

Form 3160-3
(April 2004)UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

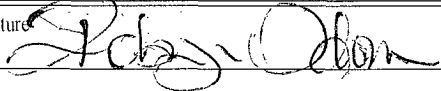
FORM APPROVED
OMB No. 1004-0137
Expires March 31, 2007

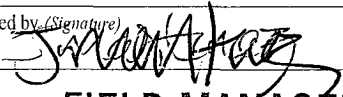
1a. Type of work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. NMM-95630
1b. Type of Well: <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other <input type="checkbox"/> Single Zone <input type="checkbox"/> 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. N/A
3a. Address 550 W. Texas, Suite 1300 Midland TX 79701	3b. Phone No. (include area code) (432) 685-4385	8. Lease Name and Well No. Blackhawk 11 Federal Com #1 (37327)
9. API Well No. 30-015- 38250		10. Field and Pool, or Exploratory Crow Flats; Wolfcamp (97102)
4. Location of Well (Report location clearly and in accordance with any State requirements.)* At surface 430' FSL & 330' FWL, Unit M At proposed prod. zone 330' FSL & 330' FEL, Unit P Split Estate		11. Sec., T. R. M. or Blk. and Survey or Area Sec 11, T16S, R28E
14. Distance in miles and direction from nearest town or post office* 2.5 miles north of Loco Hills, NM		12. County or Parish Eddy
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 430'		13. State NM
16. No. of acres in lease 1760	17. Spacing Unit dedicated to this well 40' 160	
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. 1430'	19. Proposed Depth TVD 6680', MD 10856'	20. BLM/BIA Bond No. on file NMB000215
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3570' GL	22. Approximate date work will start* 10/31/2010	23. Estimated duration 10 days

24. Attachments

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

- | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| 1. Well plat certified by a registered surveyor. | 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 shall be filed with the appropriate Forest Service Office). | 6. Such other site specific information and/or plans as may be required by the authorized officer. |

25. Signature 	Name (Printed/Typed) Robyn M. Odom	Date 07/07/2010
Title Regulatory Analyst		

Approved by (Signature) 	Name (Printed/Typed) FIELD MANAGER	Date OCT 13 2010
Office CARLSBAD FIELD OFFICE		

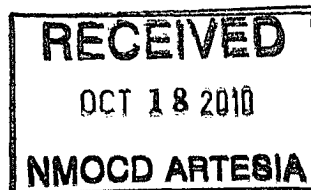
Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Conditions of approval, if any, are attached.

APPROVAL FOR TWO YEARS

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

*(Instructions on page 2)

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

Roswell Controlled Water Basin

APPROVAL SUBJECT TO
GENERAL REQUIREMENTS
AND SPECIAL STIPULATIONS
ATTACHED

State of New Mexico

Energy, Minerals and Natural Resources Department

DISTRICT I

1625 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

OIL CONSERVATION DIVISION

1220 SOUTH ST. FRANCIS DR.
Santa Fe, New Mexico 87505

Form C-102

Revised October 12, 2005

Submit to Appropriate District Office

State Lease - 4 Copies

Fee Lease - 3 Copies

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number 30-015- 38250	Pool Code 97102	Pool Name CROW FLATS; WOLFCAMP
Property Code 37327	Property Name BLACKHAWK 11 FEDERAL COM	Well Number 1H
OGRID No. 229137	Operator Name COG OPERATING, LLC	Elevation 3572'

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	330	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

GEODETIC COORDINATES
NAD 27 NME
Y=702805.5 N
X=555115.1 E
LAT.=32.931959° N
LONG.=104.153699° W

BOTTOM HOLE LOCATION
Y=702706.9 N
X=559663.1 E

DETAIL
3574.4' 3573.5'
600'
3573.1' 3568.0'

PROJECT AREA
PRODUCING AREA

SEE DETAIL
330' S.L.
430'
GRID AZ - 91°14'31"
HORZ. DIST. = 4350.3'
B.H. 330'

OPERATOR CERTIFICATION

I hereby certify that the information herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Robyn Odom 8/18/2010
Signature Date
Robyn Odom
Printed Name

SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

Ronald J. Eidson 08/16/2010
Date Surveyed Signature & Seal of Professional Surveyor
LA

Certificate No. GARY G. EIDSON 12641
RONALD J. EIDSON 3239

OCD-ARTESIA

Form 3160-5
(April 2004)

UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT

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 <input 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 N/A
3a. Address 550 W. Texas Ave., Suite 1300 Midland, TX 79701	3b. Phone No. (include area code) 432-685-4385	7. If Unit or CA/Agreement, Name and/or No. N/A
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) <div style="display: flex; justify-content: space-between;"> SHL: 430' FSL & 430' FWL Sec. 11, T16S, R28E, Unit M BHL: 330' FSL & 330' FEL Sec. 11, T16S, R28E, Unit P </div>		8. Well Name and No. Blackhawk 11 Federal Com #1
		9. API Well No. 30-015-
		10. Field and Pool, or Exploratory Area Crow Flats; Wolfcamp
		11. County or Parish, State Eddy, 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"/> Subsequent Report <input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Acidize <input type="checkbox"/> Alter Casing <input type="checkbox"/> Casing Repair <input type="checkbox"/> Change Plans <input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Deepen <input type="checkbox"/> Fracture Treat <input type="checkbox"/> New Construction <input type="checkbox"/> Plug and Abandon <input type="checkbox"/> Plug Back	<input type="checkbox"/> Production (Start/Resume) <input type="checkbox"/> Reclamation <input type="checkbox"/> Recomplete <input type="checkbox"/> Temporarily Abandon <input type="checkbox"/> Water Disposal	<input type="checkbox"/> Water Shut-Off <input type="checkbox"/> Well Integrity <input checked="" type="checkbox"/> Other Change Location

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 recompleat 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 recompleat 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 permitted this well at this location:

SHL: 430' FSL & 430' FWL Sec. 11, T16S, R28E, Unit M
BHL: 330' FSL & 330' FEL Sec. 11, T16S, R28E, Unit P

COG respectfully requests permission to move this location to:

SHL: 430' FSL & 330' FWL Sec. 11, T16S, R28E, Unit M
BHL: 330' FSL & 330' FEL Sec. 11, T16S, R28E, Unit P

This move is requested because the original location is too close to a playa.

A revised C-102 is attached for your review.

14. I hereby certify that the foregoing is true and correct Name (Printed/Typed) Robyn M. Odom		Title Regulatory Analyst
Signature	Date 08/18/2010	

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 _____
--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------	------------

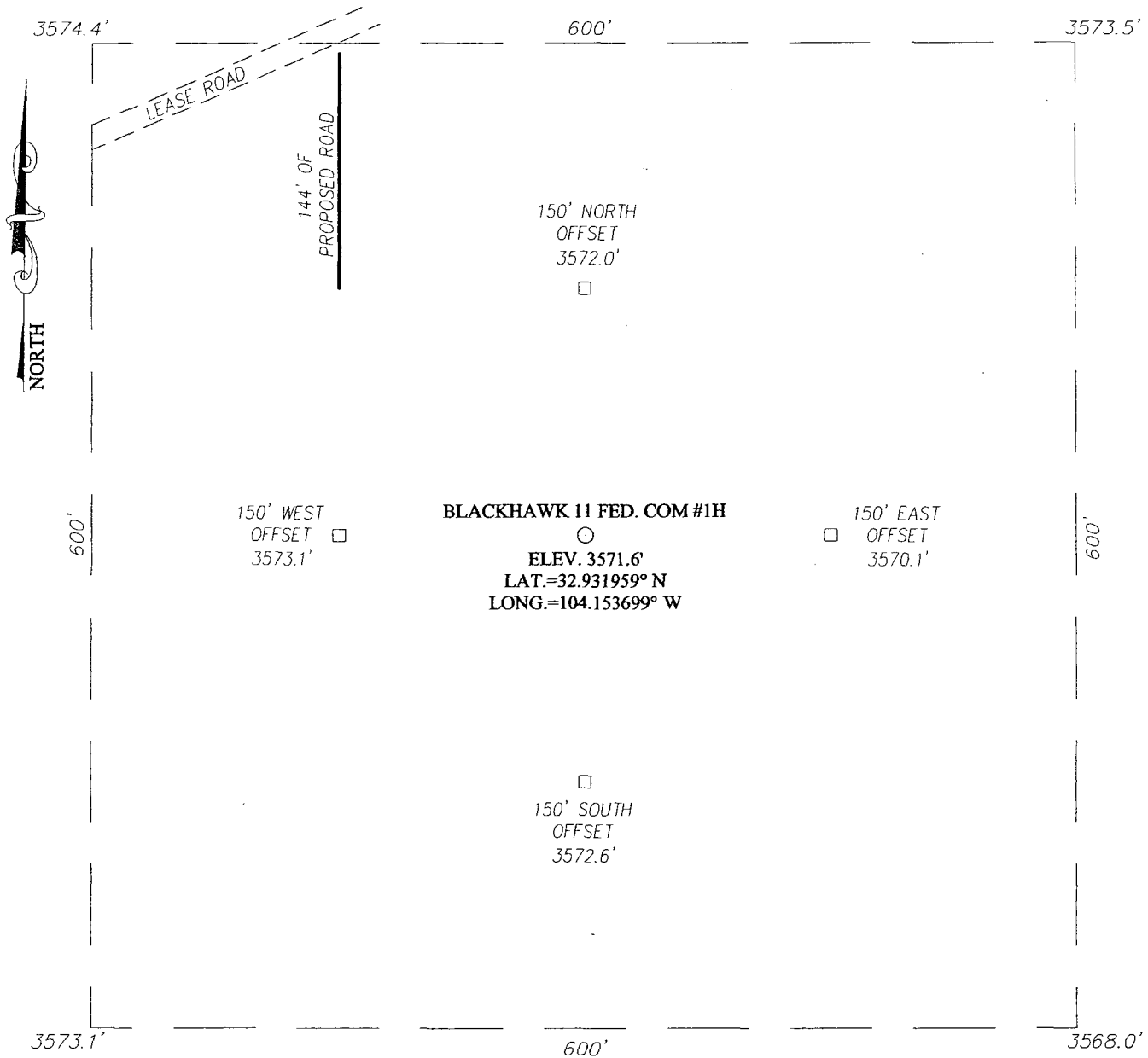
Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Instructions on page 2)

SECTION 11, TOWNSHIP 16 SOUTH, RANGE 28 EAST, N.M.P.M.

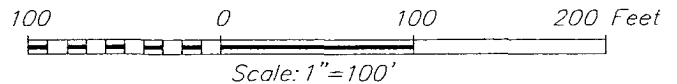
EDDY COUNTY

NEW MEXICO



DIRECTIONS TO LOCATION

FROM THE INTERSECTION OF U.S. HWY. #82 AND CO. RD. #214 (BARNAVAL DRAW), GO NORTH-NORTHWEST ON CO. RD. #214 APPROX. 6.2 MILES. TURN LEFT AND GO NORTHWEST APPROX. 3.5 MILES. TURN LEFT ON DOG CANYON ROAD AND GO SOUTHWEST APPROX. 2.0 MILES. THE LOCATION STAKE IS APPROX. 372 FEET SOUTH OF ROAD.



