OCD-ARTESIA

Form 3160-3
(August 2007)

FORM APPROVED
OMB No. 1004-0137
Expires July 31, 2010

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

JAN 15 2008
OCD-ARTESIA

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.	SL State of NM BHL NM 103876
6. If Indian, Allotee or Tribe Name	N/A
7 If Unit or CA Agreement, Name and No.	N/A
8. Lease Name and Well No.	Blitzen "35" Federal #1H
9 API Well No.	30-015-36044
10. Field and Pool, or Exploratory	Wolfcamp, North (Anderson)
11. Sec., T. R. M. or Blk. and Survey or Area	Section 35, T16S, R28E
12. County or Parish	Eddy Co.
13. State	NM

1a. Type of work: ☑ DRILL ☐ REENTER

1b. Type of Well: ☑ Oil Well ☐ Gas Well ☐ Other ☑ Single Zone ☐ Multiple Zone

2. Name of Operator: COG Operating, LLC

3a. Address: 550 West Texas, Suite 1300, Midland, TX 79701

3b Phone No. *(include area code)*: (432)- 685-9158

4. Location of Well *(Report location clearly and in accordance with any State requirements *)*

At surface: 330' FNL & 990' FEL, Unit A

At proposed prod. zone: 330' FNL & 330' FWL, Unit D

14 Distance in miles and direction from nearest town or post office*: Approx 10 miles Northwest of Loco Hills

15 Distance from proposed* location to nearest property or lease line, ft (Also to nearest drig. unit line, if any)	330'	16 No. of acres in lease: 160
17 Spacing Unit dedicated to this well	160	
18 Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft	N/A	19. Proposed Depth: 11300' MD, 6760' TVD
20 BLM/BIA Bond No. on file	NMB 000215	
21 Elevations (Show whether DF, KDB, RT, GL, etc.)	3592' GL	22. Approximate date work will start*: 02/01/2008
23. Estimated duration	45 Days	

24. Attachments

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

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

25 Signature	Name *(Printed/Typed)*: Dwaine Moore	Date: 12/10/2007
Title: Agent for COG Operating LLC		
Approved by *(Signature)*: /s/ Don Peterson	Name *(Printed/Typed)*: /s/ Don Peterson	Date: JAN 11 2008
Title: FIELD MANAGER	Office: CARLSBAD FIELD OFFICE	

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
Conditions of approval, if any, are attached.

APPROVAL FOR TWO YEARS

Title 18 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.

(Continued on page 2)

*(Instructions on page 2)

Roswell Controlled Water Basin

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

APPROVAL SUBJECT TO
GENERAL REQUIREMENTS
AND SPECIAL STIPULATIONS
ATTACHED

Amendment 12-10-2007

STATEMENT ACCEPTING RESPONSIBILITY FOR OPERATIONS

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

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

Lease No:	SL: State of New Mexico BHL: NMNM #103876
Well Name:	Blitzen "35 Federal #1H
Legal Description of Land:	SL: 330' FNL & 990' FEL, Unit A BHL: 330' FNL & 330' FWL, Unit D Section 35, T16S, R28E Eddy County, NM
Formation(s) (if applicable):	Wolfcamp
Bond Coverage:	$25,000 statewide bond of C.O.G. Operating, LLC
BLM Bond File No:	NMB 000215

12-17-07
Date

John Coffman
C.O.G. Operating, LLC

EXHIBIT "A"

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

State of New Mexico
Energy, Minerals and Natural Resources Department

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
	97183	Anderson; Wolfcamp, North

Property Code	Property Name	Well Number
36953	BLITZEN "35" FEDERAL	1 H

OGRID No.	Operator Name	Elevation
229137	C.O.G. OPERATING L.L.C.	3592'

