills sense of smell in 3 to 5 minutes.
.02	200	Kills sense of smell quickly, may burn eyes and throat.
.05	500	Dizziness, cessation of breathing begins in a few minutes.
.07	700	Unconscious quickly, death will result if not rescued promptly.
.10	1000	Death will result unless rescued promptly. Artificial resuscitation may be necessary.

## PHYSICAL PROPERTIES OF H<sub>2</sub>S

The properties of all gasses are usually described in the context of seven major categories:

COLOR  
ODOR  
VAPOR DENSITY  
EXPLOSIVE LIMITS  
FLAMMABILITY  
SOLUBILITY (IN WATER)  
BOILING POINT

Hydrogen Sulfide is no exception. Information from these categories should be considered in order to provide a fairly complete picture of the properties of the gas.

### **COLOR – TRANSPARENT**

Hydrogen Sulfide is colorless so it is invisible. This fact simply means that you can't rely on your eyes to detect its presence, a fact that makes the gas extremely dangerous to be around.

### **ODOR – ROTTEN EGGS**

Hydrogen Sulfide has a distinctive offensive smell, similar to "rotten eggs". For this reason it earned its common name "sour gas". However, H<sub>2</sub>S, even in low concentrations, is so toxic that it attacks and quickly impairs a victim's sense of smell, so it could be fatal to rely on your nose as a detection device.

### **VAPOR DENSITY – SPECIFIC GRAVITY OF 1.192**

Hydrogen Sulfide is heavier than air so it tends to settle in low-lying areas like pits, cellars or tanks. If you find yourself in a location where H<sub>2</sub>S is known to exist, protect yourself. Whenever possible, work in an area upwind and keep to higher ground.

### **EXPLOSIVE LIMITS – 4.3% TO 46%**

Mixed with the right proportion of air or oxygen, H<sub>2</sub>S will ignite and burn or explode, producing another alarming element of danger besides poisoning.

### **FLAMMABILITY**

Hydrogen Sulfide will burn readily with a distinctive clear blue flame, producing Sulfur Dioxide (SO<sub>2</sub>), another hazardous gas that irritates the eyes and lungs.

## **SOLUBILITY – 4 TO 1 RATIO WITH WATER**

Hydrogen Sulfide can be dissolved in liquids, which means that it can be present in any container or vessel used to carry or hold well fluids including oil, water, emulsion and sludge. The solubility of H<sub>2</sub>S is dependent on temperature and pressure, but if conditions are right, simply agitating a fluid containing H<sub>2</sub>S may release the gas into the air.

## **BOILING POINT – (-76 degrees Fahrenheit)**

Liquefied Hydrogen Sulfide boils at a very low temperature, so it is usually found as a gas.

**SURFACE USE AND OPERATIONS PLAN**  
**FOR DRILLING, COMPLETION, AND PRODUCING**

C.O.G. Operating, LLC  
Blackhawk "11" Federal #1  
SL: 430' FSL & 430' FWL, Unit M  
BHL: 330' FSL & 330' FWL, Unit P  
Sec 11, T16S, R28E  
Eddy County, New Mexico

**LOCATED:**

Approximately 10 miles Northwest of Loco Hills

**OIL & GAS LEASE**

SL: State  
BHL: NMNM # 103873

**RECORD TITLE LESSEE**

SL: CHASE OIL CORP- P.O. Box 1767, Artesia, NM 88211-1767  
(Operating rights: COG Oil & Gas, LP)

BHL: COG Oil & Gas, LP – 550 West Texas Ave., Suite 1300, Midland, TX 79701

**BOND COVERAGE**

\$25,000 statewide bond of C.O.G. Operating, L.L.C.      NMB 000215

**SURFACE OWNER**

State of New Mexico

**MINERAL OWNER**

Bureau of Land Management

**GRAZING TENANT**

SL; Bogle LTD Co., LLC, P.O. Box 460, Dexter, NM 88230, (505) 734-5442  
BHL: Bogle LTD Co., LLC, P.O. Box 460, Dexter, NM 88230, (505) 734-5442

**POOL**

Wolfcamp – Crow Flats

**PROPOSED TOTAL DEPTH**

This well will be drilled to a Horizontal Total Vertical Depth of approximately 6,680'  
and a Horizontal Total Measured Depth of approximately 11,130'.

**EXHIBITS**

- A. Well Location & Acreage Dedication Map
- B. Area Road Map
- C. Vicinity Oil & Gas Map
- D-1- D-2. Topographic & Location Verification Map
- E-1- E-4. Proposed Lease Road and Pad Layout Map
- F. Drilling Rig Layout
- G. BOPE Schematic
- H. Choke Manifold Schematic

**EXISTING ROADS**

- A. Exhibit A is a portion of a section map showing the location of the proposed well as staked.
- B. Exhibit B is a map showing existing roads in the vicinity of the proposed well site.
- C. Directions to well location:  
From the junction of US Hwy 82 and County Road Southern Union, go north on Southern Union for 2.5 miles winding northeast for 1.2 miles to lease road, on lease road go north 1.3 miles to lease road, on lease road go east 1.5 miles to lease road, on lease road go north 3.0 miles to lease road, thence east 2.0 miles to proposed lease road.

**ACCESS ROADS**

- A. Length and Width: 5,40.7' long and 30' wide.  
Approximately 4,275.2' of Road Right-of-Way has been obtained from BLM (NM 119633) and approximately 1,065.5' of Road Right-of-Way in the SW/4SW/4 and the NW/4SW/4 of Section 11 has been obtained from the State (RW 30883).
- B. Surface Material: Existing
- C. Maximum Grad: Less than five percent
- D. Turnouts: None necessary
- E. Drainage Design: Existing
- F. Culverts: None necessary
- G. Gates and Cattle Guards: None needed

**LOCATION OF EXISTING WELLS**

Existing wells in the immediate area are shown in Exhibit C.

**LOCATION OF EXISTING AND/OR PROPOSED FACILITIES**

Necessary production facilities for this well will be located on the well pad.

**LOCATION AND TYPE OF WATER SUPPLY**

It is not contemplated that a water well will be drilled. Water necessary for drilling will be purchased and hauled to the site over existing roads shown on Exhibit E.

**METHODS OF HANDLING WASTE DISPOSAL**

- A. Drilling fluids will be allowed to evaporate in the drilling pits until the pits are dry.
- B. Water produced during tests will be disposed of in the drilling pits.
- C. Oil produced during tests will be stored in test tanks.
- D. Trash will be contained in a trash trailer and removed from well site.
- E. All trash and debris will be removed from the well site within 30 days after finishing drilling and/or completion operations.

**ANCILLARY FACILITIES**

None required.

**WELL SITE LAYOUT**

Exhibits G and H show the relative location and dimensions of the well pad, mud pits, reserve pit, and trash pit, and the location of major rig components.

**PLANS FOR RESTORATION OF THE SURFACE**

- A. After completion of drilling and/or completion operations, all equipment and other material not needed for operations will be removed. The well site will be cleaned of all trash and junk to leave the site in an as aesthetically pleasing condition as possible.
- B. After abandonment, all equipment, trash, and junk will be removed and the site will be clean.

**OPERATOR'S REPRESENTATIVE**

John Coffman  
C.O.G. Operating, LLC  
550 W. Texas Ave, Suite 1300  
Midland, TX 79701  
(432) 683-7443

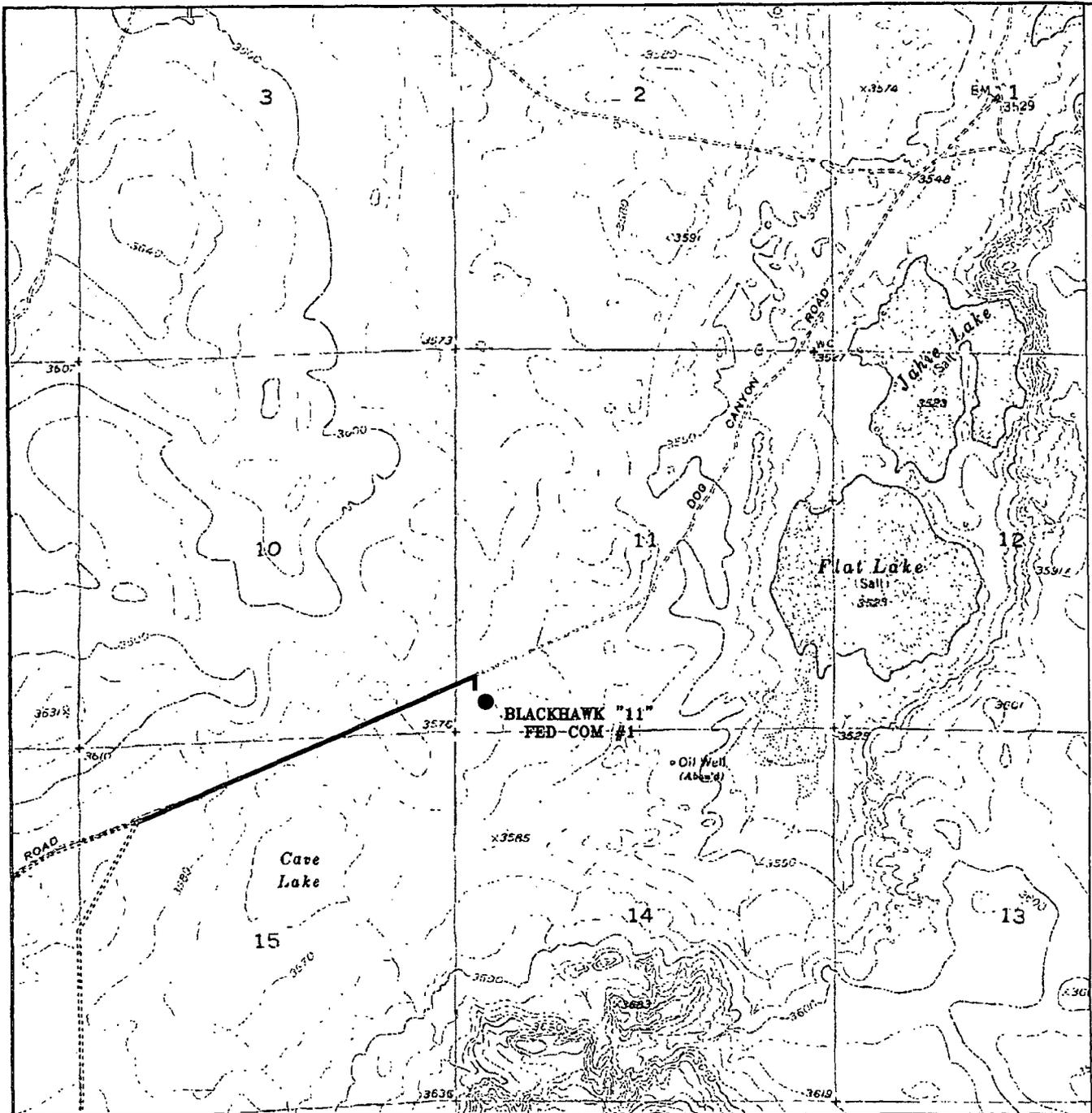
**CERTIFICATION**

I hereby certify that I, or persons under my direct supervision, have inspected the proposed drill site and access route; that I am familiar with the conditions which presently exist; that the statements made in this plan are, to the best of my knowledge, true and correct; and, that the work associated with the operations proposed herein will be performed by the C.O.G. Operating, LLC Company and its contractors and subcontractors in conformity with this plan and the terms and conditions under which it is approved.