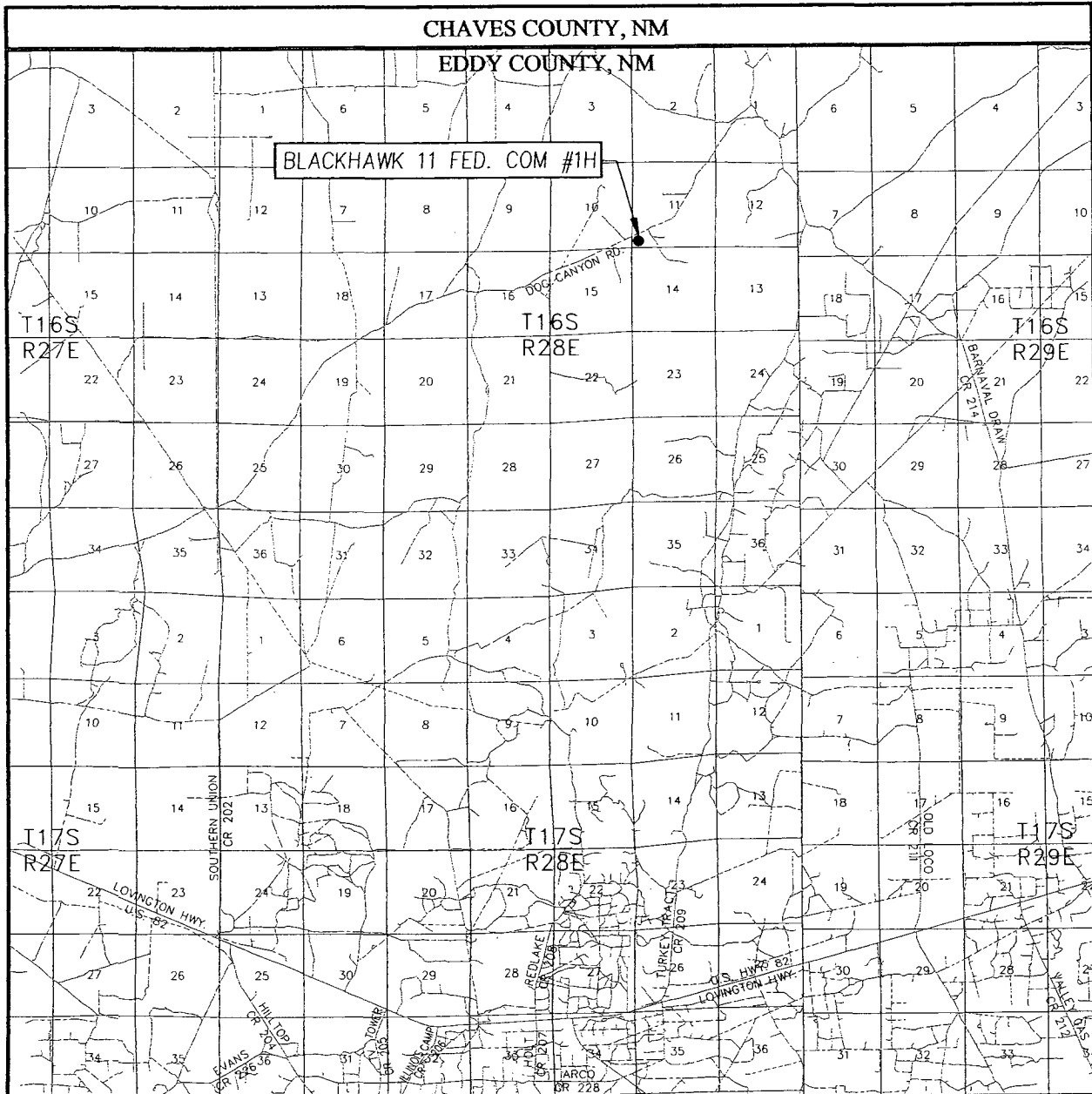
PROVIDING SURVEYING SERVICES
SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N. DAL PASO
HOBBS, N.M. 88240
(575) 393-3117

COG OPERATING, LLC

BLACKHAWK 11 FEDERAL COM #1H WELL
LOCATED 430 FEET FROM THE SOUTH LINE
AND 330 FEET FROM THE WEST LINE OF SECTION 11,
TOWNSHIP 16 SOUTH, RANGE 28 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO

Survey Date: 8/9/10	Sheet 1 of 1 Sheets
W.O. Number: 10.11.1199	Dr. By: LA
Date: 8/16/10	10111199
	Scale: 1"=100'

VICINITY MAP



SCALE: 1" = 2 MILES

SEC. 11 TWP. 16-S RGE. 28-E

SURVEY N.M.P.M.

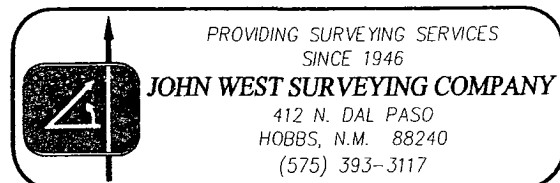
COUNTY EDDY STATE NEW MEXICO

DESCRIPTION 430' FSL & 330' FWL

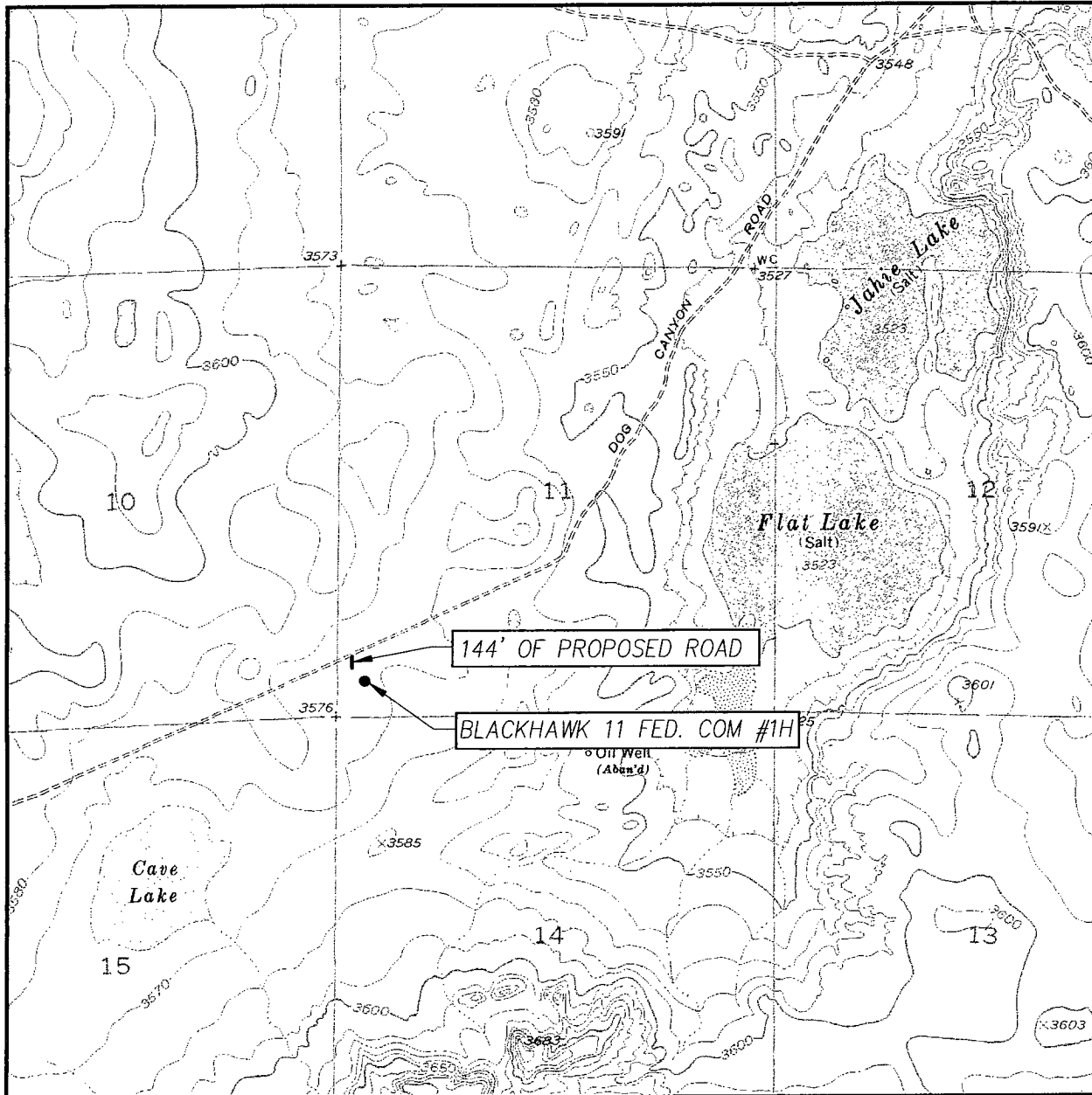
ELEVATION 3572'

OPERATOR COG OPERATING, LLC

LEASE BLACKHAWK 11 FED. COM



LOCATION VERIFICATION MAP



SCALE: 1" = 2000'

CONTOUR INTERVAL:
DIAMOND MOUND, N.M. - 10'

SEC. 11 TWP. 16-S RGE. 28-E

SURVEY N.M.P.M.

COUNTY EDDY STATE NEW MEXICO

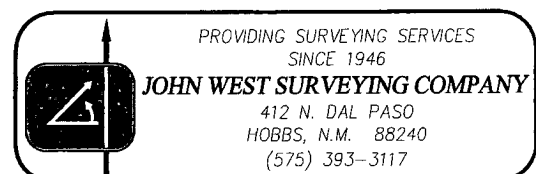
DESCRIPTION 430' FSL & 330' FWL

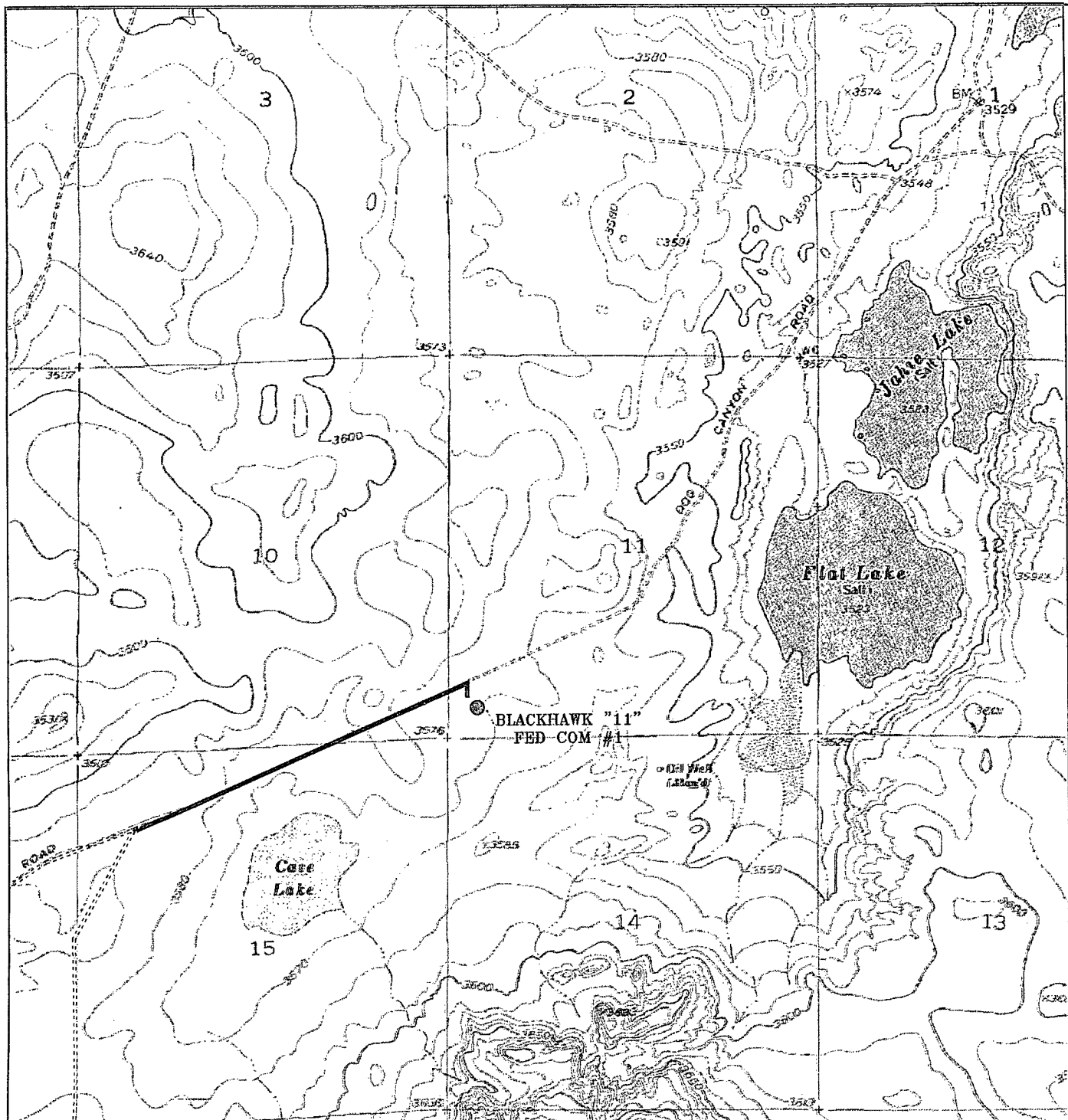
ELEVATION 3572'

OPERATOR COG OPERATING, LLC

LEASE BLACKHAWK 11 FED. COM

U.S.G.S. TOPOGRAPHIC MAP
DIAMOND MOUND, N.M.





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.