Surface Location

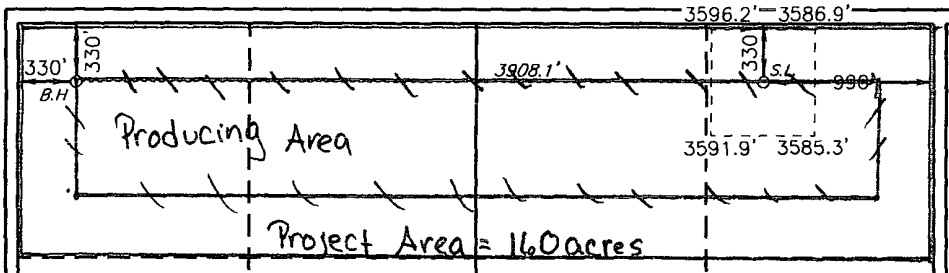
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	35	16 S	28 E		330	NORTH	990	EAST	EDDY

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
D	35	16 S	28 E		330	NORTH	330	WEST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
160			

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



BOTTOM HOLE LOCATION
LAT.: N 32°53'09.46"
LONG.: W104°09'15.68"
SPC- N.: 686092.82
E.: 596285.382
(NAD-83)

SURFACE LOCATION
LAT.: N 32°53'09.30"
LONG.: W104°08'29.68"
SPC- N.: 686084.021
E.: 600200.361
(NAD-83)

OPERATOR CERTIFICATION

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

Signature 12/10/07
Date

Printed Name: Dwaine Moore Agent for COG

SURVEYOR CERTIFICATION

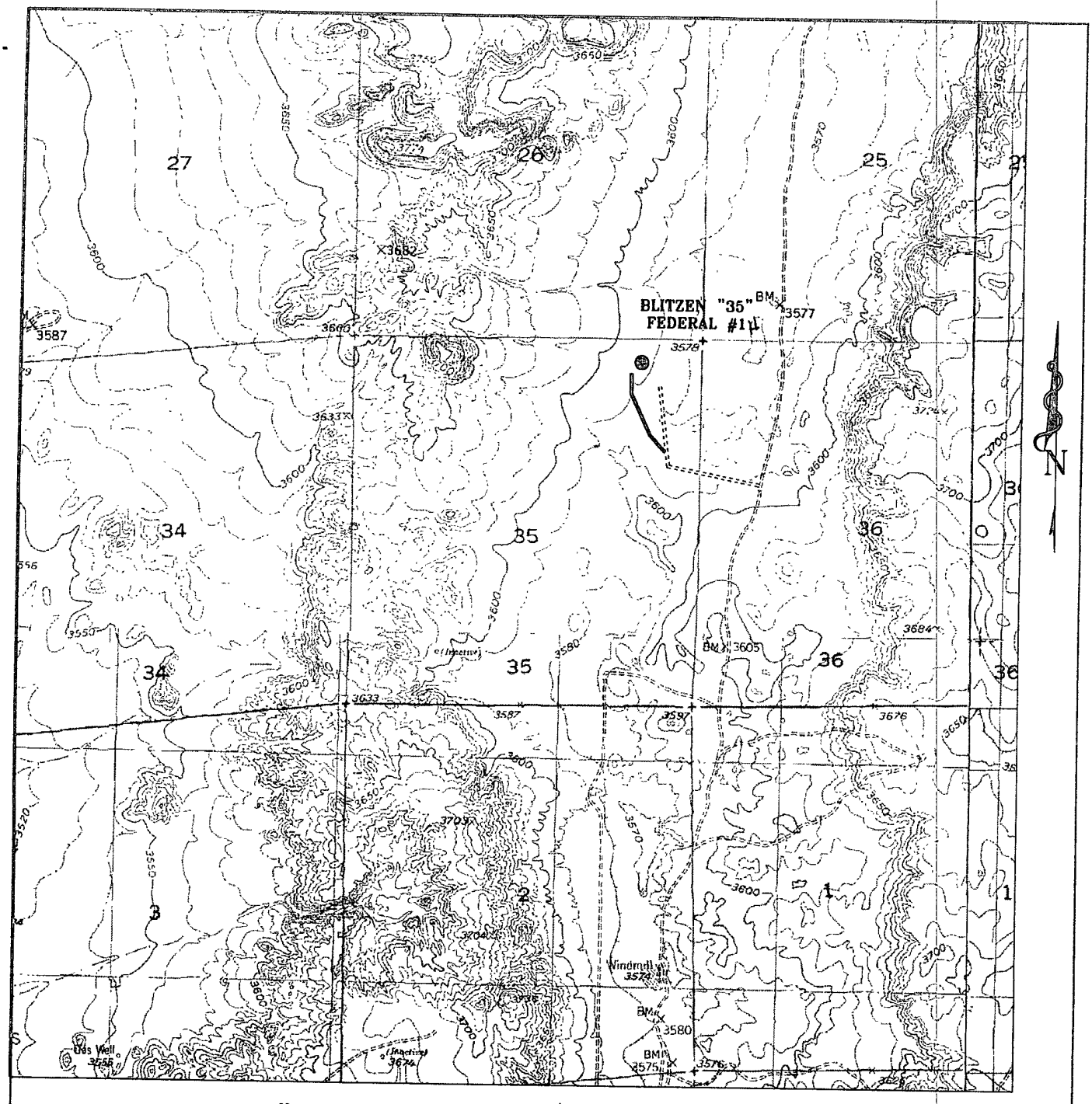
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervison, and that the same is true and correct to the best of my belief.