5-8-08  
Date

John Coffman  
John Coffman  
C.O.G. Operating, LLC

EXHIBIT "B"



**BLACKHAWK "11" FEDERAL COM #1**  
 Located at 430' FSL and 430 FWL  
 Section 11, Township 16 South, Range 28 East,  
 N.M.P.M., Eddy County, New Mexico.

**basin surveys**  
 focused on excellence  
 in the oilfield

P.O. Box 1786  
 1120 N. West County Rd.  
 Hobbs, New Mexico 88241  
 (505) 393-7316 - Office  
 (505) 392-3074 - Fax  
 basinsurveys.com

W.O. Number: JMS 18743T
Survey Date: 12-16-2007
Scale: 1" = 2000'
Date: 12-17-2007

**C.O.G.  
 OPERATING  
 L.L.C.**

EXHIBIT "C"



BLACKHAWK "11" FEDERAL COM #1  
 Located at 430' FSL and 430' FWL  
 Section 11, Township 16 South, Range 28 East,  
 N.M.P.M., Eddy County, New Mexico.



focused on excellence  
 in the oilfield

P.O. Box 1786  
 1120 N. West County Rd.  
 Hobbs, New Mexico 88241  
 (505) 393-7316 - Office  
 (505) 392-3074 - Fax  
 basinsurveys.com

W.O. Number: JMS 18743TR

Survey Date: 12-16-2007

Scale: 1" = 2 MILES

Date: 12-17-2007

C.O.G.  
 OPERATING  
 L.L.C.

Caribou "19" Fed #2  
Caribou "19" Fed #1

Reindeer "21" Fed #3  
Reindeer "21" Fed #4

Blackhawk "11" Fed #1



EXHIBIT "D-1"

EXHIBIT "D-2"

Blackhawk "11" Fed #1

Reindeer "21" Fed #3

Reindeer "21" Fed #4

Caribou "19" Fed #2

Caribou "19" Fed #1

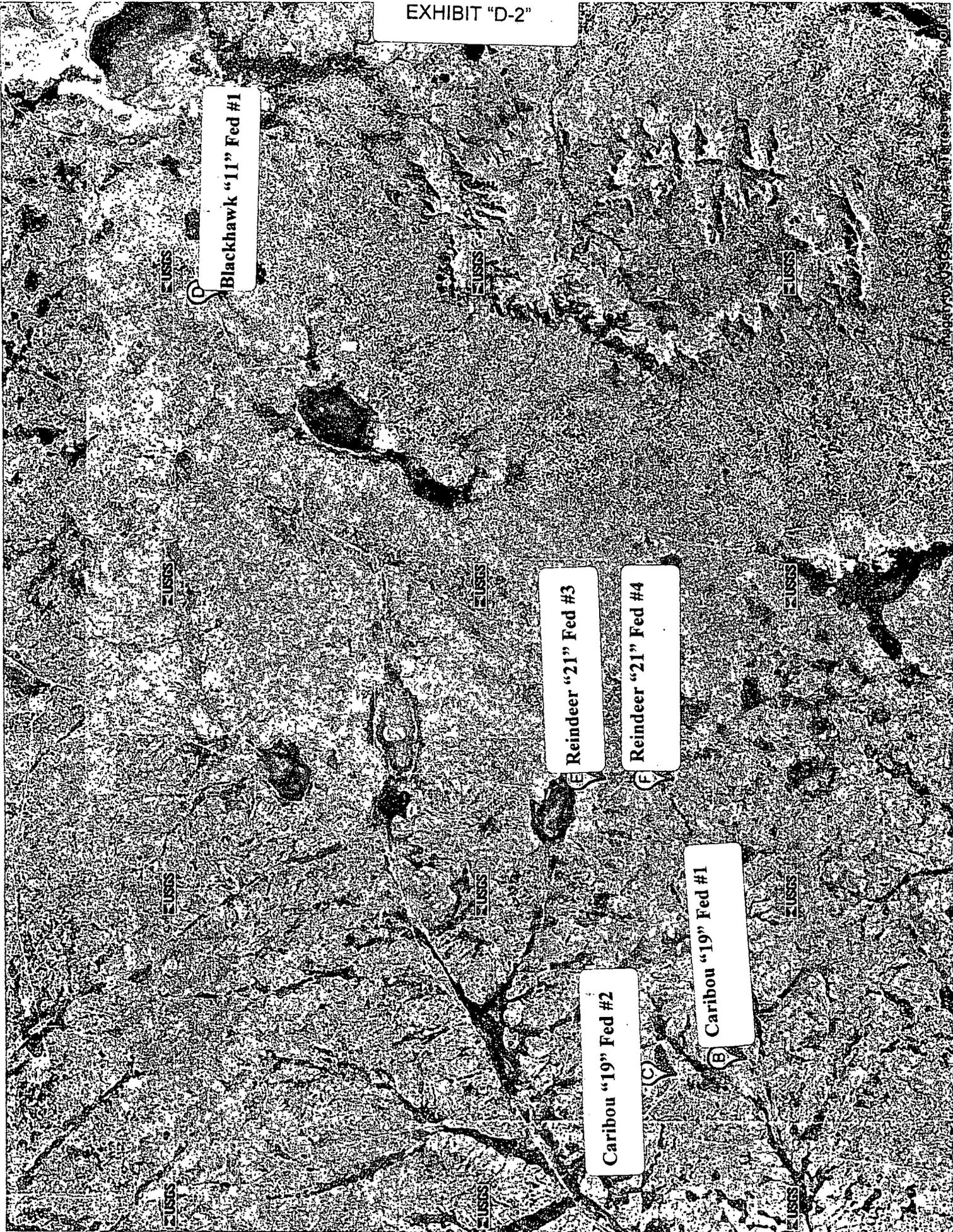
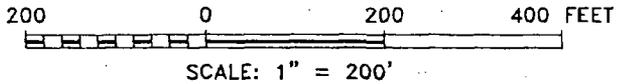
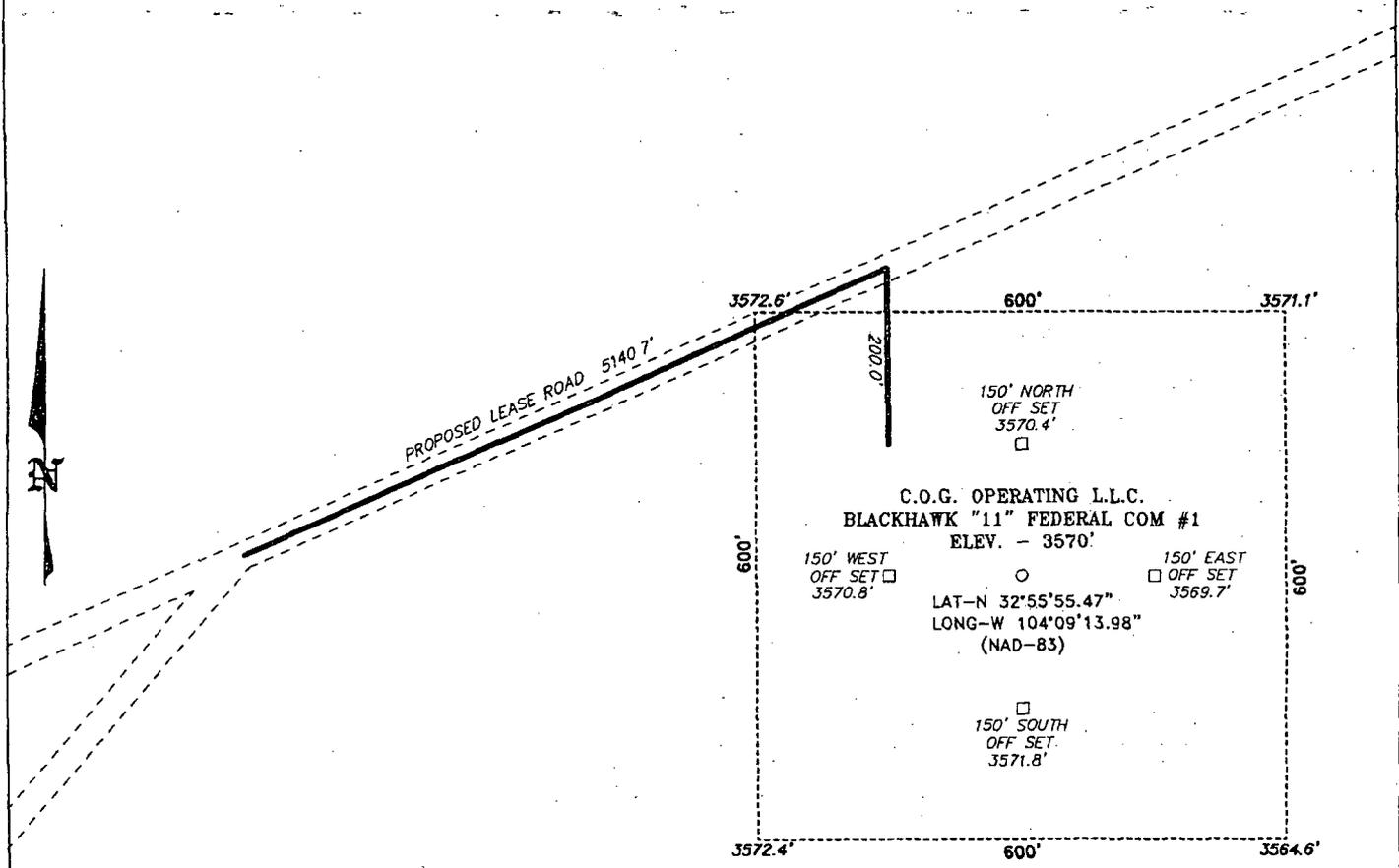


EXHIBIT "E-1"

SECTION 11, TOWNSHIP 16 SOUTH, RANGE 28 EAST, N.M.P.M.,  
EDDY COUNTY, NEW MEXICO.