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

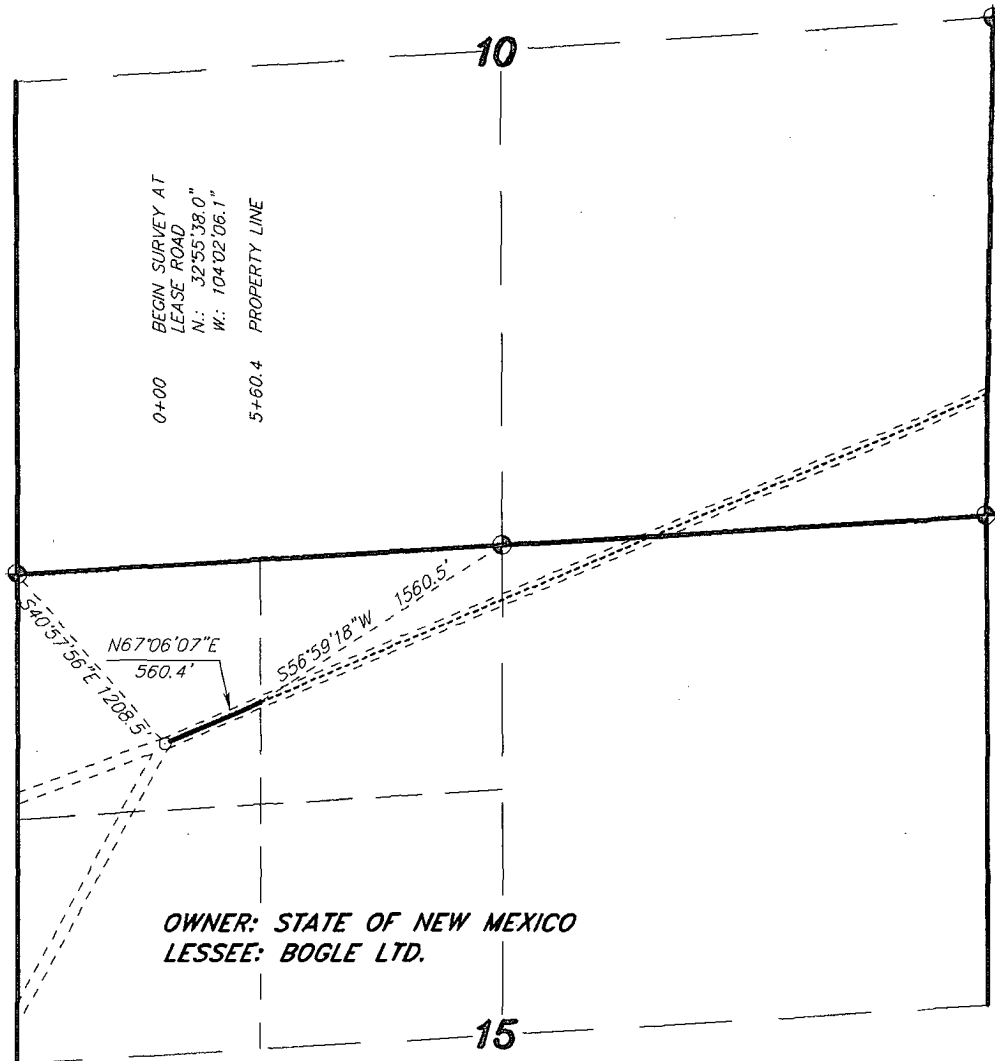
Survey Date: 12-16-2007

Scale: 1" = 2000'

Date: 12-17-2007

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

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



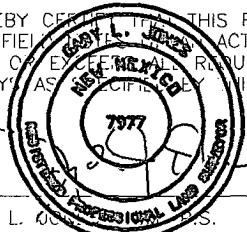
**OWNER: STATE OF NEW MEXICO
LESSEE: BOGLE LTD.**

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"E., 1208.5 FEET FROM THE NORTHWEST CORNER OF SAID SECTION 15; THENCE N.67°06'07"E., 560.4 FEET TO A POINT ON THE EAST PROPERTY LINE WHICH LIES S.56°59'18"W., 1560.5 FEET FROM THE NORTH QUARTER CORNER OF SAID SECTION 15. SAID STRIP OF LAND BEING 560.4 FEET OR 33.96 RODS IN LENGTH AND CONTAINING 0.26 ACRES, MORE OR LESS, AND BEING ALLOCATED BY FORTIES AS FOLLOWS:

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

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



GARY L. SMALL, 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

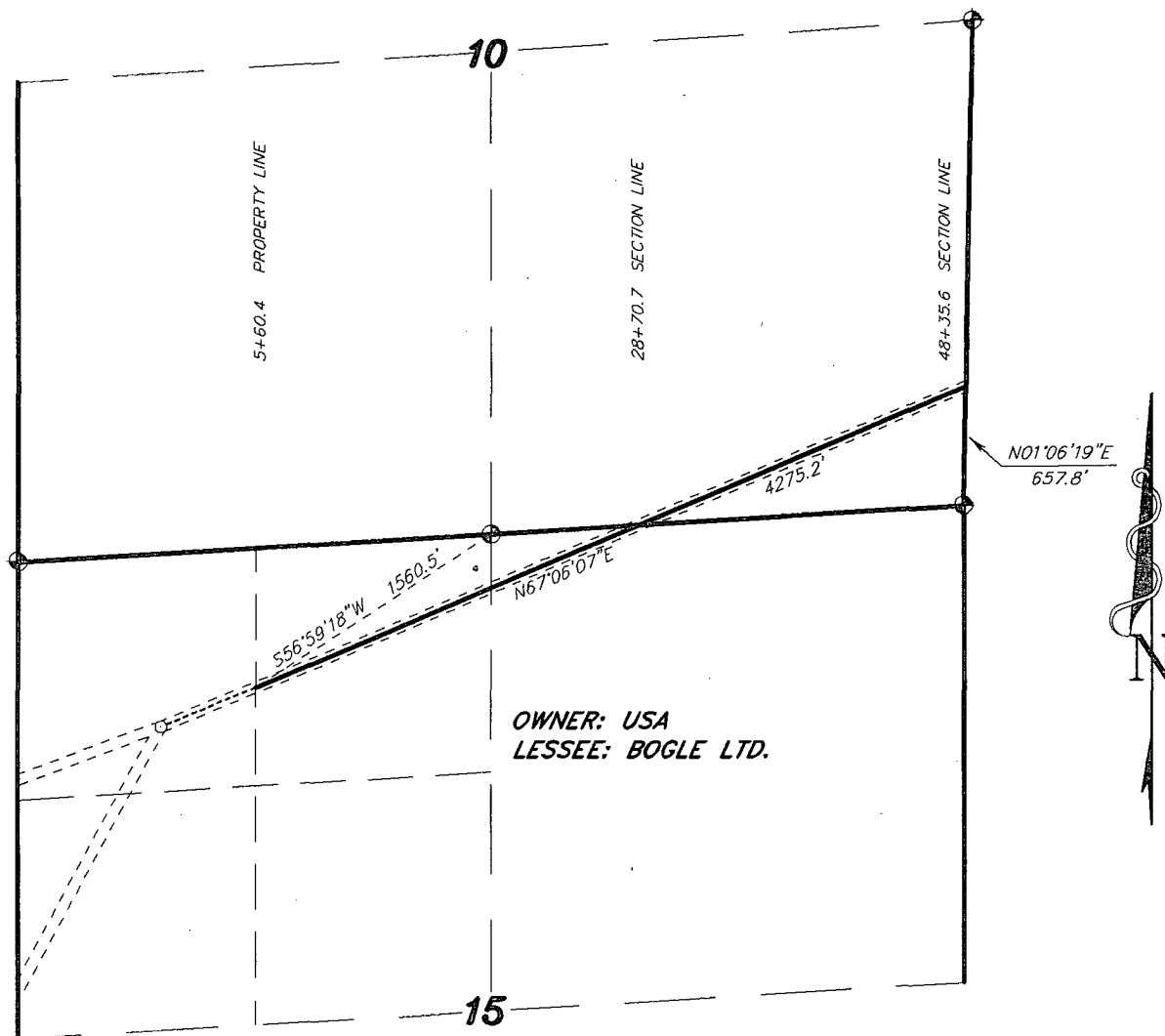
C.O.G. OPERATING L.L.C.

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

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

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

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



OWNER: USA
LESSEE: BOGLE LTD.

LEGAL DESCRIPTION

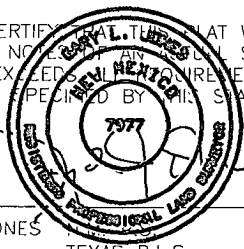
A STRIP OF LAND 20.0 FEET WIDE, LOCATED IN SECTIONS 10&15, TOWNSHIP 16 SOUTH, RANGE 28 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO AND BEING 10.0 FEET LEFT AND RIGHT OF THE ABOVE PLATTED CENTERLINE SURVEY.

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 THE SURVEY WAS PREPARED FROM FIELD NOTES AND MEETS OR EXCEEDS THE REQUIREMENTS FOR LAND SURVEYS AS SPECIFIED BY THE STATE.



GARY L. JONES

TEXAS P.L.S.

No. 7977

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.

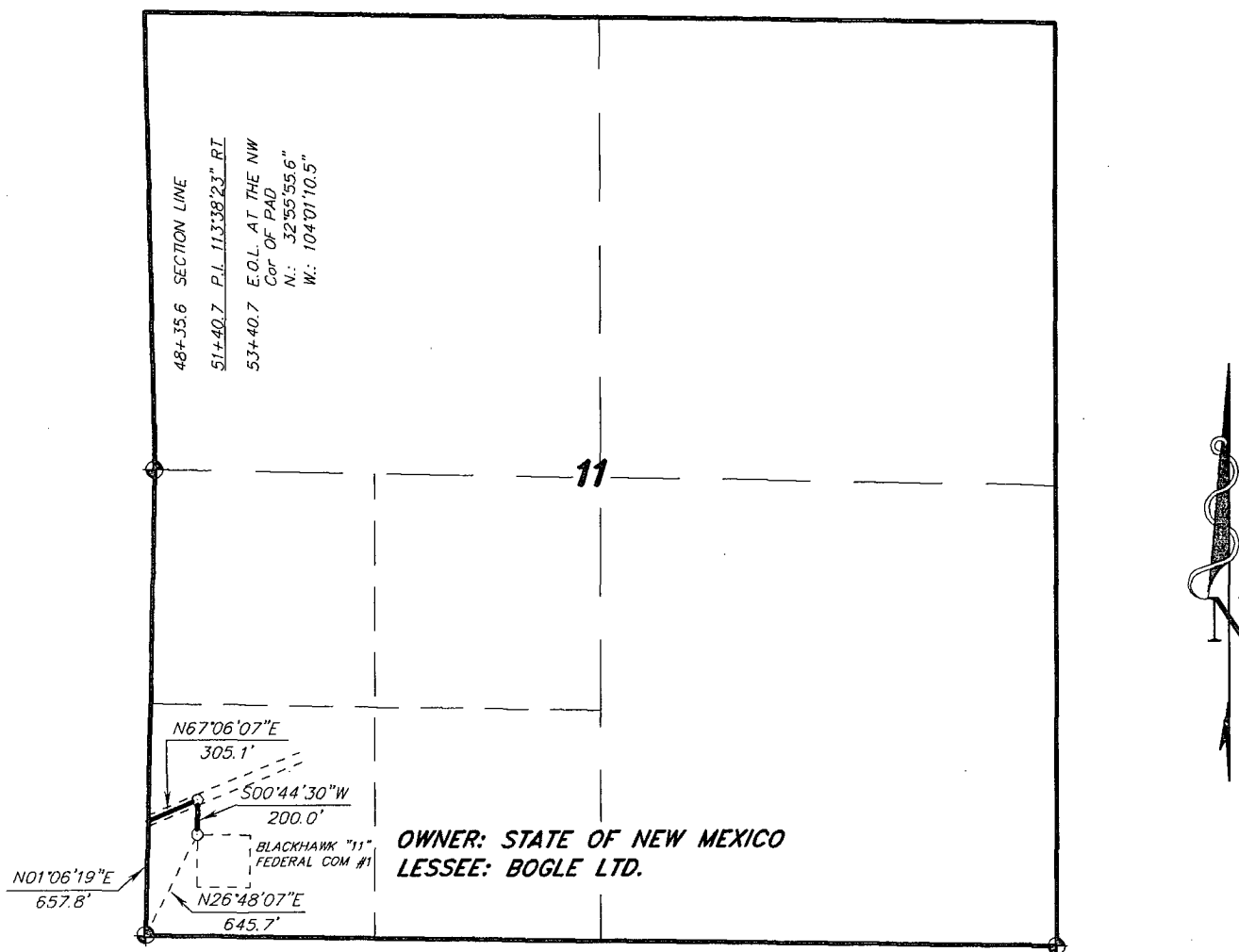
REF: PROP. LEASE ROAD TO THE BLACKHAWK "11" FEDERAL COM #1

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

Survey Date: 12-16-2007

Sheet 2 of 3 Sheets

**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 SURVEY WAS PREPARED FROM FIELD NOTES OF A QUALITY SURVEY AND MEETS OR EXCEEDS THE 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