NOVEMBER 29, 2007
Date Surveyed
Signature & Seal of Professional Surveyor

18783
Certificate No. Gary L. Jones 7977

BASIN SURVEYS

EXHIBIT "D"



BLITZEN "35" FEDERAL #1
Located at 330' FNL and 990 FEL
Section 35, Township 16 South, Range 28 East,
N.M.P.M., Eddy County, New Mexico.

basin surveys
focused on excellence in the oilfield

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

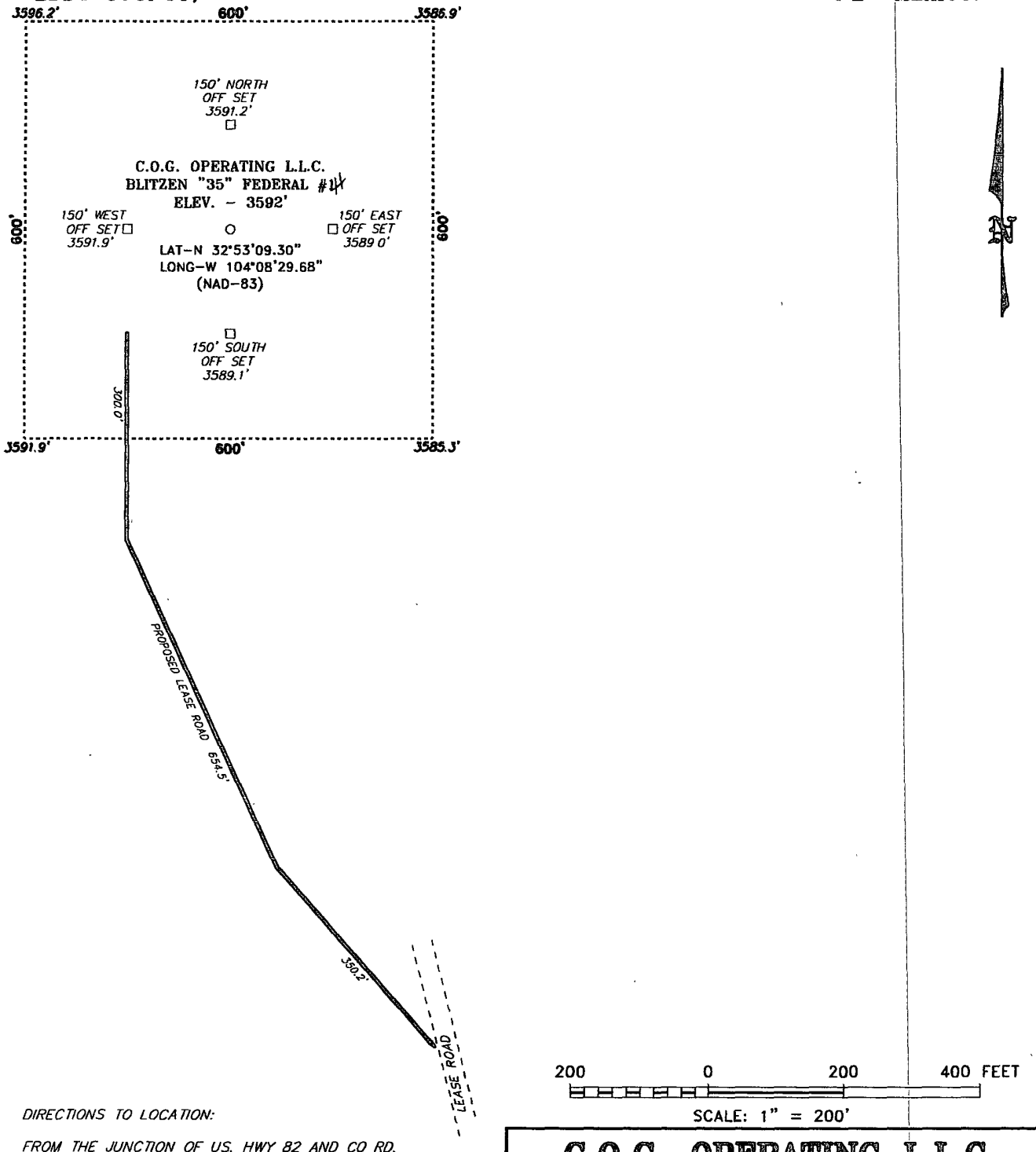
W.O. Number:	JMS 18783T
Survey Date:	11-29-2007
Scale:	1" = 2000'
Date:	12-03-2007