**DIRECTIONS TO LOCATION:**

FROM THE JUNCTION OF US HWY 82 AND CO. RD. SOUTHERN UNION, GO NORTH ON SOUTHERN UNION FOR 2.5 MILES WINDING NORTHEAST FOR 1.2 MILES TO LEASE ROAD, ON LEASE ROAD GO NORTH 1.3 MILES TO LEASE ROAD, ON LEASE ROAD GO EAST 1.5 MILES TO LEASE ROAD, ON LEASE ROAD GO NORTH 3.0 MILES TO LEASE ROAD, THENCE EAST 2.0 MILES TO PROPOSED LEASE ROAD.

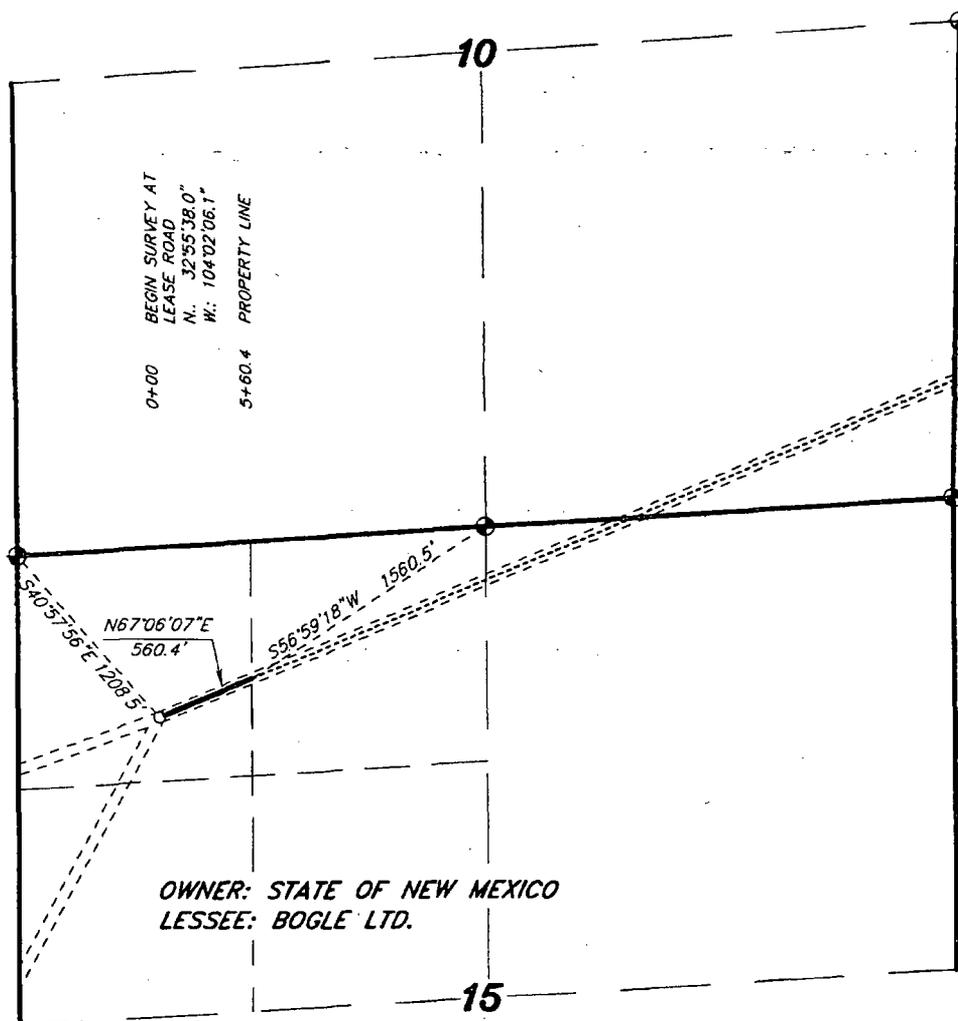
**BASIN SURVEYS** P.O. BOX 1786 - HOBBS, NEW MEXICO

W.O. Number: 18743      Drawn By: J. M. SMALL  
Date: 12-17-2007      Disk: JMS 18743W

<b>C.O.G. OPERATING L.L.C.</b>	
REF: BLACKHAWK "11" FEDERAL COM #1 / Well Pad Topo	
THE BLACKHAWK "11" FEDERAL COM #1 LOCATED 430' FROM	
THE SOUTH LINE AND 430' FROM THE WEST LINE OF	
SECTION 11, TOWNSHIP 16 SOUTH, RANGE 28 EAST,	
N.M.P.M., EDDY COUNTY, NEW MEXICO.	
Survey Date: 12-16-2007	Sheet 1 of 1 Sheets

EXHIBIT "E-2"

SECTION 15, TOWNSHIP 16 SOUTH, RANGE 28 EAST, N.M.P.M.,  
 EDDY COUNTY, NEW MEXICO.



OWNER: STATE OF NEW MEXICO  
 LESSEE: BOGLE LTD.

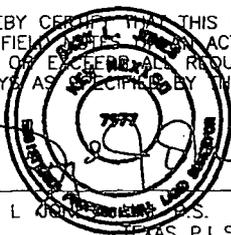
LEGAL DESCRIPTION

A STRIP OF LAND 20.0 FEET WIDE, LOCATED IN SECTION 15, TOWNSHIP 16 SOUTH, RANGE 28 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO AND BEING 10.0 FEET LEFT AND RIGHT OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY BEGINNING AT A POINT WHICH LIES S.40°57'56\"/>

$NW/4 \ NW/4 = 33.96 \text{ RODS} = 0.26 \text{ ACRES}$

I HEREBY CERTIFY THAT THIS PLAT WAS PREPARED FROM FIELD MEASUREMENTS AND ACTUAL SURVEY AND MEETS ALL NECESSARY REQUIREMENTS FOR LAND SURVEYS AS SPECIFIED BY THIS STATE.

GARY L. JAMES, S. No. 7977  
 TEXAS P.L.S. No. 5074



**C.O.G. OPERATING L.L.C.**

REF: PROP. LEASE ROAD TO THE BLACKHAWK "11" FEDERAL COM #1

A ROAD CROSSING STATE LAND IN  
 SECTION 15, TOWNSHIP 16 SOUTH, RANGE 28 EAST,  
 N.M.P.M., EDDY COUNTY, NEW MEXICO.

**BASIN SURVEYS** P.O. BOX 1786-HOBBS, NEW MEXICO

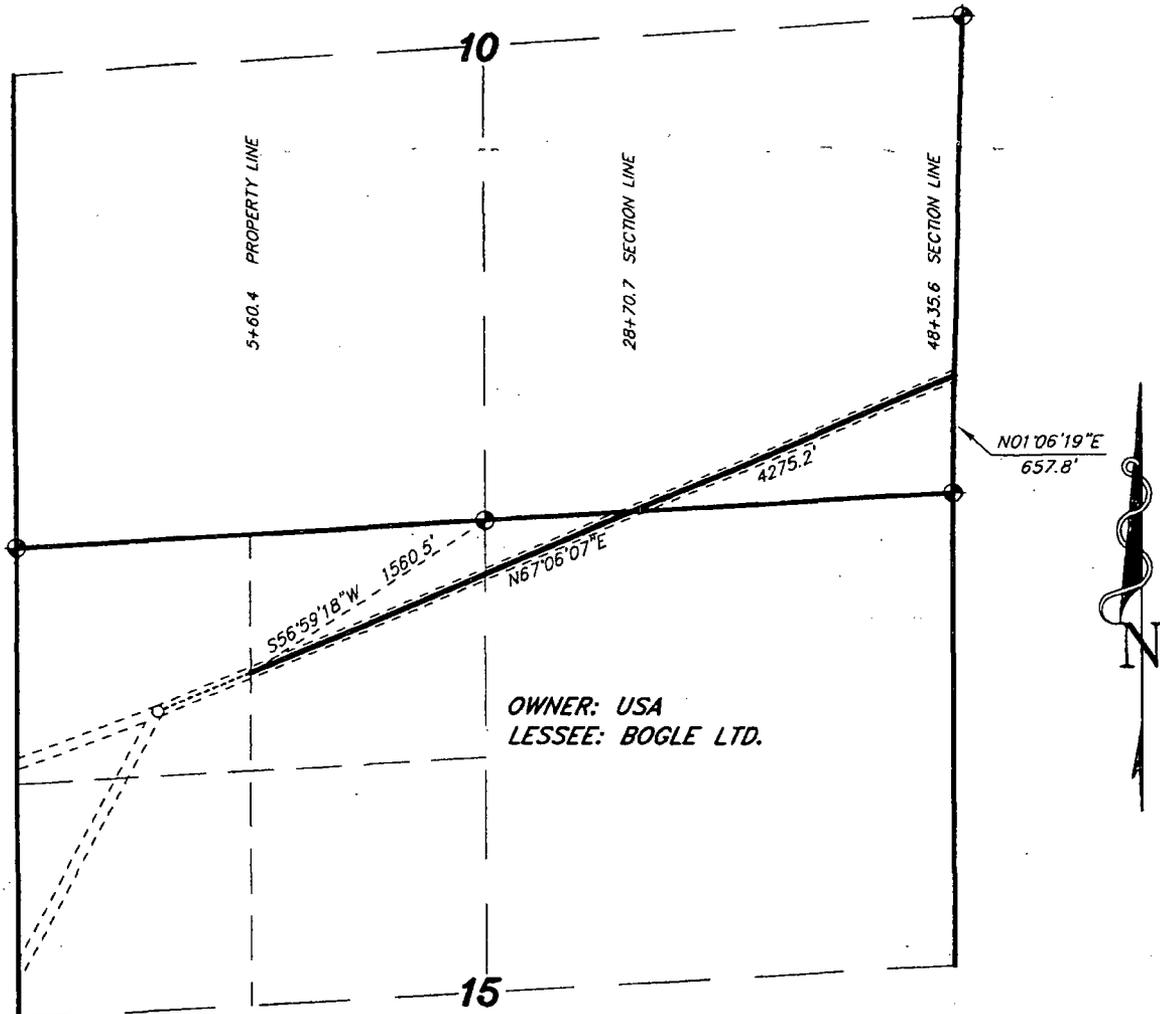
W.O. Number. 18743      Drawn By: J. M. SMALL

Date: 12-17-2007      Disk: JMS 18743R

Survey Date: 12-16-2007      Sheet 1 of 3 Sheets

EXHIBIT "E-3"

SECTIONS 10&15, TOWNSHIP 16 SOUTH, RANGE 28 EAST, N.M.P.M.,  
EDDY COUNTY, NEW MEXICO.