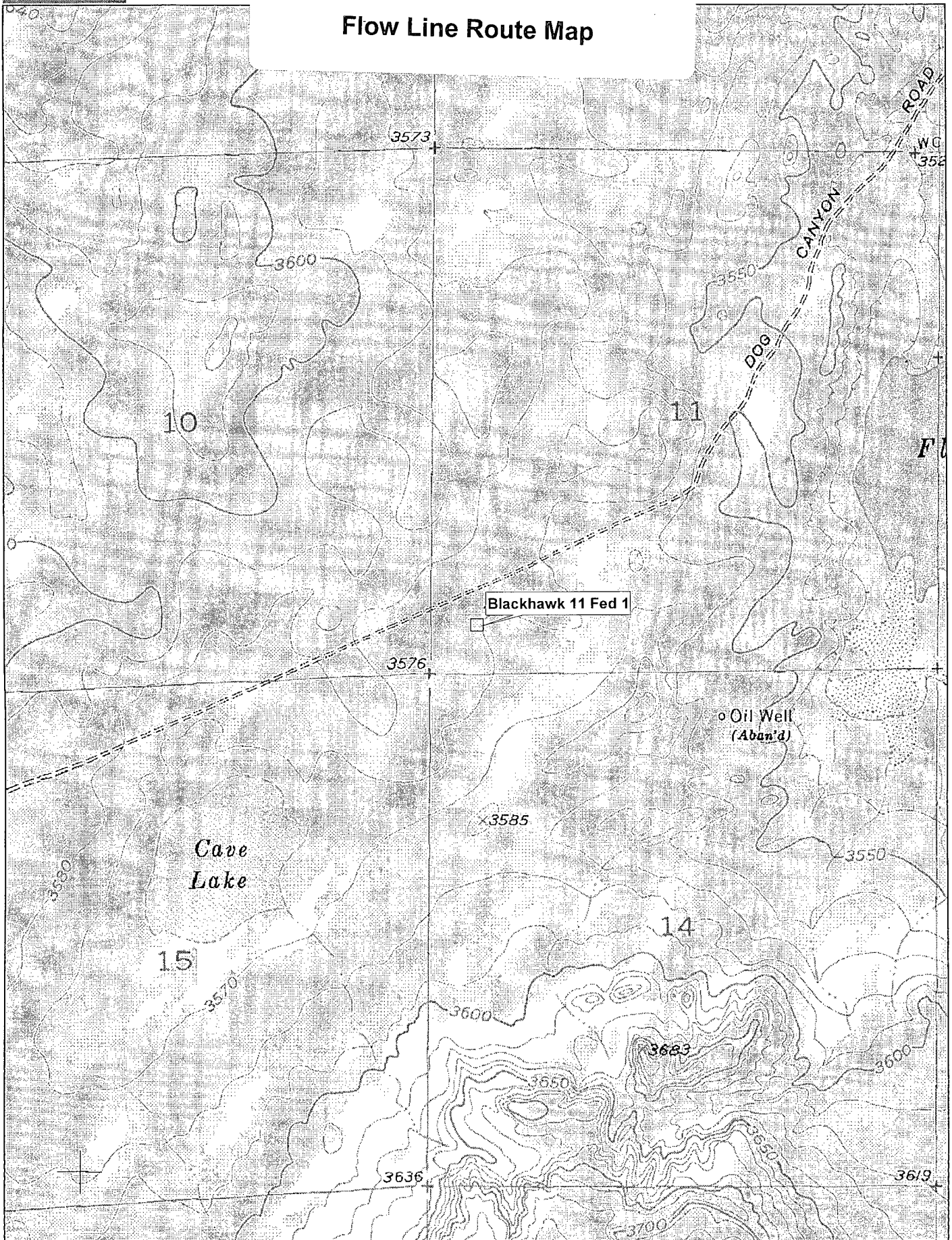
C.O.G. OPERATING L.L.C.

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

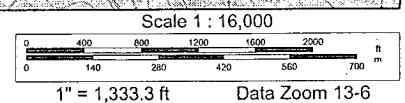
Flow Line Route Map



Data use subject to license.

© DeLorme. XMap® 7.

www.delorme.com



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 = 10856'

4. Estimated tops of geological markers:

Quaternary	Surface
Yates/Seven Rivers	485'
Queens	1120'
San Andres	1850'
Glorieta	3375'
Tubb	4780'
Abo	5360'
Wolfcamp	6585'

5. Possible mineral bearing formations:

Water Sand	Fresh Water	150'
San Andres	Oil / Gas	1850'
Glorieta	Oil / Gas	3375'
Tubb	Oil / Gas	4780'
Abo	Oil / Gas	5360'
Wolfcamp	Oil / Gas	6585'

6. Casing Program

See COA

<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' ^{330'}	13-3/8"	54.5#	New	STC	J55
Collapse sf - 2.98, Burst sf - 2.33, Tension sf - 13.42						
8-3/4"	0' - 5900'MD	7"	26#	New	LTC	P110
Collapse sf - 2.08, Burst sf - 2.35, Tension sf - 2.92						
6-1/8"	5900' - 10856'MD	4-1/2"	11.6#	New	LTC	P110
Collapse sf - 1.85, Burst sf - 2.28, Tension sf - 29.19						

Respectfully request permission for 100' liner overlap to set pump as deep as possible.

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 +/- 200 sx Class "C" w/ 2% CaCl₂, 4% gel 13.5 ppg, 1.74 cf/sk, 1.35 yd. & +/- 300 sx Class "C" w/ 2% CaCl₂ 14.8 ppg, 1.35 cf/sk, 1.35 yd.

7" Production Casing set at +/- 5900', Circ. to Surf with +/- 900 sx Class "C" w/ 4% gel 13.5 ppg, 1.72 cf/sk, 2.45 yd. & 200 sx Class "C" w/ 0.35% R-3 14.8 ppg, 1.33 cf/sk, 1.35 yd.

4 1/2" Production Liner set at +/- 10856' MD, 6680' TVD, Uncemented, with packers for isolation, and requesting permission for only 100' liner overlap.

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. *See COA*

After setting 7" 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' ^{330'}	8.5	28	NC	Fresh water native mud w/ paper for seepage and sweeps. Lime for PH.
^{330'} 500' - 5900'	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.
5900' - 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. 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.

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

11. Production Hole Drilling Summary:

Set 7" production casing at 5900'. Drill 6-1/8" pilot hole thru Top Lower Abo to +/-6835', run open hole logs. Spot +/-250 sx. "C" Kick off plug from +/- 5900' to +/-6835'. Kick off 6-1/8" hole at +/- 6132' MD, building curve over +/- 475' to horizontal at +/-6610' TVD. Drill horizontal section in a easterly direction for +/-3300' lateral to TD @ +/-10856' MD, 6680' TVD. Run 4-1/2" production liner in open hole lateral and set isolation packers and liner top packer @ +/-5800' MD.

12. Logging, Testing and Coring Program:

See COA

- A. The electric logging program will consist of GR-Dual Laterolog, Spectral Density, Dual Spaced Neutron, CSNG Log and will be run from T.D. in vertical pilot hole inside 7" csng 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 casing has been run to 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 120 degrees and estimated maximum bottom hole pressure is 3160 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 July 1, 2010 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

WHS

Pathfinder Survey Report

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

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

Site:	S11 T16S R28E
--------------	---------------

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

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

Wellbore:	Original Hole
------------------	---------------

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

Design:	Plan #1
----------------	---------

Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	91.27

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

Planned Survey	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
	100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00
	200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00
	300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00
	400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00
	500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00
	600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00
	700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00
	800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00
	900.00	0.00	0.00	900.00	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
	1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00

WHS

Pathfinder Survey Report

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well Blackhawk 11 Federal Com 1
Project:	Eddy County	TVD Reference:	EST RKB @ 3570.00ft
Site:	S11 T16S R28E	MD Reference:	EST RKB @ 3570.00ft
Well:	Blackhawk 11 Federal Com 1	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	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)	
1,200.00	0.00	0.00	1,200.00	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	
1,400.00	0.00	0.00	1,400.00	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	
1,600.00	0.00	0.00	1,600.00	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	
1,800.00	0.00	0.00	1,800.00	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	
2,000.00	0.00	0.00	2,000.00	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	
2,200.00	0.00	0.00	2,200.00	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	
2,400.00	0.00	0.00	2,400.00	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	
2,600.00	0.00	0.00	2,600.00	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	
2,800.00	0.00	0.00	2,800.00	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	
3,000.00	0.00	0.00	3,000.00	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	
3,200.00	0.00	0.00	3,200.00	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	
3,400.00	0.00	0.00	3,400.00	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	
3,600.00	0.00	0.00	3,600.00	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	
3,800.00	0.00	0.00	3,800.00	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	
4,000.00	0.00	0.00	4,000.00	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	
4,200.00	0.00	0.00	4,200.00	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	
4,400.00	0.00	0.00	4,400.00	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	
4,600.00	0.00	0.00	4,600.00	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	
4,800.00	0.00	0.00	4,800.00	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	
5,000.00	0.00	0.00	5,000.00	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	
5,200.00	0.00	0.00	5,200.00	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	
5,400.00	0.00	0.00	5,400.00	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	

WHS

Pathfinder Survey Report

Company:	COG Operating LLC	Local Co-ordinate Reference:	Well Blackhawk 11 Federal Com 1
Project:	Eddy County	TVD Reference:	EST RKB @ 3570.00ft
Site:	S11 T16S R28E	MD Reference:	EST RKB @ 3570.00ft
Well:	Blackhawk 11 Federal Com 1	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Plan #1	Database:	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)	
5,600.00	0.00	0.00	5,600.00	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	
5,800.00	0.00	0.00	5,800.00	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	
6,000.00	0.00	0.00	6,000.00	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	
6,132.61	0.00	0.00	6,132.61	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

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

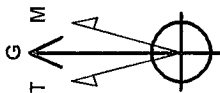
Company:	COG Operating LLC	Local Co-ordinate Reference:	Well Blackhawk 11 Federal Com 1
Project:	Eddy County	TVD Reference:	EST RKB @ 3570.00ft
Site:	S11 T16S R28E	MD Reference:	EST RKB @ 3570.00ft
Well:	Blackhawk 11 Federal Com 1	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method: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

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



Azimuths to Grid North
True North: 0.10°
Magnetic North: 8.19°
Magnetic Field
Strength: 49331.5nT
Dip Angle: 60.83°
Date: 2/21/2008
Model: IGRF200510

Project: Eddy County
Site: S11 T16S R28E
Well: Blackhawk 11 Federal Com 1
Wellbore: Original Hole
Plan: Plan #1 (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
Zone: New Mexico Eastern Zone
System Datum: Mean Sea Level
Local North: Grid

WELL DETAILS: Blackhawk 11 Federal Com 1
Ground Elevation: 3570.00
RKB Elevation: EST RKB @ 3570.00ft
Rig Name:

+N/S	+E/W	North	East	Latitude	Longitude	Slot
0.00	0.00	702870.627	596355.029	32° 55' 55.470 N	104° 9' 13.977 W	