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

EXHIBIT "E"

SECTION 35, TOWNSHIP 16 SOUTH, RANGE 28 EAST, N.M.P.M.,

EDDY COUNTY, **NEW MEXICO.**



DIRECTIONS TO LOCATION:

FROM THE JUNCTION OF US. HWY 82 AND CO RD. 209 (TURKEY TRACK), GO NORTH ON CO. RD. 209 FOR APPROX. 5.0 MILES TO LEASE ROAD, CONTINUE NORTH APPROX. 0.6 MILES TO LEASE ROAD, ON LEASE ROAD GO WEST 0.3 TO LEASE ROAD, THENCE NORTH ON LEASE ROAD FOR 0.3 MILES TO LEASE ROAD, THENCE NORTH ON LEASE ROAD TO PROPOSED LEASE ROAD.

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

W.O. Number: 18783	Drawn By: J. M. SMALL
Date: 12-03-2007	Disk: JMS 18783W

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

REF: BLITZEN "35" FEDERAL #1 / Well Pad Topo

THE BLITZEN "35" FEDERAL #1 LOCATED 330' FROM THE NORTH LINE AND 990' FROM THE EAST LINE OF SECTION 35, TOWNSHIP 16 SOUTH, RANGE 28 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO.

Survey Date: 11-29-2007 | Sheet 1 of 1 Sheets

ATTACHMENT TO FORM 3160-3
COG Operating LLC
Blitzen "35" Federal # 1H
SL: 330' FNL & 990' FEL, Unit A
BHL: 330' FNL & 330' FWL, Unit D
Sec 35, T16S, R28E
Eddy County, NM

1. Proration Unit Spacing: 160 Acres,

2. Ground Elevation: 3592'

3. Proposed Depths: Pilot hole TD = 6980', Horizontal TVD = 6760', Horizontal MD = 11300'

4. Estimated tops of geological markers:

Quaternary	Surface
Yates/Seven Rivers	550'
Queens	1350'
San Andres	2120'
Glorietta	3650'
Abo	5600'
Wolfcamp	6730'

5. Possible mineral bearing formations:

Water Sand	Fresh Water	150'
Queens	Oil / Gas	1350'
San Andres	Oil / Gas	2120'
Glorietta	Oil / Gas	3650'
Abo	Oil / Gas	5600'
Wolfcamp	Oil / Gas	6730'