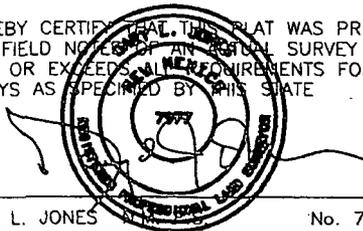
OWNER: USA  
LESSEE: BOGLE LTD.

LEGAL DESCRIPTION

A STRIP OF LAND 20.0 FEET WIDE, LOCATED IN SECTIONS 10&15, TOWNSHIP 16 SOUTH, RANGE 28 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO AND BEING 10.0 FEET LEFT AND RIGHT OF THE ABOVE PLATTED CENTERLINE SURVEY.

SECTION 15 = 2310.3 FEET = 140.01 RODS = 0.44 MILES = 1.06 ACRES  
SECTION 10 = 1964.9 FEET = 119.09 RODS = 0.37 MILES = 0.90 ACRES  
TOTAL = 4275.2 FEET = 259.10 RODS = 0.81 MILES = 1.96 ACRES

I HEREBY CERTIFY THAT THIS PLAT WAS PREPARED FROM FIELD NOTES OF AN ACCURATE SURVEY AND MEETS OR EXCEEDS ALL REQUIREMENTS FOR LAND SURVEYS AS SPECIFIED BY THIS STATE



GARY L. JONES No. 7977  
TEXAS P.L.S. No. 5074

1000 0 1000 2000 FEET

**C.O.G. OPERATING L.L.C.**

REF: PROP. LEASE ROAD TO THE BLACKHAWK "11" FEDERAL COM #1

A ROAD CROSSING USA LAND IN  
SECTIONS 10&15, TOWNSHIP 16 SOUTH, RANGE 28 EAST,  
N.M.P.M., EDDY COUNTY, NEW MEXICO.

**BASIN SURVEYS** P.O. BOX 1786 - HOBBS, NEW MEXICO

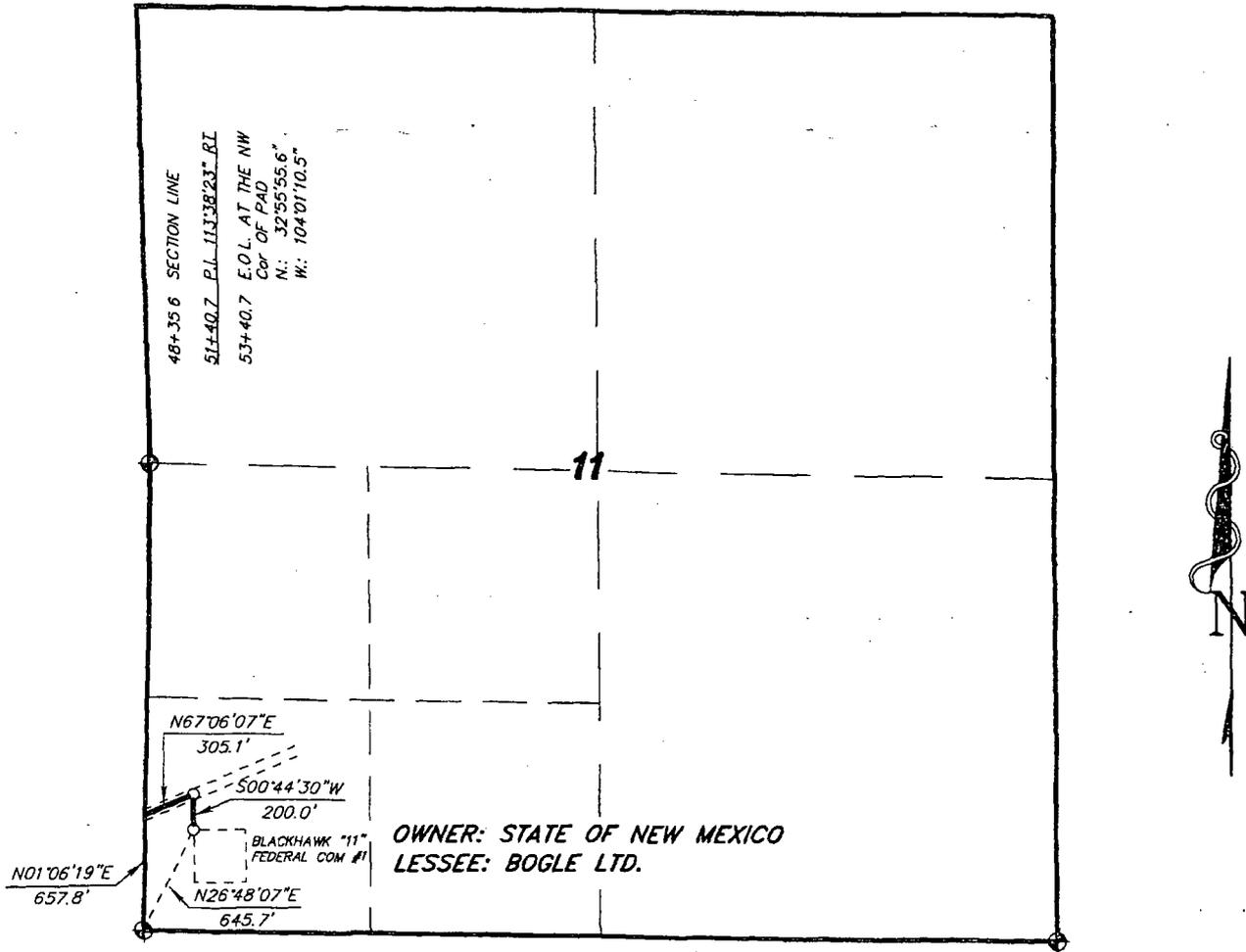
W.O. Number: 18743 Drawn By: J. M. SMALL

Date: 12-17-2007 Disk: JMS 18743R

Survey Date: 12-16-2007 Sheet 2 of 3 Sheets

EXHIBIT "E-4"

SECTION 11, TOWNSHIP 16 SOUTH, RANGE 28 EAST, N.M.P.M.,  
EDDY COUNTY, NEW MEXICO.



LEGAL DESCRIPTION

A STRIP OF LAND 20.0 FEET WIDE, LOCATED IN SECTION 11, TOWNSHIP 16 SOUTH, RANGE 28 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO AND BEING 10.0 FEET LEFT AND RIGHT OF THE FOLLOWING DESCRIBED CENTERLINE SURVEY. BEGINNING AT A POINT WHICH LIES N.01°06'19"E., 657.8 FEET FROM THE SOUTHWEST CORNER OF SAID SECTION 11; THENCE N 67°06'07"E., 305.1 FEET; THENCE S.00°44'30"W., 200.0 FEET TO THE END OF THIS LINE WHICH LIES N.26°48'07"E., 645.7 FEET FROM THE SOUTHWEST CORNER OF SAID SECTION 11. SAID STRIP OF LAND BEING 505.1 FEET OR 30.61 RODS IN LENGTH AND CONTAINING 0.23 ACRES, MORE OR LESS, AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

SW/4 SW/4 = 30.61 RODS = 0.23 ACRES

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED FROM FIELD NOTES OF AN ACTUAL SURVEY AND MEETS OR EXCEEDS ALL REQUIREMENTS FOR LAND SURVEYS AS SPECIFIED BY THIS STATE.

GARY L JONES N.M. P.S. No. 7977  
TEXAS P.L.S. No. 5074

**BASIN SURVEYS** P.O. BOX 1786 - HOBBS, NEW MEXICO

W.O. Number: 18743 Drawn By: J. M. SMALL

Date: 12-17-2007 Disk: JMS 18743R

1000 0 1000 2000 FEET

**C.O.G. OPERATING L.L.C.**

REF: PROP. LEASE ROAD TO THE BLACKHAWK "11" FEDERAL COM #1

A ROAD CROSSING STATE LAND IN  
SECTION 11, TOWNSHIP 16 SOUTH, RANGE 28 EAST,  
N.M.P.M., EDDY COUNTY, NEW MEXICO.

Survey Date: 12-16-2007 Sheet 3 of 3 Sheets

District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
1301 W. Grand Avenue, Artesia, NM 88210  
District III  
1000 Rio Brazos Road, Aztec, NM 87410  
District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico  
Energy Minerals and Natural Resources  
Department  
Oil Conservation Division  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

*MB*  
Form C-144  
June 16, 2008

For temporary pits, closed-loop systems, and below-grade tanks, submit to the appropriate NMOCD District Office.  
For permanent pits and exceptions submit to the Santa Fe Environmental Bureau office and provide a copy to the appropriate NMOCD District Office.



Pit, Closed-Loop System, Below-Grade Tank, or  
Proposed Alternative Method Permit or Closure Plan Application **OCD-ARTESIA**

JUL - 7 2008

Type of action:  Permit of a pit, closed-loop system, below-grade tank, or proposed alternative method  
 Closure of a pit, closed-loop system, below-grade tank, or proposed alternative method

**Instructions: Please submit one application (Form C-144) per individual pit, closed-loop system, below-grade tank or alternative request**

Please be advised that approval of this request does not relieve the operator of liability should operations result in pollution of surface water, ground water or the environment. Nor does approval relieve the operator of its responsibility to comply with any other applicable governmental authority's rules, regulations or ordinances.