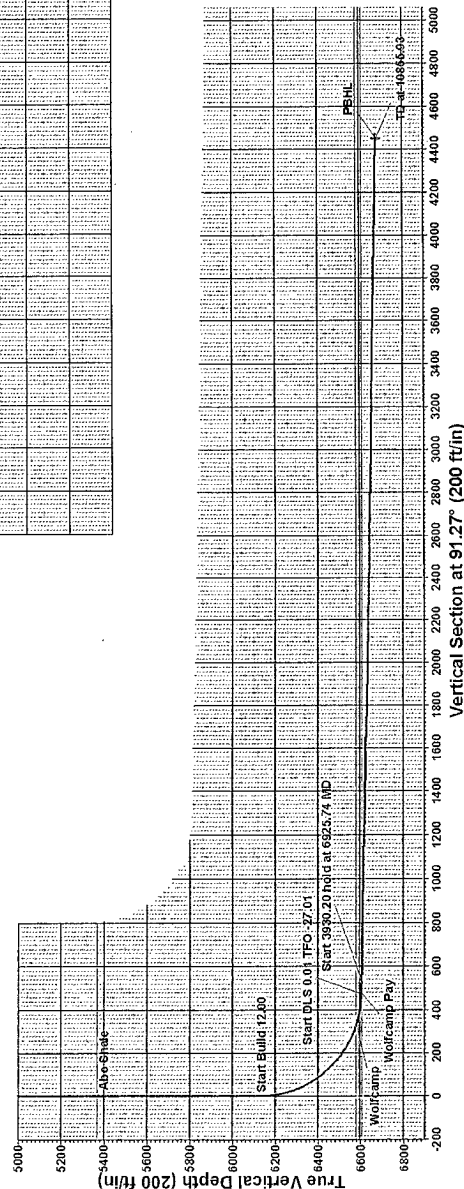
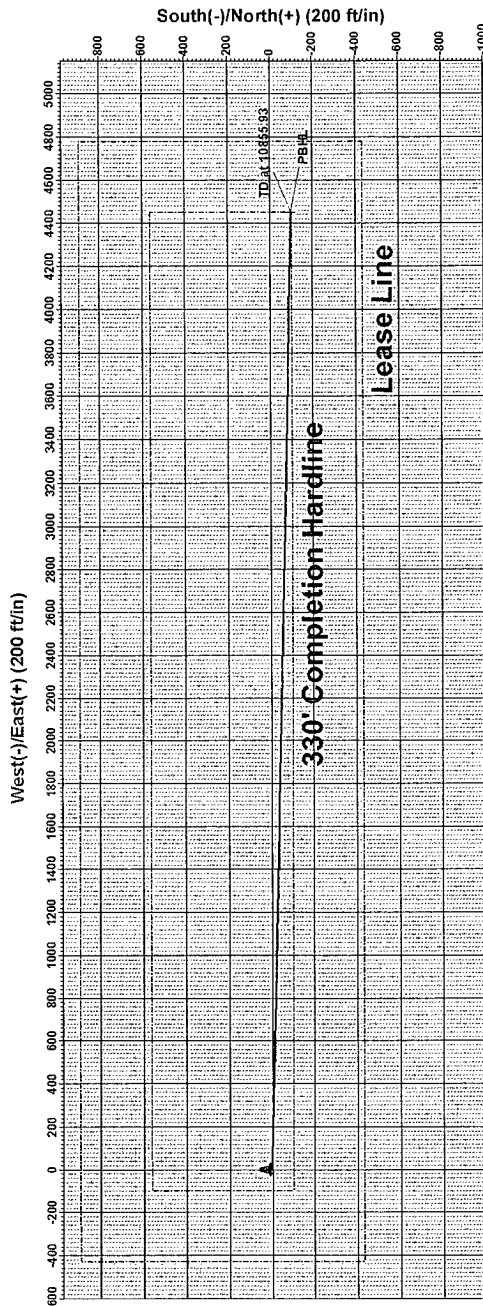
SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/S	+E/W	DLeg	TFace	VSec	Target
1	0.00	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	0.00
3	6132.61	0.00	6132.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	6925.74	88.99	91.27	6910.91	-11.54	420.46	0.01	-27.01	520.59	PbHI
5	10855.53	88.99	91.27	6880.00	-88.54	4449.08	0.00	0.00	4450.17	PbHI

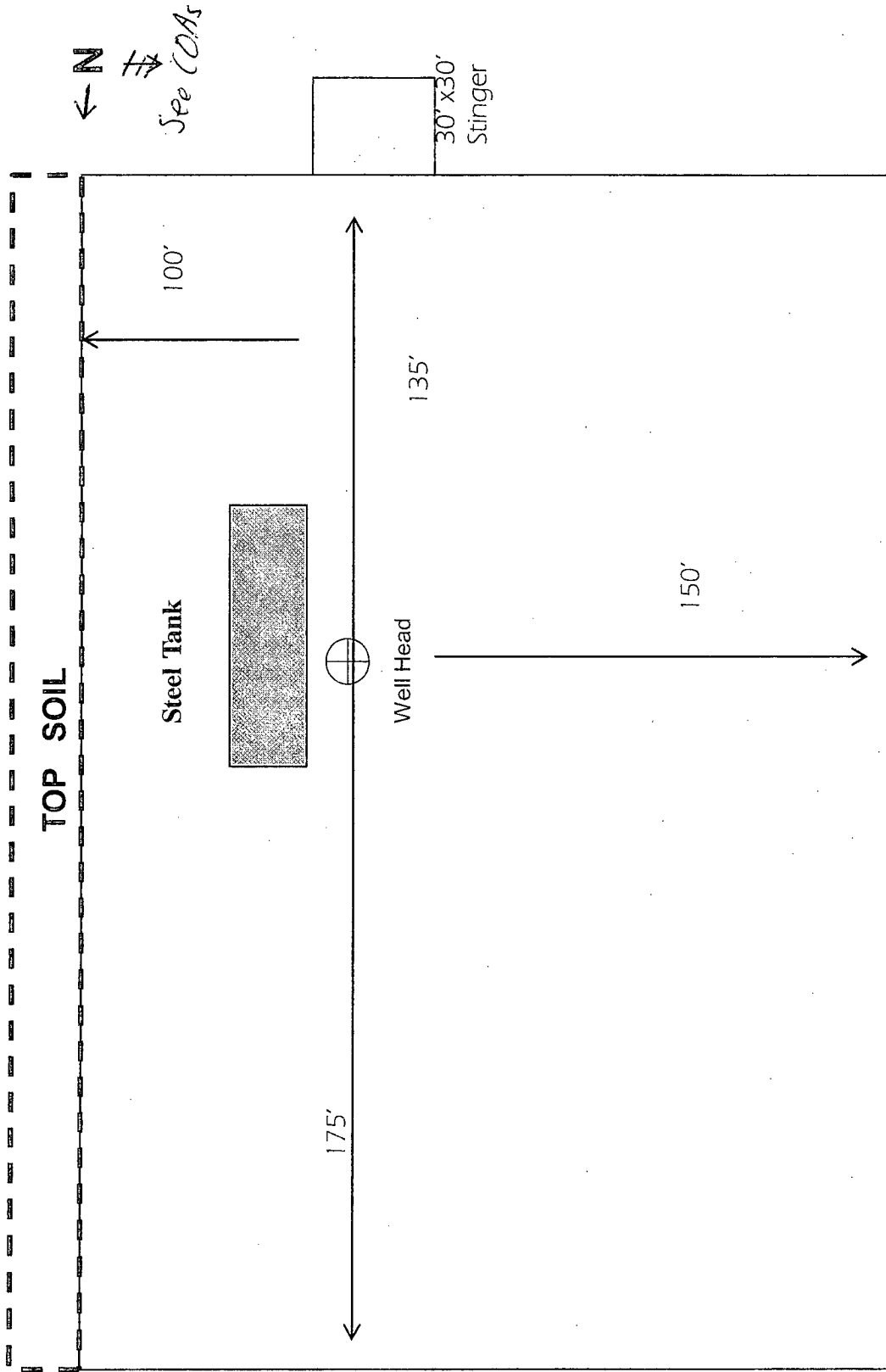
WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/S	+E/W	North	East	Shape
PbHI	6680.00	-88.54	4449.08	70272.089	600844.111	Point

FORMATION TOP DETAILS
TVD Path MDPth Formation
386.00 386.00 Yates
1020.00 1020.00 Green
1020.00 1020.00 Green D
3375.00 3375.00 Gurieta
5370.00 5370.00 Abo Shale
6595.00 6595.00 Wolfcamp
6595.00 6595.00 Wolfcamp Pay

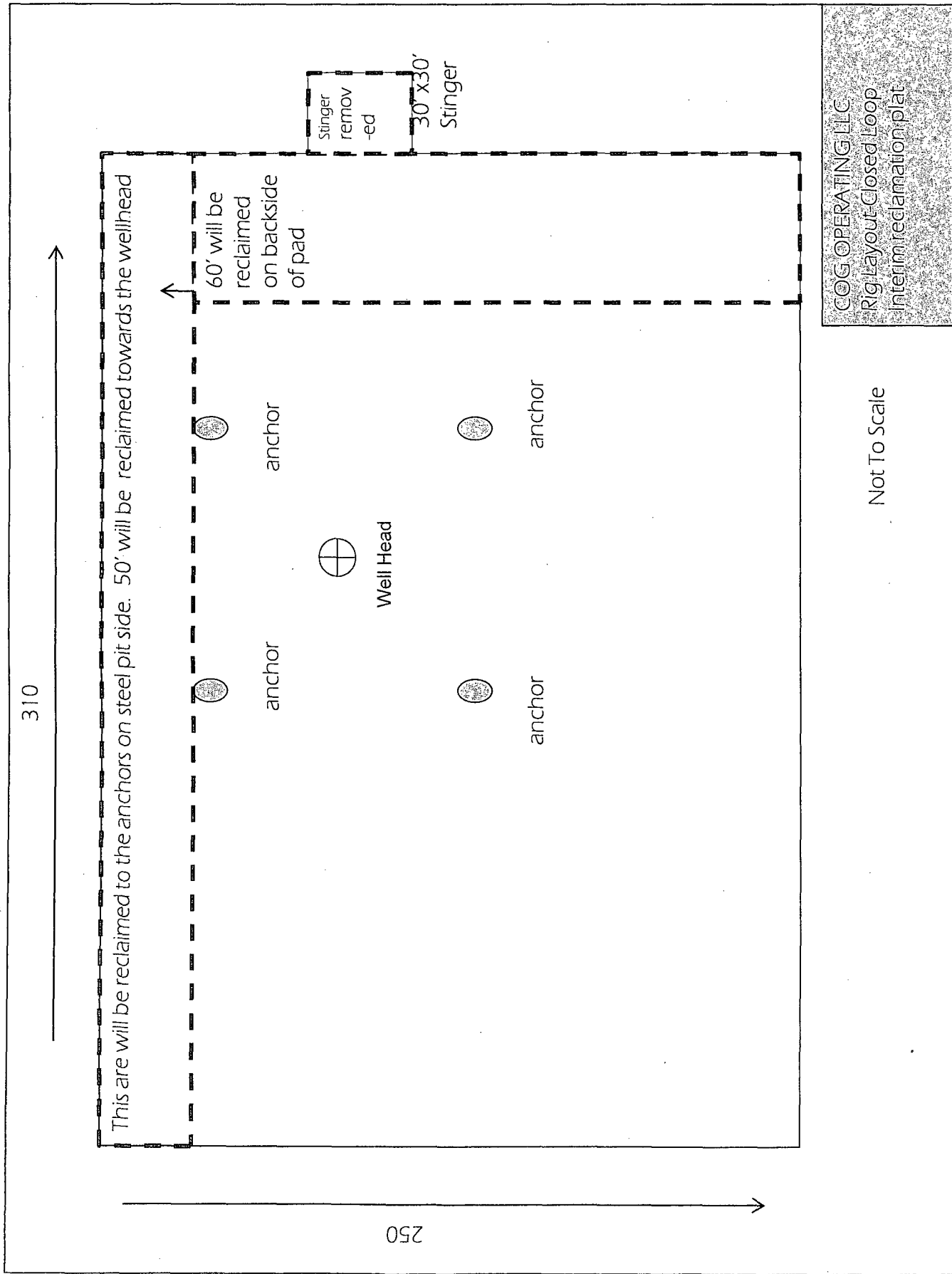


Print: Plan #1 (Blackhawk 11 Federal Com 1/Original Hole)
Created By: Mark Freeman
Checked: _____
Date: 14:00, February 21 2008
Date: _____



Not To Scale

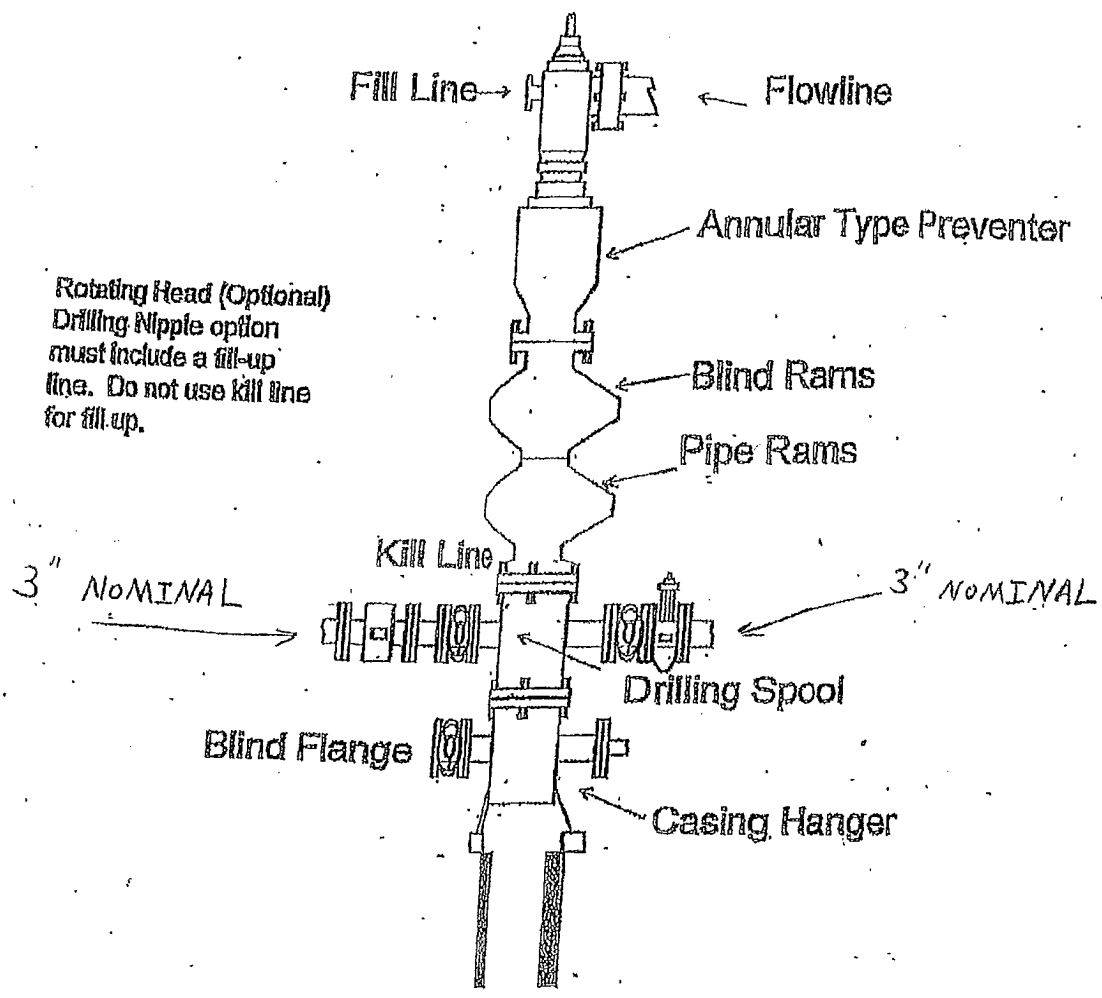
COG OPERATING LLC
Rig Layout-Closed Loop
System