6. Casing Program

Hole size	Interval	OD of Casing	Weight	Cond.	Collar	Grade
17-1/2"	0' - +/-500'	13-3/8"	48#	New	STC	H40
Collapse sf - 2.98, Burst sf – 2.33, Tension sf – 13.42						
12 1/4"	0' - 1800'	9-5/8"	40#	New	STC	J-55
Collapse sf - 2. 86, Burst sf – 1.42, Tension sf – 7.22						
8-3/4"	0' – 6400'MD	5-1/2"	17#	New	LTC	L-80
Collapse sf - 2. 01, Burst sf – 2.35, Tension sf – 2.73						
7-7/8"	6400' – 11300'MD	5-1/2"	17#	New	BTC	L-80
Collapse sf – 1.75, Burst sf – 2.28, Tension sf – 28.77						

See COA

See COA

ATTACHMENT TO FORM 3160-3
COG Operating LLC
Blitzen "35" Federal # 1H

7. Cement Program

See COA → 13 3/8" Surface Casing set at +/- 500', Circ to Surf with +/- 500 sx Class "C" w/ 2% CaCl2, 1.35 yd.

See COA → 9 5/8" Intermediate Casing set at +/- 1800', Circ. to Surf with +/- 600 sx 35/65 Poz "C", 2.05 yd. & 200 sx Class "C" w/ 2% CaCl2, 1.35 yd.

5 ½" Production Casing set at +/- 11300' MD, 6760' TVD, Cement with +/- 200 sx. 50/50/2 "C", 1.37 yd & +/- 700 sx Class "H", 1.18 yd. Est. TOC @ 6000'. ← See COA

8. Pressure Control Equipment:

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

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

9. Proposed Mud Circulating System

	Interval	Mud Wt.	Visc.	FL	Type Mud System
See COA →	0' - 500'	8.5	28	NC	Fresh water native mud w/ paper for seepage and sweeps. Lime for PH.
See COA →	500' - 1800'	9.1	30	NC	Cut brine mud, lime for PH and paper for seepage and sweeps.
OK - TALKED TO JOHN COFFMAN @ OG - MUD PROGRAM INDEPENDENT OF CASING SETTING DEPTHS L Bolyard 9/17/07	1800'- 5300'	9.1	29	NC	Drill section with fresh water/cut brine circulating the reserve utilizing periodic sweeps of paper as needed for seepage control and solids removal.
	5300' - 11300'	9.5	36	10	Drill horizontal section with XCD polymer / cut brine / starch.

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

10. Production Hole Drilling Summary:

Drill 8-3/4" hole thru Wolfcamp, run open hole logs. Spot 150 sx. "H" Kick off plug from +/- 6700' to +/- 6300'. Time drill and kick off 7-7/8" hole at +/- 6300', building curve over +/- 475' to horizontal at 6760' TVD. Drill horizontal section in an westerly direction for +/-4500' lateral. Run production casing and cement.

ATTACHMENT TO FORM 3160-3
COG Operating LLC
Blitzen "35" Federal # 1H
Page 3 of 3

11. Auxiliary Well Control and Monitoring Equipment

    A. Kelly cock will be kept in the drill string at all times.

    B. A full opening drill pipe-stabbing valve with proper drill pipe connections will be on the rig floor at all times.

12. Logging, Testing and Coring Program:

    A. The electric logging program will consist of GR-Dual Laterolog, Spectral Density, Dual Spaced Neutron, CSNG Log and will be ran from T.D. in Pilot hole to 9 5/8" casing shoe.

    B. The mud logging program will consist of lagged 10' samples from intermediate casing point to T.D. in vertical pilot hole and from Kick off point to TD in Horizontal hole.