Operator: <u>COG OPERATING LLC</u> OGRID #: <u>229137</u>	
Address: <u>550 WEST TEXAS, SUITE 1300 MIDLAND, TX 79701</u>	
Facility or well name: <u>BLACKHAWK 11 FEDERAL # 1</u>	
API-Number: <u>30-015-36541</u> OCD Permit Number: _____	
U/L or Qtr/Qtr <u>UL M</u> Section <u>11</u> Township <u>16S</u> Range <u>28E</u> County: <u>EDDY</u>	
Center of Proposed Design: Latitude <u>N/A</u> Longitude <u>N/A</u> NAD: <input type="checkbox"/> 1927 <input type="checkbox"/> 1983	
Surface Owner: <input checked="" type="checkbox"/> Federal <input type="checkbox"/> State <input type="checkbox"/> Private <input type="checkbox"/> Tribal Trust or Indian Allotment	
<input type="checkbox"/> <b>Pit:</b> Subsection F or G of 19.15.17.11 NMAC Temporary: <input type="checkbox"/> Drilling <input type="checkbox"/> Workover <input type="checkbox"/> Permanent <input type="checkbox"/> Emergency <input type="checkbox"/> Cavitation <input type="checkbox"/> Lined <input type="checkbox"/> Unlined Liner type: Thickness _____ mil <input type="checkbox"/> LLDPE <input type="checkbox"/> HDPE <input type="checkbox"/> PVC <input type="checkbox"/> Other _____ <input type="checkbox"/> String-Reinforced Seams: <input type="checkbox"/> Welded <input type="checkbox"/> Factory <input type="checkbox"/> Other _____ Volume: _____ bbl Dimensions: L _____ x W _____ x D _____	<input checked="" type="checkbox"/> <b>Closed-loop System:</b> Subsection H of 19.15.17.11 NMAC <input type="checkbox"/> Drying Pad <input type="checkbox"/> Tanks <input checked="" type="checkbox"/> Haul-off Bins <input type="checkbox"/> Other _____ <input type="checkbox"/> Lined <input type="checkbox"/> Unlined Liner type: Thickness _____ mil <input type="checkbox"/> LLDPE <input type="checkbox"/> HDPE <input type="checkbox"/> PVC <input type="checkbox"/> Other _____ Seams: <input type="checkbox"/> Welded <input type="checkbox"/> Factory <input type="checkbox"/> Other _____ Volume: _____ bbl _____ yd <sup>3</sup> Dimensions: Length _____ x Width _____
<input type="checkbox"/> <b>Below-grade tank:</b> Subsection I of 19.15.17.11 NMAC Volume: _____ bbl Type of fluid: _____ Tank Construction material: _____ <input type="checkbox"/> Secondary containment with leak detection <input type="checkbox"/> Visible sidewalls, liner, 6-inch lift and automatic overflow shut-off <input type="checkbox"/> Visible sidewalls and liner <input type="checkbox"/> Visible sidewalls only <input type="checkbox"/> Other _____ Liner type: Thickness _____ mil <input type="checkbox"/> HDPE <input type="checkbox"/> PVC <input type="checkbox"/> Other _____	<input type="checkbox"/> <b>Fencing:</b> Subsection D of 19.15.17.11 NMAC <input type="checkbox"/> Chain link, six feet in height, two strands of barbed wire at top <input type="checkbox"/> Four foot height, four strands of barbed wire evenly spaced between one and four feet <input type="checkbox"/> <b>Netting:</b> Subsection E of 19.15.17.11 NMAC <input type="checkbox"/> Screen <input type="checkbox"/> Netting <input type="checkbox"/> Other _____ <input type="checkbox"/> Monthly inspections <input type="checkbox"/> <b>Signs:</b> Subsection C of 19.15.17.11 NMAC <input type="checkbox"/> 12'x24', 2' lettering, providing Operator's name, site location, and emergency telephone numbers <input checked="" type="checkbox"/> Signed in compliance with 19.15.3.103 NMAC
<input type="checkbox"/> <b>Alternative Method:</b> Submittal of an exception request is required. Exceptions must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.	<input checked="" type="checkbox"/> <b>Administrative Approvals and Exceptions:</b> Justifications and/or demonstrations of equivalency are required. Please refer to 19.15.17 NMAC for guidance. <b>Please check a box if one or more of the following is requested, if not leave blank:</b> <input type="checkbox"/> Administrative approval(s): Requests must be submitted to the appropriate division district or the Santa Fe Environmental Bureau office for consideration of approval. <input type="checkbox"/> Exception(s): Requests must be submitted to the Santa Fe Environmental Bureau office for consideration of approval.

020846

**Siting Criteria (regarding permitting):** 19.15.17.10 NMAC

**Instructions:** The applicant must demonstrate compliance for each siting criteria below in the application. Recommendations of acceptable source material are provided below. Requests regarding changes to certain siting criteria may require administrative approval from the appropriate district office or may be considered an exception which must be submitted to the Santa Fe Environmental Bureau office for consideration of approval. Applicant must attach justification for request. Please refer to 19.15.17.10 NMAC for guidance. Siting criteria does not apply to drying pads or above-grade tanks associated with a closed-loop system.

- Ground water is less than 50 feet below the bottom of the temporary pit, permanent pit, or below-grade tank.  
- NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells  Yes  No
- Within 300 feet of a continuously flowing watercourse, or 200 feet of any other watercourse, lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark).  
- Topographic map; Visual inspection (certification) of the proposed site  Yes  No
- Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. (Applies to temporary, emergency, or cavitation pits and below-grade tanks)  
- Visual inspection (certification) of the proposed site; Aerial photo; Satellite image  Yes  No  
 NA
- Within 1000 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. (Applies to permanent pits)  
- Visual inspection (certification) of the proposed site; Aerial photo; Satellite image  Yes  No  
 NA
- Within 500 horizontal feet of a private, domestic fresh water well or spring that less than five households use for domestic or stock watering purposes, or within 1000 horizontal feet of any other fresh water well or spring, in existence at the time of initial application.  
- NM Office of the State Engineer - iWATERS database search; Visual inspection (certification) of the proposed site  Yes  No
- Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3, as amended.  
- Written confirmation or verification from the municipality; Written approval obtained from the municipality  Yes  No
- Within 500 feet of a wetland.  
- US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site  Yes  No
- Within the area overlying a subsurface mine.  
- Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division  Yes  No
- Within an unstable area.  
- Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map  Yes  No
- Within a 100-year floodplain.  
- FEMA map  Yes  No

**Temporary Pits, Emergency Pits, and Below-grade Tanks Permit Application Attachment Checklist:** Subsection B of 19.15.17.9 NMAC

**Instructions:** Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.

- Hydrogeologic Report (Below-grade Tanks) - based upon the requirements of Paragraph (4) of Subsection B of 19.15.17.9 NMAC
- Hydrogeologic Data (Temporary and Emergency Pits) - based upon the requirements of Paragraph (2) of Subsection B of 19.15.17.9 NMAC
- Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC
- Design Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
- Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
- Closure Plan - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC

Previously Approved Design (attach copy of design) API Number: \_\_\_\_\_ or Permit Number: \_\_\_\_\_

**Closed-loop Systems Permit Application Attachment Checklist:** Subsection B of 19.15.17.9 NMAC

**Instructions:** Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.

- Geologic and Hydrogeologic Data (required for on-site closure) - based upon the requirements of Paragraph (3) of Subsection B of 19.15.17.9
- Siting Criteria Compliance Demonstrations (required for on-site closure) - based upon the appropriate requirements of 19.15.17.10 NMAC
- Design Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
- Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
- Closure Plan - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC

NMAC

Previously Approved Design (attach copy of design) API Number: \_\_\_\_\_

**Permanent Pits Permit Application Checklist:** Subsection B of 19.15.17.9 NMAC

**Instructions:** Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.

- Hydrogeologic Report - based upon the requirements of Paragraph (1) of Subsection B of 19.15.17.9 NMAC
- Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC
- Climatological Factors Assessment
- Certified Engineering Design Plans - based upon the appropriate requirements of 19.15.17.11 NMAC
- Dike Protection and Structural Integrity Design - based upon the appropriate requirements of 19.15.17.11 NMAC
- Leak Detection Design - based upon the appropriate requirements of 19.15.17.11 NMAC
- Liner Specifications and Compatibility Assessment - based upon the appropriate requirements of 19.15.17.11 NMAC
- Quality Control/Quality Assurance Construction and Installation Plan
- Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC
- Freeboard and Overtopping Prevention Plan - based upon the appropriate requirements of 19.15.17.11 NMAC
- Nuisance or Hazardous Odors, including H<sub>2</sub>S, Prevention Plan
- Emergency Response Plan
- Oil Field Waste Stream Characterization
- Monitoring and Inspection Plan
- Erosion Control Plan
- Closure Plan - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC

**Proposed Closure:** 19.15.17.13 NMAC

Type:  Drilling  Workover  Emergency  Cavitation  Permanent Pit  Below-grade Tank  Closed-loop System  Alternative

Proposed Closure Method:  Waste Excavation and Removal  
 On-site Closure Method (only for temporary pits and closed-loop systems)  
     In-place Burial  On-site Trench Burial  
 Alternative Closure Method (Exceptions must be submitted to the Santa Fe Environmental Bureau for consideration)

**Siting Criteria (regarding on-site closure methods only):** 19.15.17.10 NMAC

**Instructions:** Each siting criteria requires a demonstration of compliance in the closure plan. Recommendations of acceptable source material are provided below. Requests regarding changes to certain siting criteria may require administrative approval from the appropriate district office or may be considered an exception which must be submitted to the Santa Fe Environmental Bureau office for consideration of approval. Justifications and/or demonstrations of equivalency are required. Please refer to 19.15.17.10 NMAC for guidance.