COG OPERATING LLC
Rig Layout - Closed Loop
Interim reclamation plan

Not To Scale

BOPE SCHEMATIC

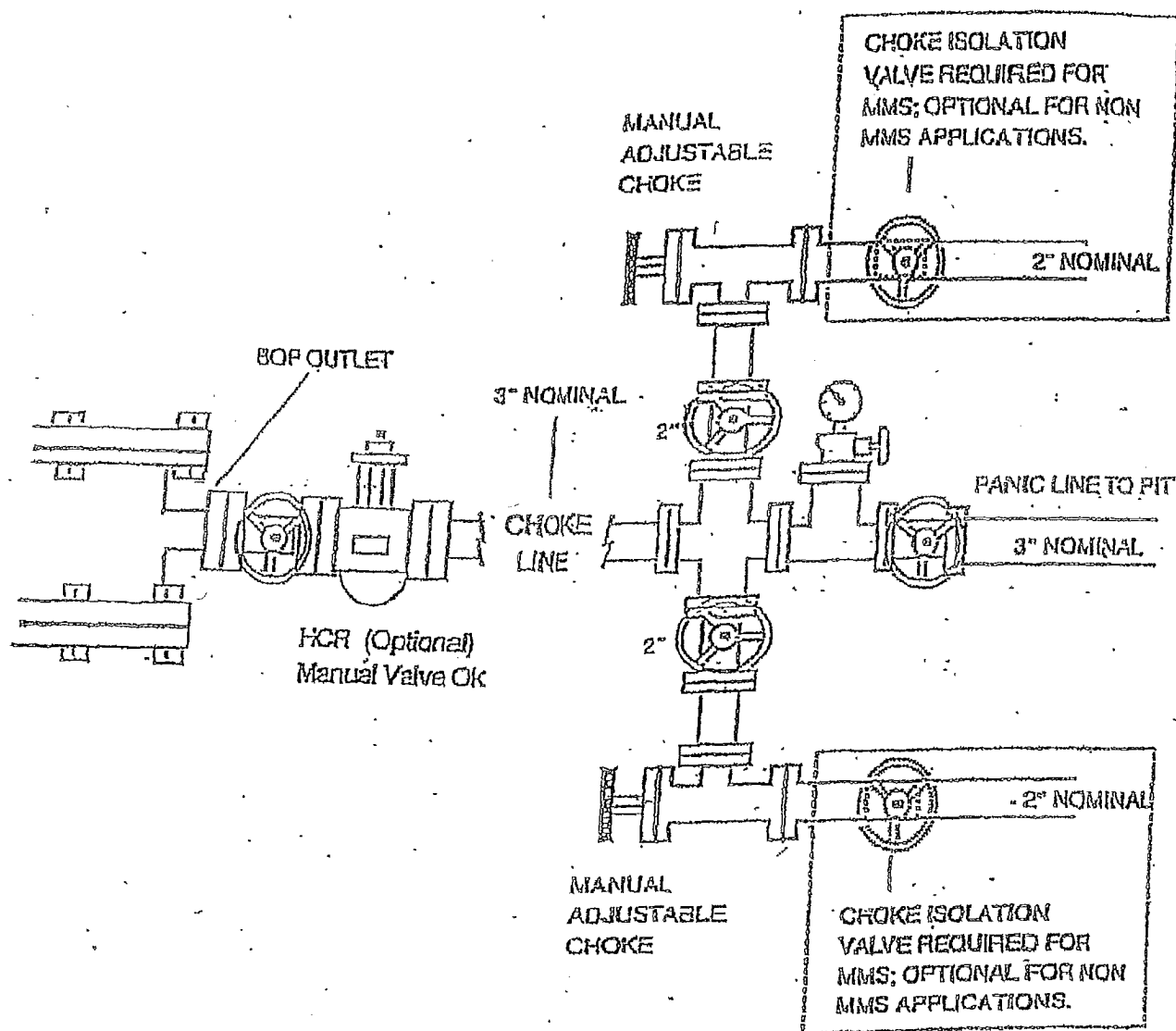


Rotating Head (Optional)
Drilling Nipple option
must include a fill-up
line. Do not use kill line
for fill up.

900 SERIES

CHOKE MANIFOLD

3M SERVICE



COG OPERATING, LLC

HYDROGENSULFIDE (H₂S) CONTINGENCY PLAN
FOR DRILLING / COMPLETING / WORKOVER / FACILITY
WITH THE EXPECTATION OF H₂S IN EXCESS OF 100 PPM

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

This well / facility is not expected to have H₂S, but the following is submitted as requested.

TABLE OF CONTENTS

I.	General Emergency Plan	Page 3
II.	Emergency Procedure for Uncontrolled Release of H ₂ 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 ₂ S Poisoning	Page 10
X.	H ₂ s Toxic Effects	Pages 11-12
XI.	H ₂ 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 area.” 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

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

PROTECTION OF THE GENERAL (ROE) RADIUS OF EXPOSURE

In the event greater than 100 ppm H₂S 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 H₂S could be present in concentrations greater than 100 ppm in the gas mixture.

Calculation for the 100 ppm ROE:

(H₂S concentrations in decimal form)

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

$$10,000 \text{ ppm} = .01$$

$$1,000 \text{ ppm} = .001$$

Calculation for the 500 ppm ROE:

$$100 \text{ ppm} = .0001$$

$$10 \text{ ppm} = .00001$$

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

EXAMPLE: If a well / facility has been determined to have 150 ppm H₂S in the gas mixture and the well / facility is producing at a gas rate of 200 MCFD then:

$$\text{ROE for 100 ppm} \quad X = [(1.589)(.00010)(200,000)] (0.6258)$$

$$X = 8.8'$$

$$\text{ROE for 500 ppm} \quad X = [(0.4546)(.00050)(200,000)] (0.6258)$$

$$X = 10.9'$$

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 H₂S safety shall monitor with detection equipment the H₂S 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 H₂S, 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 affected 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 H₂S, 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 H₂S can reasonably be expected.
 - * Sampling air in the area to determine if toxic concentrations of H₂S exist.
 - * Working in areas where over 10 ppm of H₂S has been detected.
 - * At any time there is a doubt of the level of H₂S 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 H₂S 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 H₂S 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 gases are compared below in Table I. Toxicity table for H2S and physical effects are shown in Table II.

Table I
Permissible Exposure Limits of Various Gases

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	100ppm
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. TVL – Threshold Limit Value is the concentration employees may be exposed to based on a TWA (time weighed average) for eight (8) hours in one day for 40 hours in one (1) week. This is set by ACGIH (American Conference of Government 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 a TWA.

TABLE II
Toxicity Table of H₂S

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 H₂S

The properties of all gases 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, H₂S, 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 H₂S 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, H₂S 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 (SO₂), 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 H₂S is dependent on temperature and pressure, but if conditions are right, simply agitating a fluid containing H₂S 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.

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.

SURFACE USE AND OPERATING PLAN

1. Existing & Proposed Access Roads

- A. The well site survey and elevation plat for the proposed well is shown in Exhibit #1. It was staked by John West Engineering, Hobbs, NM.
- B. All roads to the location are shown in the topographic map Exhibit #2. The existing lease roads are illustrated and are adequate for travel during drilling and production operations. Upgrading existing roads prior to drilling the well will be done where necessary.
- C. Directions to Location: From the intersection US Highway 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 mile to Lease Road. On Lease Road, Go North 3.0 miles to Lease Road. Then East 2.0 miles to Proposed Lease Road. See Vicinity Map, Exhibit #3.
- D. Routine grading and maintenance of existing roads will be conducted as necessary to maintain their condition as long as any operations continue on this lease. Roads will be maintained according to specifications in section 2A of this Surface Use and Operating Plan.

2. Proposed Access Road:

Exhibit #4 shows that 285' of new access road will be required for this location. If any road is required it will be constructed as follows:

- A. The maximum width of the running surface will be 14'. The road will be crowned, ditched and constructed of 6" rolled and compacted caliche. Ditches will be at 3:1 slope and 4 feet wide. Water will be diverted where necessary to avoid ponding, prevent erosion, maintain good drainage, and to be consistent with local drainage patterns.
- B. The average grade will be less than 1%.
- C. No turnouts are planned.
- D. No culverts, cattleguard, gates, low water crossings or fence cuts are necessary.

- E. Surfacing material will consist of native caliche. Caliche will be obtained from the actual well site if available. If not available onsite, caliche will be hauled from the nearest BLM caliche pit.

3. Location of Existing Well:

Exhibit #5 shows all existing wells within a one-mile radius of this well.

As shown on this plat there are numerous wells producing from the San Andres and Yeso formations.

4. Location of Existing and/or Proposed Facilities:

- A. COG Operating LLC does operate a production facility on this lease.
- B. If the well is productive, contemplated facilities will be as follows:
 - 1) Production will be sent to the Blackhawk 11 Federal tank battery located at the Blackhawk 11 Federal #1 at 430 FSL & 430 FWL, Section 11, T16S, R28E, UL M. The facility location is shown in Exhibit #5.
 - 2) The tank battery and facilities including all flow lines and piping will be installed according to API specifications.
 - 3) Any additional caliche will be obtained from the actual well site. If caliche does not exist or is not plentiful from the well site, the caliche will be hauled from a BLM approved caliche pit. Any additional construction materials will be purchased from contractors.
 - 4) Proposed flow lines, will follow an archaeologically approved route to the Blackhawk 11 Federal tank battery located at the Blackhawk 11 Federal #1 at 430 FSL & 430 FWL, Section 11, T16S, R28E, UL M. The facility location is shown in Exhibit #5. The flowline will be SDR 7 3" poly line laid on the surface located at the #1 location.
 - 5) It will be necessary to run electric power if this well is productive. Power will be provided by CVE and they will submit a separate plan and ROW for service to the well location.
 - 6) If the well is productive, rehabilitation plans will include the following:
 - a) The original topsoil from the well site will be returned to the location, and the site will be re-contoured as close as possible to the original site.

5. Location and Type of Water Supply:

The well will be drilled with combination brine and fresh water mud system as outlined in the drilling program. The water will be obtained from commercial water stations in the area and hauled to location by transport truck over the existing and proposed access roads shown in Exhibit #2. If a commercial fresh water source is nearby, fast line may be laid along existing road ROW's and fresh water pumped to the well. No water well will be drilled on the location.

6. Source of Construction Materials and Location "Turn-Over" Procedure:

Obtaining caliche: The primary way of obtaining caliche to build locations and roads will be by "turning over" the location. This means, caliche will be obtained from the actual well sight. A caliche permit will be obtained from BLM prior to pushing up any caliche. 2400 cu. Yards is max amount of caliche needed for pad and roads. Amount will vary for each pad. The procedure below has been approved by BLM personnel:

- A. The top 6 inches of topsoil is pushed off and stockpiled along the side of the location.
- B. An approximate 120' X 120' area is used within the proposed well site to remove caliche.
- C. Subsoil is removed and piled along side the 120' by 120' area within the pad site.
- D. When caliche is found, material will be stock piled within the pad site to build the location and road.
- E. Then subsoil is pushed back in the hole and caliche is spread accordingly across entire location and road.
- F. Once well is drilled, the stock piled top soil will be used for interim reclamation and spread along areas where caliche is picked up and the location size is reduced. Neither caliche or subsoil will be stock piled outside of the well pad. Topsoil will be stockpiled along the edge of the pad as depicted in attached plat.