    C. Drill Stem test is not anticipated.

    D. No conventional coring is anticipated.

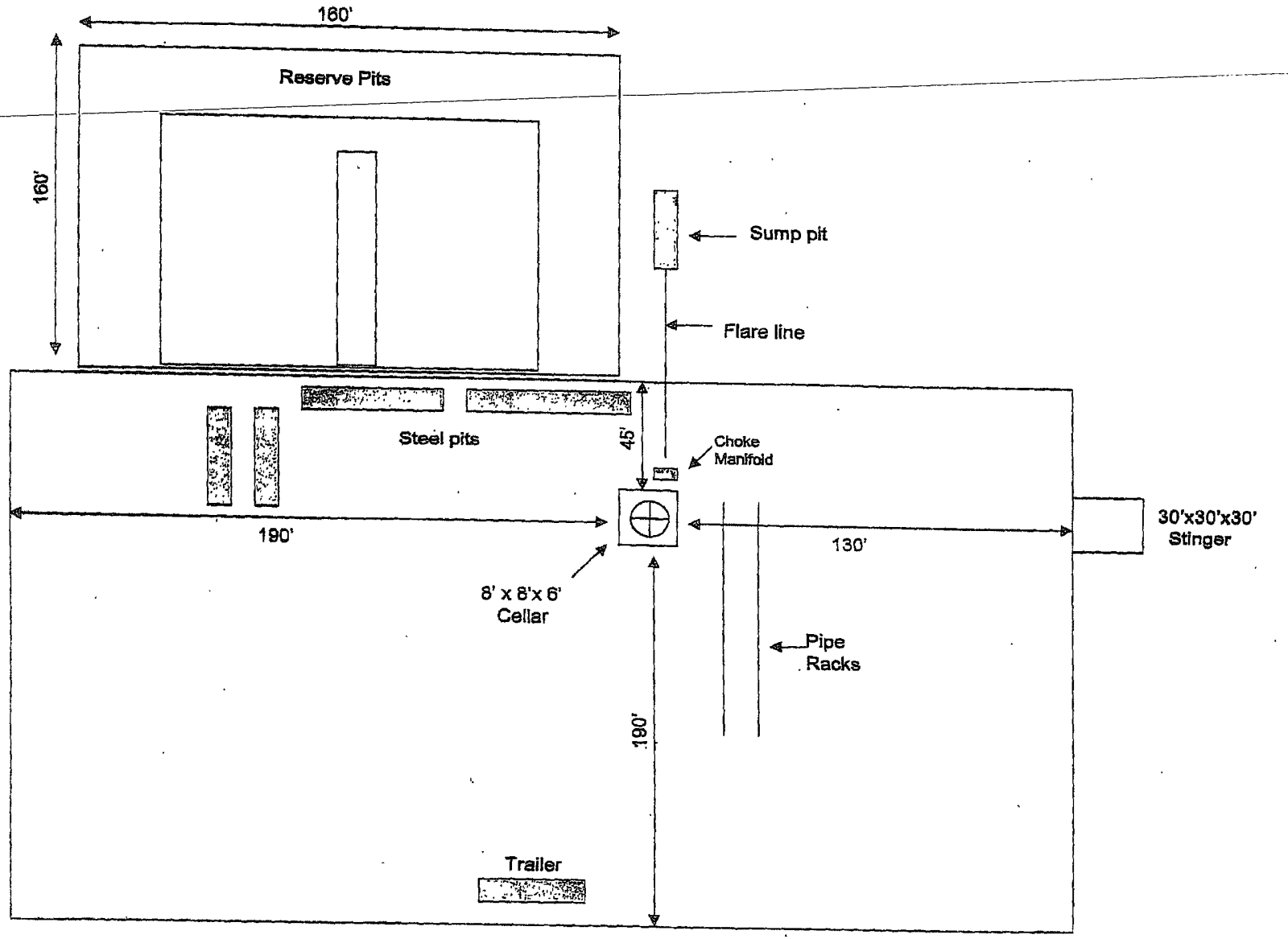
    E. Further testing procedures will be determined after the 5 ½" production casing has been cemented at TD based on drill shows and log evaluation.