- |   |   |
|---|---|
| Ground water is less than 50 feet below the bottom of the buried waste.<br>- NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells   | <input type="checkbox"/> Yes <input type="checkbox"/> No<br><input type="checkbox"/> NA |
| Ground water is between 50 and 100 feet below the bottom of the buried waste<br>- NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells  | <input type="checkbox"/> Yes <input type="checkbox"/> No<br><input type="checkbox"/> NA |
| Ground water is more than 100 feet below the bottom of the buried waste.<br>- NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells  | <input type="checkbox"/> Yes <input type="checkbox"/> No<br><input type="checkbox"/> NA |
| Within 300 feet of a continuously flowing watercourse, or 200 feet of any other watercourse, lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark).<br>- Topographic map; Visual inspection (certification) of the proposed site  | <input type="checkbox"/> Yes <input type="checkbox"/> No                                |
| Within 300 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application.<br>- Visual inspection (certification) of the proposed site; Aerial photo; Satellite image  | <input type="checkbox"/> Yes <input type="checkbox"/> No                                |
| Within 500 horizontal feet of a private, domestic fresh water well or spring that less than five households use for domestic or stock watering purposes, or within 1000 horizontal feet of any other fresh water well or spring, in existence at the time of initial application.<br>- NM Office of the State Engineer - iWATERS database; Visual inspection (certification) of the proposed site | <input type="checkbox"/> Yes <input type="checkbox"/> No                                |
| Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3, as amended.<br>- Written confirmation or verification from the municipality; Written approval obtained from the municipality   | <input type="checkbox"/> Yes <input type="checkbox"/> No                                |
| Within 500 feet of a wetland.<br>- US Fish and Wildlife Wetland Identification map; Topographic map; Visual inspection (certification) of the proposed site   | <input type="checkbox"/> Yes <input type="checkbox"/> No                                |
| Within the area overlying a subsurface mine.<br>- Written confirmation or verification or map from the NM EMNRD-Mining and Mineral Division   | <input type="checkbox"/> Yes <input type="checkbox"/> No                                |
| Within an unstable area.<br>- Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; Topographic map   | <input type="checkbox"/> Yes <input type="checkbox"/> No                                |
| Within a 100-year floodplain.<br>- FEMA map   | <input type="checkbox"/> Yes <input type="checkbox"/> No                                |

**Waste Excavation and Removal Closure Plan Checklist:** (19.15.17.13 NMAC) *Instructions: Each of the following items must be attached to the closure plan. Please indicate, by a check mark in the box, that the documents are attached.*

- Protocols and Procedures - based upon the appropriate requirements of 19.15.17.13 NMAC
- Confirmation Sampling Plan (if applicable) - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC
- Disposal Facility Name and Permit Number (for liquids, drilling fluids and drill cuttings)
- Soil Backfill and Cover Design Specifications - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
- Re-vegetation Plan - based upon the appropriate requirements of Subsection I of 19.15.17.13 NMAC
- Site Reclamation Plan - based upon the appropriate requirements of Subsection G of 19.15.17.13 NMAC

**Waste Removal Closure For Closed-loop Systems That Utilize Haul-off Bins Only:** (19.15.17.13.D NMAC) *Instructions: Please indentify the facility or facilities for the disposal of liquids, drilling fluids and drill cuttings.*

Disposal Facility Name: CRI OR G M INC. Disposal Facility Permit Number: CRI (R9166) G M INC (711-019-001)

**On-Site Closure Plan Checklist:** (19.15.17.13 NMAC) *Instructions: Each of the following items must be attached to the closure plan. Please indicate, by a check mark in the box, that the documents are attached.*

- Siting Criteria Compliance Demonstrations - based upon the appropriate requirements of 19.15.17.10 NMAC
- Proof of Surface Owner Notice - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC
- Construction and Design of Burial Trench (if applicable) based upon the appropriate requirements of 19.15.17.11 NMAC
- Protocols and Procedures - based upon the appropriate requirements of 19.15.17.13 NMAC
- Confirmation Sampling Plan (if applicable) - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC
- Waste Material Sampling Plan - based upon the appropriate requirements of Subsection F of 19.15.17.13 NMAC
- Disposal Facility Name and Permit Number (for liquids, drilling fluids and drill cuttings or in case on-site closure standards cannot be achieved)
- Soil Cover Design - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC
- Re-vegetation Plan - based upon the appropriate requirements of Subsection I of 19.15.17.13 NMAC
- Site Reclamation Plan - based upon the appropriate requirements of Subsection G of 19.15.17.13 NMAC

**Operator Application Certification:**

I hereby certify that the information submitted with this application is true, accurate and complete to the best of my knowledge and belief.

Name (Print): PHYLLIS A. EDWARDS Title: REGULATORY ANALYST

Signature: *Phyllis A. Edwards* Date: 7-1-08

e-mail address: pedwards@conchoresources.com Telephone: 432-685-4340

**OCD Approval:**  Permit Application (including closure plan)  Closure Plan (only)

OCD Representative Signature: *Jim W. Lane* Approval Date: 7/8/07

Title: *District II Supervisor* OCD Permit Number: 020846

**Closure Report (required within 60 days of closure completion):** Subsection K of 19.15.17.13 NMAC

Closure Completion Date: \_\_\_\_\_

**Closure Method:**

- Waste Excavation and Removal  On-Site Closure Method  Alternative Closure Method
- If different from approved plan, please explain.

**Closure Report Attachment Checklist:** *Instructions: Each of the following items must be attached to the closure report. Please indicate, by a check mark in the box, that the documents are attached.*

- Proof of Closure Notice
- Proof of Deed Notice (if applicable)
- Plot Plan
- Confirmation Sampling Analytical Results
- Waste Material Sampling Analytical Results
- Disposal Facility Name and Permit Number
- Soil Backfilling and Cover Installation
- Re-vegetation Application Rates and Seeding Technique
- Site Reclamation (Photo Documentation)

On-site Closure Location: Latitude \_\_\_\_\_ Longitude \_\_\_\_\_ NAD:  1927  1983

**Operator Closure Certification:**

I hereby certify that the information and attachments submitted with this closure report is true, accurate and complete to the best of my knowledge and belief. I also certify that the closure complies with all applicable closure requirements and conditions specified in the approved closure plan.

Name (Print): \_\_\_\_\_ Title: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

e-mail address: \_\_\_\_\_ Telephone: \_\_\_\_\_

## 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:

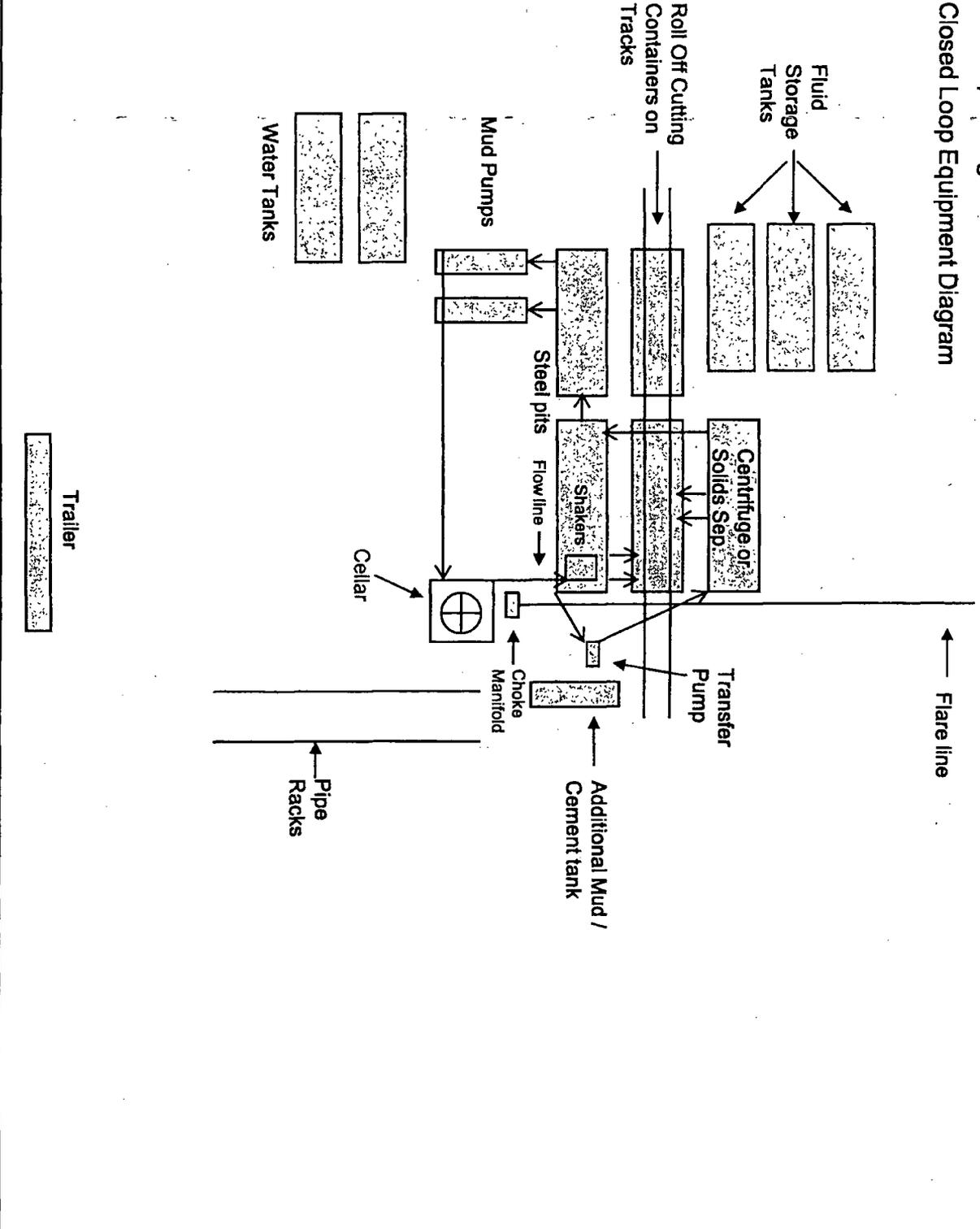
CRI (permit number R9166)

or

GMI (permit number 711-019-001)

dependent upon which rig is available to drill this well.

COG Operating LLC  
Closed Loop Equipment Diagram



District I  
1625 N. French Dr., Hobbs, NM 88240  
District II  
1301 W. Grand Avenue, Artesia, NM 88210  
District III  
1000 Rio Brazos Road, Aztec, NM 87410  
District IV  
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico  
Energy Minerals and Natural Resources  
Department  
Oil Conservation Division  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

AUG 25 2008

Form C-144 CLEZ  
July 21, 2008

**OCDARTESIA**  
For closed-loop systems that only use above ground steel tanks or haul-off bins and propose to implement waste removal for closure, submit to the appropriate NMOCD District Office.