In the event that no caliche is found onsite, caliche will be hauled in from a BLM approved caliche pit.

7. Methods of Handling Water Disposal:

- A. The well will be drilled utilizing a closed loop mud system. Drill cuttings will be held in roll-off style mud boxes and taken to an NMOCD approved disposal site.
- B. Drilling fluids will be contained in steel mud pits.

- C. Water produced from the well during completion will be held temporarily in steel tanks and then taken to an NMOCD approved commercial disposal facility.
- D. Garbage and trash produced during drilling or completion operations will be collected in a trash bin and hauled to an approved landfill. No toxic waste or hazardous chemicals will be produced by this operation.
- E. After the rig is moved out and the well is either completed or abandoned, all waste materials will be cleaned up within 30 days. In the event of a dry hole only a dry hole marker will remain.

8. Ancillary Facilities:

No airstrip, campsite or other facilities will be built as a result of the operation on this well.

9. Well Site Layout:

- A. The drill pad layout, with elevations staked by John West Engineering, is shown in Exhibit #4. Dimensions of the pad and pits are shown on Exhibit #6. Topsoil, if available, will be stockpiled per BLM specifications. Because the pad is almost level no major cuts will be required.
- B. Exhibit #6 also shows the proposed orientation of closed loop system and access road. No permanent living facilities are planned, but a temporary foreman/toolpusher's trailer will be on location during the drilling operations.

10. Plans for Restoration of the Surface:

- A. Interim Reclamation will take place after the well has been completed. The pad will be downsized by reclaiming the areas not needed for production operations. The portions of the pad that are not needed for production operations will be recontoured to its original state as much as possible. The caliche that is removed will be reused to either build another pad site or for road repairs within the lease. The stockpiled topsoil will then be spread out reclaimed area and reseeded with a BLM approved seed mixture. In the event that the well must be worked over or maintained, it may be necessary to drive, park, and/or operate machinery on reclaimed land. This area will be repaired or reclaimed after work is complete.

- B. Final Reclamation: Upon plugging and abandoning the well, All caliche for well pad and lease road will be removed and surface will be recountoured to reflect its surroundings as much as possible. Caliche will be recycled for road repair or reused for another well pad within the lease. If any topsoil remains, it will be spread out and the area will be re-seeded with a BLM approved mixture and revegetated as per BLM orders.

11.Surface Ownership:

- A. The surface is owned by the U.S. Government and is administered by the Bureau of Land Management. The surface is multiple uses with the primary uses of the region for grazing of livestock and the production of oil and gas.
- B. The surface tenant for this site is Bogel Farms, Lewis Derrick, P O Box 441, Artesia, NM 88211.
- C. The proposed road routes and surface location will be restored as directed by the BLM

12.Other Information:

- A. The area around the well site is grassland and the topsoil is sandy. The vegetation is moderately sparse with native prairie grasses, some mesquite and shinnery oak. No wildlife was observed but it is likely that mule deer, rabbits, coyotes and rodents traverse the area.
- B. There is no permanent or live water in the immediate area.
- C. There are no dwellings within 2 miles of this location.
- D. If needed, a Cultural Resources Examination is being prepared by Southern New Mexico Archaeological Services, Inc. P.O. Box 1, Bent New Mexico, 88314, phone # 505-671-4797 and the results will be forwarded to your office in the near future. Otherwise, **COG will be participating in the Permian Basin MOA Program.**

Surface Use Plan
COG Operating, LLC
Blackhawk 11 Federal 1
SHL 430' FSL & 430' FWL, UL M BHL 330' FSL & 330' FEL, UL P
Section 11, T-16-S, R-28-E
Eddy County, New Mexico

13. Bond Coverage:

Bond Coverage is Nationwide Bond # 000215

14. Lessee's and Operator's Representative:

The COG Operating LLC representative responsible for assuring compliance with the surface use plan is as follows:

John Coffman,	Erick Nelson.
Drilling Superintendent	Division Operations Manager
COG Operating LLC	COG Operating LLC
550 W. Texas, Suite 1300	550 W. Texas, Suite 1300
Midland, TX 79701	Midland, TX 79701
Phone (432) 683-7443 (office)	Phone (505) 746-2210 (office)
(432) 631-9762 (cell)	(432) 238-7591 (cell)

Surface Use Plan
COG Operating, LLC
Blackhawk 11 Federal 1
SHL 430' FSL & 430' FWL, UL M BHL 330' FSL & 330' FEL, UL P
Section 11, T-16-S, R-28-E
Eddy County, New Mexico

I hereby certify that I, or persons under my direct supervision, have inspected the drill site and access road proposed herein; that I am familiar with the conditions that presently exist; that I have full knowledge of State and Federal laws applicable to this operation; that the statements made in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or COG Operating, LLC, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements. Executed this 19th day of July, 2010.

Signed: Carl Bird

Printed Name: Carl Bird

Position: Drilling Engineer

Address: 550 W. Texas, Suite 1300, Midland, Texas 79701

Telephone: (432) 683-7443

Field Representative (if not above signatory): Same

E-mail: cbird@conchoresources.com

Exhibits:

- | | |
|--------------------|---------------------------------------------------------------|
| Exhibit #1 | Wellsite and Elevation Plat |
| | Form C-102 Well location and acreage dedication plat |
| Exhibit #2 | Topographic Map (West) |
| Exhibit #3 | Vicinity Map and area roads |
| Exhibit #4 | Elevation Plat (West) |
| Exhibit #5 | Topographic extract showing wells, roads and flowlines |
| Exhibit #6 | Pad Layout and orientation |
| Exhibit #7 | H2S Signage |
| Exhibit #8 | H2S Equipment location |
| Exhibit #9 | BOP and Choke diagrams |
| Exhibit #10 | Form C-144 NMOCD pit permit application |

PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME:	COG Operating LLC
LEASE NO.:	NMNM 95630
WELL NAME & NO.:	Blackhawk 11 Federal Com #1
SURFACE HOLE FOOTAGE:	430' FSL & 330' FWL
BOTTOM HOLE FOOTAGE:	330' FSL & 330' FEL
LOCATION:	Section 11, T. 16 S., R. 28 E., NMPM
COUNTY:	Eddy County, New Mexico

TABLE OF CONTENTS

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

- ☐ **General Provisions**
- ☐ **Permit Expiration**
- ☐ **Archaeology, Paleontology, and Historical Sites**
- ☐ **Noxious Weeds**
- ☒ **Special Requirements**

- Berming
- Cave/Karst
- Tank battery
- Communitization Agreement

- ☐ **Construction**
 - Notification
 - V-Door Direction
 - Topsoil
 - Closed Loop System
 - Federal Mineral Material Pits
 - Well Pads
 - Roads

- ☐ **Road Section Diagram**

- ☒ **Drilling**
 - Logging Requirements
 - High Cave/Karst
 - Waste Material and Fluids

- ☐ **Production (Post Drilling)**
 - Well Structures & Facilities
 - Pipelines
 - Electric Lines

- ☒ **Interim Reclamation**
- ☒ **Final Abandonment & Reclamation**

I. GENERAL PROVISIONS

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

II. PERMIT EXPIRATION

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD. (Filing of a Sundry Notice is required for this 60 day extension.)

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

Any cultural and/or paleontological resource discovered by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery shall be made by the Authorized Officer to determine the appropriate actions that shall be required to prevent the loss of significant cultural or scientific values of the discovery. The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery. Any unauthorized collection or disturbance of cultural or paleontological resources may result in a shutdown order by the Authorized Officer.

IV. NOXIOUS WEEDS

The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

V. SPECIAL REQUIREMENT(S)

Berming

The east and south sides of the pad shall be bermed

Tank battery

The tank battery shall be constructed on the north or west side of the pad.

Cave and Karst

****** Depending on location, additional Drilling, Casing, and Cementing procedures may be required by engineering to protect critical karst groundwater recharge areas.

Cave/Karst Surface Mitigation

The following stipulations will be applied to minimize impacts during construction, drilling and production.

Construction:

In the advent that any underground voids are opened up during construction activities, construction activities will be halted and the BLM will be notified immediately.

No Blasting:

No blasting will be utilized for pad construction. The pad will be constructed and leveled by adding the necessary fill and caliche.

Pad Berming:

The pad will be bermed to prevent oil, salt, and other chemical contaminants from leaving the pad. All sides will be bermed.

Tank Battery Liners and Berms:

Tank battery locations will be lined and bermed. A 20 mil permanent liner will be installed with a 4 oz. felt backing to prevent tears or punctures. Tank battery berms must be large enough to contain 1 ½ times the content of the largest tank.

Leak Detection System:

A method of detecting leaks is required. The method could incorporate gauges to measure loss, situating valves and lines so they can be visually inspected, or installing electronic sensors to alarm when a leak is present. Leak detection plan will be submitted to BLM for approval.

Automatic Shut-off Systems:

Automatic shut off, check valves, or similar systems will be installed for pipelines and tanks to minimize the effects of catastrophic line failures used in production or drilling.

Cave/Karst Subsurface Mitigation

The following stipulations will be applied to protect cave/karst and ground water concerns:

Rotary Drilling with Fresh Water:

Fresh water will be used as a circulating medium in zones where caves or karst features are expected. SEE ALSO: Drilling COAs for this well.

Directional Drilling:

Kick off for directional drilling will occur at least 100 feet below the bottom of the cave occurrence zone. SEE ALSO: Drilling COAs for this well.

Lost Circulation:

ALL lost circulation zones from the surface to the base of the cave occurrence zone will be logged and reported in the drilling report.

Regardless of the type of drilling machinery used, if a void of four feet or more and circulation losses greater than 70 percent occur simultaneously while drilling in any cave-bearing zone, the BLM will be notified immediately by the operator. The BLM will assess the situation and work with the operator on corrective actions to resolve the problem.

Abandonment Cementing:

Upon well abandonment in high cave karst areas additional plugging conditions of approval may be required. The BLM will assess the situation and work with the operator to ensure proper plugging of the wellbore.

Pressure Testing:

Annual pressure monitoring will be performed by the operator on all casing annuli and reported in a sundry notice. If the test results indicated a casing failure has occurred, remedial action will be undertaken to correct the problem to the BLM's approval.

Communitization Agreement

A Communitization Agreement covering the acreage dedicated to this well must be filed for approval with the BLM. The effective date of the agreement shall be prior to any sales.

VI. CONSTRUCTION

A. NOTIFICATION

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-5972 at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved APD and Conditions of Approval (COA) on the well site and they shall be made available upon request by the Authorized Officer.

B. V-DOOR DIRECTION: south

C. TOPSOIL

The operator shall stockpile the topsoil in a low profile manner in order to prevent wind/water erosion of the topsoil. The topsoil to be stripped is approximately 6 inches in depth. The topsoil will be used for interim and final reclamation.

D. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

The operator shall properly dispose of drilling contents at an authorized disposal site.

E. FEDERAL MINERAL MATERIALS PIT

Payment shall be made to the BLM prior to removal of any federal mineral materials. Call the Carlsbad Field Office at (575) 234-5972.

F. WELL PAD SURFACING

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation.

The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

G. ON LEASE ACCESS ROADS

Road Width

The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed thirty (30) feet.

Surfacing

Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

Crowning

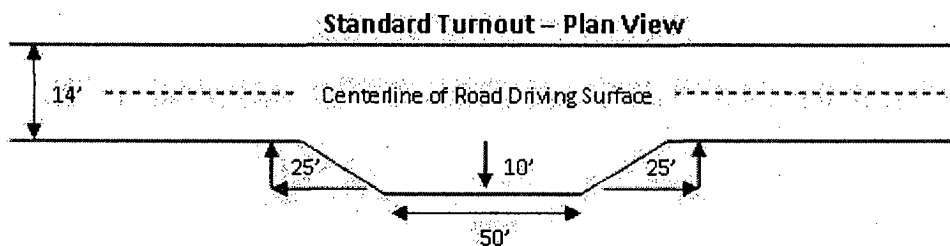
Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

Ditching

Ditching shall be required on both sides of the road.