### Closed-Loop System Permit or Closure Plan Application

(that only use above ground steel tanks or haul-off bins and propose to implement waste removal for closure)

Type of action:  Permit  Closure

**Instructions:** Please submit one application (Form C-144 CLEZ) per individual closed-loop system request. For any application request other than for a closed-loop system that only use above ground steel tanks or haul-off bins and propose to implement waste removal for closure, please submit a Form C-144.

Please be advised that approval of this request does not relieve the operator of liability should operations result in pollution of surface water, ground water or the environment. Nor does approval relieve the operator of its responsibility to comply with any other applicable governmental authority's rules, regulations or ordinances.

1. Operator: COG OPERATING LLC OGRID #: 229137  
Address: 550 WEST TEXAS, SUITE 1300 MIDLAND, TX 79701  
Facility or well name: BLACKHAWK 11 FEDERAL # 1  
API Number: 30-015- 36541 OCD Permit Number: \_\_\_\_\_  
U/L or Qtr/Qtr UL M Section 11 Township 16S Range 28E County: EDDY  
Center of Proposed Design: Latitude N/A Longitude N/A NAD:  1927  1983  
Surface Owner:  Federal  State  Private  Tribal Trust or Indian Allotment

2.  **Closed-loop System:** Subsection H of 19.15.17.11 NMAC  
Operation:  Drilling a new well  Workover or Drilling (Applies to activities which require prior approval of a permit or notice of intent)  P&A  
 Above Ground Steel Tanks or  Haul-off Bins

3. **Signs:** Subsection C of 19.15.17.11 NMAC  
 12"x 24", 2" lettering, providing Operator's name, site location, and emergency telephone numbers  
 Signed in compliance with 19.15.3.103 NMAC

4. **Closed-loop Systems Permit Application Attachment Checklist:** Subsection B of 19.15.17.9 NMAC  
**Instructions:** Each of the following items must be attached to the application. Please indicate, by a check mark in the box, that the documents are attached.  
 Design Plan - based upon the appropriate requirements of 19.15.17.11 NMAC  
 Operating and Maintenance Plan - based upon the appropriate requirements of 19.15.17.12 NMAC  
 Closure Plan (Please complete Box 5) - based upon the appropriate requirements of Subsection C of 19.15.17.9 NMAC and 19.15.17.13 NMAC  
 Previously Approved Design (attach copy of design) API Number: \_\_\_\_\_  
 Previously Approved Operating and Maintenance Plan API Number: \_\_\_\_\_

5. **Waste Removal Closure For Closed-loop Systems That Utilize Above Ground Steel Tanks or Haul-off Bins Only:** (19.15.17.13.D NMAC)  
**Instructions:** Please indentify the facility or facilities for the disposal of liquids, drilling fluids and drill cuttings. Use attachment if more than two facilities are required.  
Disposal Facility Name: CRI Disposal Facility Permit Number: R1966  
Disposal Facility Name: GM INC Disposal Facility Permit Number: 711-019-001  
Will any of the proposed closed-loop system operations and associated activities occur on or in areas that will not be used for future service and operations?  
 Yes (If yes, please provide the information below)  No  
**Required for impacted areas which will not be used for future service and operations:**  
 Soil Backfill and Cover Design Specifications - based upon the appropriate requirements of Subsection H of 19.15.17.13 NMAC  
 Re-vegetation Plan - based upon the appropriate requirements of Subsection I of 19.15.17.13 NMAC  
 Site Reclamation Plan - based upon the appropriate requirements of Subsection G of 19.15.17.13 NMAC

6. **Operator Application Certification:**  
I hereby certify that the information submitted with this application is true, accurate and complete to the best of my knowledge and belief.  
Name (Print): PHYLLIS A. EDWARDS Title: REGULATORY ANALYST  
Signature: \_\_\_\_\_ Date: 8-22-08  
e-mail address: pedwards@conchoresources.com Telephone: 432-685-4340

020846

7. **OCD Approval:**  Permit Application (including closure plan)  Closure Plan (only)

OCD Representative Signature: [Signature] Approval Date: 7-8-08

Title: [Signature] OCD Permit Number: 020846

8. **Closure Report (required within 60 days of closure completion):** Subsection K of 19.15.17.13 NMAC

*Instructions: Operators are required to obtain an approved closure plan prior to implementing any closure activities and submitting the closure report. The closure report is required to be submitted to the division within 60 days of the completion of the closure activities. Please do not complete this section of the form until an approved closure plan has been obtained and the closure activities have been completed.*

Closure Completion Date: \_\_\_\_\_

9. **Closure Report Regarding Waste Removal Closure For Closed-loop Systems That Utilize Above Ground Steel Tanks or Haul-off Bins Only:**

*Instructions: Please indentify the facility or facilities for where the liquids, drilling fluids and drill cuttings were disposed. Use attachment if more than two facilities were utilized.*

Disposal Facility Name: \_\_\_\_\_ Disposal Facility Permit Number: \_\_\_\_\_

Disposal Facility Name: \_\_\_\_\_ Disposal Facility Permit Number: \_\_\_\_\_

Were the closed-loop system operations and associated activities performed on or in areas that *will not* be used for future service and operations?  
 Yes (If yes, please demonstrate compliance to the items below)  No

*Required for impacted areas which will not be used for future service and operations:*

- Site Reclamation (Photo Documentation)
- Soil Backfilling and Cover Installation
- Re-vegetation Application Rates and Seeding Technique

10. **Operator Closure Certification:**

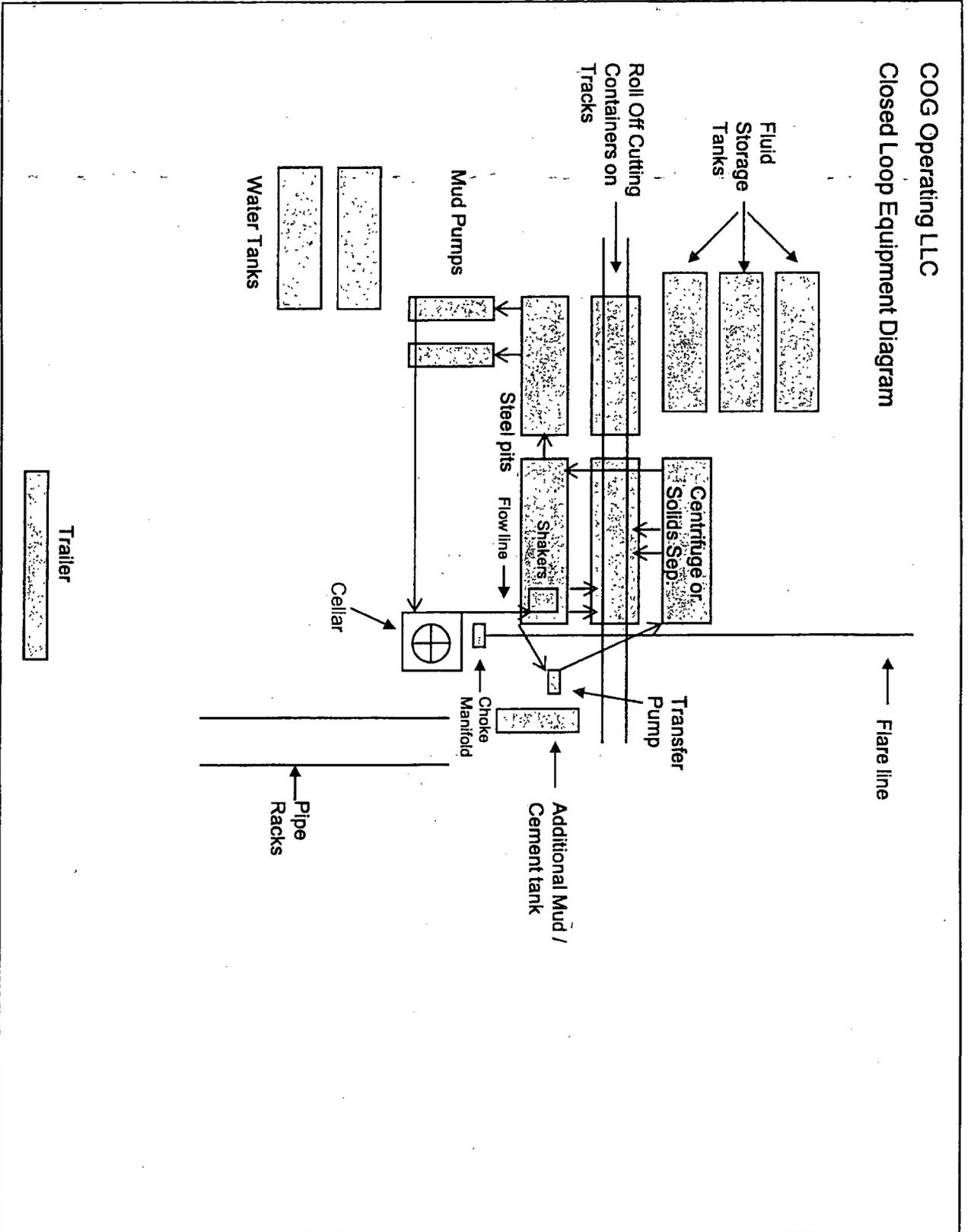
I hereby certify that the information and attachments submitted with this closure report is true, accurate and complete to the best of my knowledge and belief. I also certify that the closure complies with all applicable closure requirements and conditions specified in the approved closure plan.

Name (Print): \_\_\_\_\_ Title: \_\_\_\_\_

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

e-mail address: \_\_\_\_\_ Telephone: \_\_\_\_\_

COG Operating LLC  
Closed Loop Equipment Diagram



## 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.

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

MOCD-ARTESIA

FORM APPROVED  
OMB No 1004-0137  
Expires March 31, 2008  
OCT 21 2008  
MOCD-ARTESIA

**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.*

**SUBMIT IN TRIPLICATE- Other instructions on reverse side.**

1. Type of Well <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other		5. Lease Serial No. NMNM-95630
2. Name of Operator COG Operating LLC		6. If Indian, Allottee or Tribe Name
3a. Address 550 W. Texas Ave., Suite 1300 Midland, TX 79701	3b. Phone No (include area code) 432-685-4340	7. If Unit or CA/Agreement, Name and/or No
4. Location of Well (Footage, Sec, T., R., M., or Survey Description) SURFACE: 430' FSL & 430' FWL Section 11, T16S, R28E, UL M BHL: 330' FSL & 330' FEL Section 11, T16S, R28E, UL P		8. Well Name and No. Blackhawk 11 Federal Com #1
		9. API Well No. 30-015-36541
		10. Field and Pool, or Exploratory Area Crow Flats, Wolfcamp
		11. County or Parish, State Eddy County, NM

12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION		
<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production (Start/Resume)
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing	<input type="checkbox"/> Fracture Treat	<input type="checkbox"/> Reclamation
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete
	<input type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> Water Disposal
			<input type="checkbox"/> Water Shut-Off
			<input type="checkbox"/> Well Integrity
			<input checked="" type="checkbox"/> Other <u>Chg pool, casing &amp; cementing program</u>

13. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 shall be filed once testing has been completed. Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

COG respectfully requests permission:

to change Field and Pool from Wolfcamp to Crow Flats Abo;

to change proposed Casing & Cement Program;

for a variance to the 200' minimum tie back in order to set the pump as close to the formation as possible. The curve and horizontal are all located in the Abo Formation.

Attached is a revised plat and revised Form 3160-3 Drill Plan with changes reflected in shaded areas.

ACCEPTED FOR RECORD

OCT 21 2008

APPROVED  
OCT 18 2008  
JAMES A. AMOS  
SUPERVISOR-EPS

14 I hereby certify that the foregoing is true and correct.  
Name (Printed/Typed) Phyllis A. Edwards  
Signature Phyllis A. Edwards  
Title Deputy Field Inspector  
NMOC-District II ARTESIA Analyst

Signature Phyllis A. Edwards Date 10/08/2008

**THIS SPACE FOR FEDERAL OR STATE OFFICE USE**

Approved by _____ Conditions of approval, if any, are attached. Approval of this notice 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.	Title _____ Office _____	Date _____
--	-----------------------------	------------

Title 18 USC Section 1001 and Title 43 USC 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)

DISTRICT I  
1825 N French Dr., Hobbs, NM 88240

DISTRICT II  
1301 W Grand Avenue, Artesia, NM 88210

DISTRICT III  
1000 Rio Brazos Rd., Aztec, NM 87410

DISTRICT IV  
1220 S St Francis Dr., Santa Fe, NM 87505

State of New Mexico  
Energy, Minerals and Natural Resources Department

Form C-102  
Revised October 12, 2005

Submit to Appropriate District Office  
State Lease - 4 Copies  
Fee Lease - 3 Copies

OIL CONSERVATION DIVISION  
1220 South St. Francis Dr.  
Santa Fe, New Mexico 87505

AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-015-		Pool Code	Pool Name CROW FLATS: ARO
Property Code	Property Name BLACKHAWK "11" FEDERAL COM		Well Number 1
OGRID No 229137	Operator Name C.O.G. OPERATING L.L.C.		Elevation 3570'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	11	16 S	28 E		430	SOUTH	430	WEST	EDDY

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	11	16 S	28 E		330	SOUTH	330	EAST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
160			

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

	<p><b>OPERATOR CERTIFICATION</b></p> <p>I hereby certify that the information contained 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 pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.</p> <p><i>Phyllis A. Edwards</i> 8-14-08 Signature Date</p> <p>Phyllis A. Edwards Printed Name Regulatory Analyst</p>	
	<p><b>SURVEYOR CERTIFICATION</b></p> <p>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.</p> <p>DECEMBER 16, 2007 Date Surveyed</p> <p>GARY L. JONES Signature Professional Surveyor</p> <p>W.O. 16398</p> <p>Certificate No Gary L. Jones 7977</p> <p>BASIN SURVEYS</p>	
	<p><b>SURFACE LOCATION</b> LAT.: N 32°55'55.47" LONG.: W104°09'13.98" N.: 702870.627 E.: 596395.029 (NAD-83)</p> <p><b>BOTTOM HOLE LOCATION</b> LAT.: N 32°55'54.42" LONG.: W104°08'21.77" N.: 702772.089 E.: 600844.111 (NAD-83)</p>	
	<p><b>PROJECT AREA</b></p> <p><b>PENETRATION POINT</b></p>	

ATTACHMENT TO FORM 3160-3  
 COG Operating LLC  
 Blackhawk "11" Federal Com # 1  
 SL: 430' FSL & 430' FWL Unit M  
 BHL: 330' FSL & 330' FEL Unit P  
 Sec 11, T16S, R28E  
 Eddy County, NM

**REVISED 10/08/2008**

1. Proration Unit Spacing: 160 Acres
2. Ground Elevation: 3570'
3. Proposed Depths: Pilot hole TD = 6835', Horizontal TVD = 6680', Horizontal MD = 10850'
4. Estimated tops of geological markers:

Quaternary	Surface
Yates/Seven Rivers	385'
Queens	1120'
San Andres	1850'
Glorietta	3375'
Abo	5370'
Top Basal Abo	6585'

5. Possible mineral bearing formations:

Water Sand	Fresh Water	150'
San Andres	Oil / Gas	1850'
Glorietta	Oil / Gas	3375'
Abo	Oil / Gas	5370'
Top Basal Abo	Oil / Gas	6585'

6. Casing Program

<u>Hole size</u>	<u>Interval</u>	<u>OD of Casing</u>	<u>Weight</u>	<u>Cond.</u>	<u>Collar</u>	<u>Grade</u>
17-1/2"	0' - +/-500'	13-3/8"	48#	New	STC	H40
Collapse sf - 2.98, Burst sf - 2.33, Tension sf - 13.42						
12-1/4"	0' - 1800'	9-5/8"	40#	New	STC	J-55
Collapse sf - 2.46, Burst sf - 1.35, Tension sf - 6.48						
8-3/4"	0' - +/-6000'MD	7"	26#	New	LTC	P-110
Collapse sf - 2.18, Burst sf - 1.53, Tension sf - 4.37						
6-1/8"	5900' - +/-10850'MD	4-1/2"	11.6#	New	LTC	P-110
Collapse sf - 2.47, Burst sf - 1.64, Tension sf - 4.48						

**ATTACHMENT TO FORM 3160-3  
COG Operating LLC  
Blackhawk "11" Federal Com # 1  
Page 2 of 3**

**7. Cement Program**

13 3/8" Surface Casing set at +/- 500', Circ to Surf with +/- 500 sx Class "C" w/ 2% CaCl<sub>2</sub>, 1.35 yd.

9 5/8" Intermediate Casing set at +/- 1800', Circ. to Surf with +/- 600 sx 50/50 Poz "C", 2.45 yd. & 200 sx Class "C" w/ 2% CaCl<sub>2</sub>, 1.35 yd.

7" Production Casing set at +/- 6000' MD, Cement with +/- 500 sx 50/50/10 "C", 2.45 yd & +/- 200 sx Class "H", 1.18 yd., Est. TOC @ 200' minimum tie back into intermediate casing.

4 1/2" Production Liner set from +/- 5900' to +/- 10850' MD 6680' TVD, Liner run with +/- 5 isolation Packers and Sliding sleeves in un-cemented Lateral.

**8. Pressure Control Equipment:**

After setting 13 3/8" casing and installing 3000 psi casing head, NU 13 5/8" 3000 psi annular BOP. Test annular BOP, casing and manifold with clear fluid to 1000 psi w/ rig pump.

After setting 9 5/8" casing and installing 3000 psi casing spool, NU 3000 psi double ram BOP and 3000 psi annular BOP. Test double ram BOP and manifold to 3000# with clear fluid and annular to 1500 psi using an independent tester, this equipment will be used continuously until TD is reached. Blind rams will be operationally checked on each trip out of hole. Pipe rams will be operationally checked each 24 hour period. These checks will be noted on daily tour sheets. Other accessories to the BOP equipment include a Kelly cock and floor safety valves, choke lines and choke manifold with 3000 psi WP rating.

**9. Proposed Mud Circulating System**

Interval	Mud Wt.	Visc.	FL	Type Mud System
0' - 500'	8.5	28	NC	Fresh water native mud w/ paper for seepage and sweeps. Lime for PH.
500' - 1800'	9.1	30	NC	Cut brine mud, lime for PH and paper for seepage and sweeps.
1800' - 6835'	9.1	29	NC	Drill section with fresh water/cut brine circulating the reserve utilizing periodic sweeps of paper as needed for seepage control and solids removal.
6000' - 10850'	9.5	36	10	Drill horizontal section with XCD polymer / cut brine / starch.

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

**10. Production Hole Drilling Summary:**

Drill 8-3/4" pilot hole thru Top Basal Abo to +/- 6835', run open hole logs Spot 350 sx "H" Kick off plug from +/- 6600' to +/- 5900'. Dress off to 6000' and set 7" production casing. Drill 6-1/8" hole and kick off at +/- 6200', building curve over +/- 350' to horizontal at 6610' TVD. Drill horizontal section in an easterly direction for +/- 4400' lateral to TD at +/- 10850' MD. Run 4-1/2" production liner in Open hole lateral and set isolation packers and liner top packer @ +/- 5900' MD.

**ATTACHMENT TO FORM 3160-3  
COG Operating LLC  
Blackhawk "11" Federal # 1  
Page 3 of 3**

11. 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.

12. Logging, Testing and Coring Program:

- A. The electric logging program will consist of GR-Dual Laterolog, Spectral Density, Dual Spaced Neutron, CSNG Log and will be ran from T.D. in Pilot hole to 9-5/8" casing shoe.
- B. The mud logging program will consist of lagged 10' samples from intermediate casing point to T.D. in vertical pilot hole and from Kick off point 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 4 1/2" production liner packers have been installed at TD based on drill shows and log evaluation.

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

No abnormal pressures or temperatures are anticipated. The estimated bottom hole at TD is 110 degrees and estimated maximum bottom hole pressure is 2838 psig. Low levels of Hydrogen sulfide have been monitored in producing wells in the area, so H2S may be present while drilling of the well. An H2S plan is attached to the Drilling Program. No major loss of circulation zones has been reported in offsetting wells.

14. Anticipated Starting Date

Drilling operations will commence approximately on November 1, 2008 with drilling and completion operations lasting approximately 90 days.