Turnouts

Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall be constructed on all blind curves. Turnouts shall conform to the following diagram:

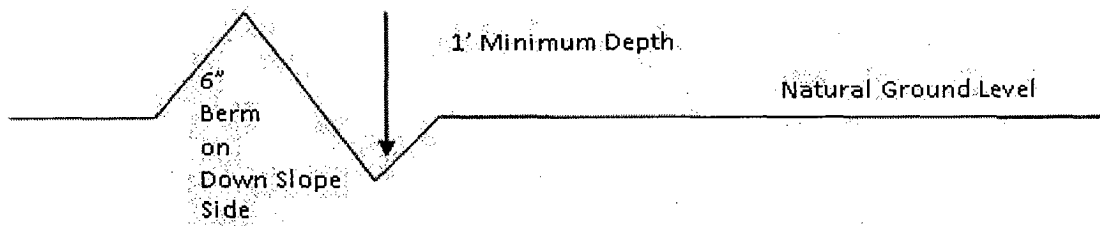


Drainage

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outslowing and insloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.

Cross Section of a Typical Lead-off Ditch



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

Formula for Spacing Interval of Lead-off Ditches

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

$$400 \text{ foot road with } 4\% \text{ road slope: } \frac{400'}{4\%} + 100' = 200' \text{ lead-off ditch interval}$$

Culvert Installations

Appropriately sized culvert(s) shall be installed at the deep waterway channel flow crossing.

Cattleguards

An appropriately sized cattleguard(s) sufficient to carry out the project shall be installed and maintained at fence crossing(s).

Any existing cattleguard(s) on the access road shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattleguard(s) that are in place and are utilized during lease operations.

A gate shall be constructed and fastened securely to H-braces.

Fence Requirement

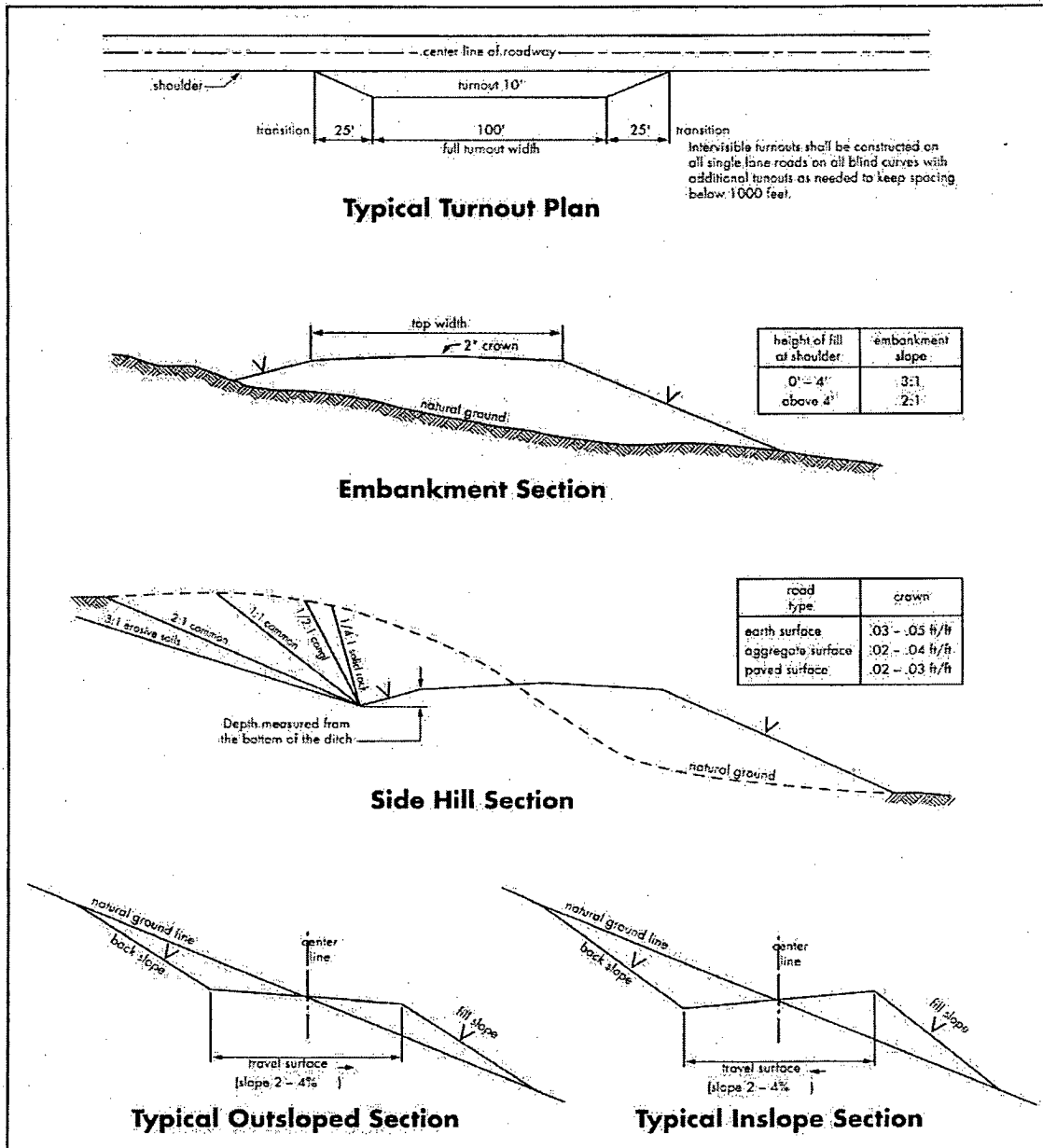
Where entry is required across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting.

The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fence(s).

Public Access

Public access on this road shall not be restricted by the operator without specific written approval granted by the Authorized Officer.

Figure 1 – Cross Sections and Plans For Typical Road Sections



VII. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

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

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

☒ **Eddy County**

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

1. **Although Hydrogen Sulfide has not been reported in this section, it is always a potential hazard. If Hydrogen Sulfide is encountered, please report measured amounts and formations to the BLM.**
2. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval. **If the drilling rig is removed without approval – an Incident of Non-Compliance will be written and will be a “Major” violation.**
3. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.
4. **The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) will be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies.**

B. CASING

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

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

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

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

HIGH CAVE/KARST –A MINIMUM OF TWO CASING STRINGS CEMENTED TO SURFACE IS REQUIRED IN HIGH CAVE/KARST AREAS. THE CEMENT MUST BE IN A SOLID SHEATH THEREFORE, ONE INCH OPERATIONS WILL NOT BE PERMITTED.

Possible loss of circulation in the Grayburg and San Andres.

1. The 13-3/8 inch surface casing shall be set at **approximately 330 feet (below the Yates in the Seven Rivers Dolomite)** and cemented to the surface.
 - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
 - b. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.**
 - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
 - d. If cement falls back, remedial cementing will be done prior to drilling out that string.
2. The minimum required fill of cement behind the 7 inch production casing is:
 - ☒ Cement to surface. If cement does not circulate see B.1.a, c-d above. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst.**

3. The minimum required fill of cement behind the 4-1/2 inch production liner is:

☒ Cement not required – Packer system to be used. 100 foot overlap approved.

4. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

C. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.
2. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **2000 (2M)** psi.
 - a. **For surface casing only:** If the BOP/BOPE is to be tested against casing, the wait on cement (WOC) time for that casing is to be met (see WOC statement at start of casing section). Independent service company required.
3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the 7 inch intermediate casing shoe shall be **3000 (3M)** psi.
4. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
 - a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips or where the float does not hold, the minimum wait time before cut-off is eight hours after bumping the plug or when the cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. BOP/BOPE testing can begin after the above conditions are satisfied.
 - b. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (18 hours) or potash (24 hours) prior to initiating the test.

- c. The results of the test shall be reported to the appropriate BLM office.
- d. All tests are required to be recorded on a calibrated test chart. **A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.**
- e. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug.
- f. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the **Wolfcamp** formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.
- g. **Effective November 1, 2008, no variances will be granted on reduced pressure tests on the surface casing and BOP/BOPE. Onshore Order 2 requirements will be in effect.**

D. DRILLING MUD

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the **Wolfcamp** formation, and shall be used until production casing is run and cemented.

E. DRILL STEM TEST

If drill stem tests are performed, Onshore Order 2.III.D shall be followed.

F. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

DHW 100710

VIII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

Placement of Production Facilities

Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

Containment Structures

The containment structure shall be constructed to hold the capacity of the entire contents of the largest tank, plus 24 hour production, unless more stringent protective requirements are deemed necessary by the Authorized Officer.

Painting Requirement

All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color
Shale Green, Munsell Soil Color Chart # 5Y 4/2

B. PIPELINES

STANDARD STIPULATIONS FOR SURFACE INSTALLED PIPELINES

A copy of the grant and attachments, including stipulations, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. The holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.
2. The holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.
3. The holder agrees to indemnify the United States against any liability arising from the

release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to activity of the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

4. The holder shall be liable for damage or injury to the United States to the extent provided by 43 CFR Sec. 2883.1-4. The holder shall be held to a standard of strict liability for damage or injury to the United States resulting from pipe rupture, fire, or spills caused or substantially aggravated by any of the following within the right-of-way or permit area:

- a. Activities of the holder including, but not limited to construction, operation, maintenance, and termination of the facility.
- b. Activities of other parties including, but not limited to:
 - (1) Land clearing.
 - (2) Earth-disturbing and earth-moving work.
 - (3) Blasting.
 - (4) Vandalism and sabotage.
- c. Acts of God.

The maximum limitation for such strict liability damages shall not exceed one million dollars (\$1,000,000) for any one event, and any liability in excess of such amount shall be determined by the ordinary rules of negligence of the jurisdiction in which the damage or injury occurred.

This section shall not impose strict liability for damage or injury resulting primarily from an act of war or from the negligent acts or omissions of the United States.

5. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil, salt water, or other pollutant should be discharged from the pipeline system, impacting Federal lands, the control and total removal, disposal, and cleaning up of such oil, salt water, or other pollutant, wherever found, shall be the responsibility of the holder, regardless of fault. Upon failure of the holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages resulting therefrom, on the Federal lands, the Authorized Officer may take such measures as he deems necessary to control and clean up the discharge and restore the area, including, where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the holder. Such action by the Authorized Officer shall not relieve the holder of any responsibility as provided herein.

6. All construction and maintenance activity will be confined to the authorized right-of-way width of 25 feet.
7. No blading or clearing of any vegetation will be allowed unless approved in writing by the Authorized Officer.
8. The holder shall install the pipeline on the surface in such a manner that will minimize suspension of the pipeline across low areas in the terrain. In hummocky or dune areas, the pipeline will be "snaked" around hummocks and dunes rather than suspended across these features.
9. The pipeline shall be buried with a minimum of 24 inches under all roads, "two-tracks," and trails. Burial of the pipe will continue for 20 feet on each side of each crossing. The condition of the road, upon completion of construction, shall be returned to at least its former state with no bumps or dips remaining in the road surface.
10. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.
11. In those areas where erosion control structures are required to stabilize soil conditions, the holder will install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound resource management practices.
12. Excluding the pipe, all above-ground structures not subject to safety requirement shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be a color which simulates "Standard Environmental Colors" – **Shale Green**, Munsell Soil Color No. 5Y 4/2; designated by the Rocky Mountain Five State Interagency Committee.
13. The pipeline will be identified by signs at the point of origin and completion of the right-of-way and at all road crossings. At a minimum, signs will state the holder's name, BLM serial number, and the product being transported. Signs will be maintained in a legible condition for the life of the pipeline.
14. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway.

15. Any cultural and/or paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the authorized officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the authorized officer. An evaluation of the discovery will be made by the authorized officer to determine appropriate cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the authorized officer after consulting with the holder.

C. ELECTRIC LINES (Not applied for in APD)

IX. INTERIM RECLAMATION

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce the size of the location. Interim reclamation should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche that is free of contaminants may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

All disturbed areas after they have been satisfactorily prepared need to be reseeded with the seed mixture provided below.

Upon completion of interim reclamation, the operator shall submit a Sundry Notices and Reports on Wells, Subsequent Report of Reclamation (Form 3160-5).

X. FINAL ABANDONMENT & RECLAMATION

At final abandonment, well locations, production facilities, and access roads must undergo "final" reclamation so that the character and productivity of the land are restored.

Earthwork for final reclamation must be completed within six (6) months of well plugging. All pads, pits, facility locations and roads must be reclaimed to a satisfactory revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

After all disturbed areas have been satisfactorily prepared, these areas need to be revegetated with the seed mixture provided below. Seeding should be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (Jim Amos: 575-234-5909).

Seed Mixture 1, for Loamy Sites

The holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (small/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

<u>Species</u>	<u>lb/acre</u>
Plains lovegrass (<i>Eragrostis intermedia</i>)	0.5
Sand dropseed (<i>Sporobolus cryptandrus</i>)	1.0
Sideoats grama (<i>Bouteloua curtipendula</i>)	5.0
Plains bristlegrass (<i>Setaria macrostachya</i>)	2.0

*Pounds of pure live seed:

Pounds of seed x percent purity x percent germination = pounds pure live seed