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

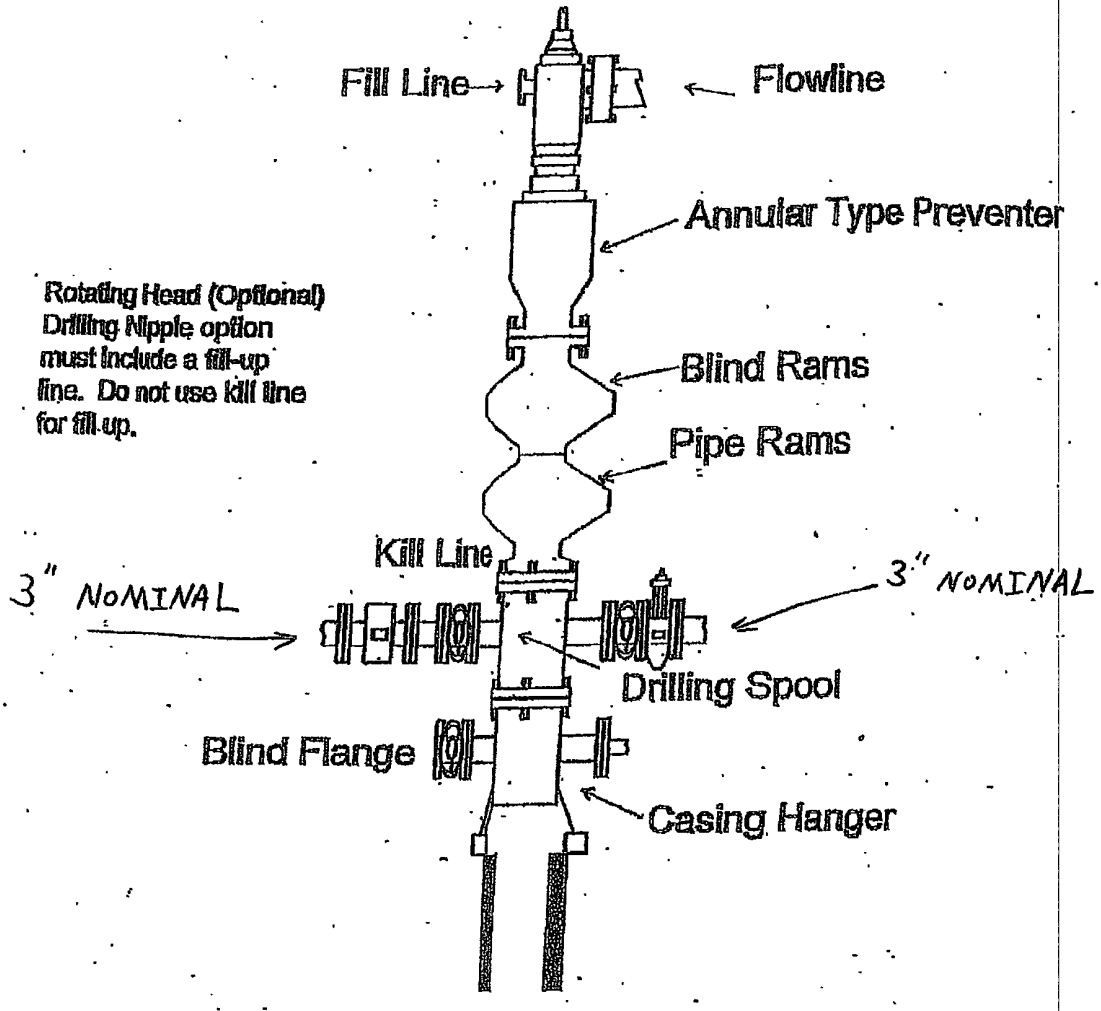
    No abnormal pressures or temperatures are anticipated. The estimated bottom hole at TD is 110 degrees and estimated maximum bottom hole pressure is 2927 psig. Low levels of Hydrogen sulfide have been monitored in producing wells in the area, so H2S may be present while drilling of the well. An H2S plan 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 December 15, 2007 with drilling and completion operations lasting approximately 45 days.


160'
Reserve Pits
160'
Sump pit
Flare line
Steel pits
45'
Choke
Manifold
190'
130'
30'x30'x30'
Stinger
8' x 8'x 6'
Cellar
Pipe
Racks
190'
Trailer

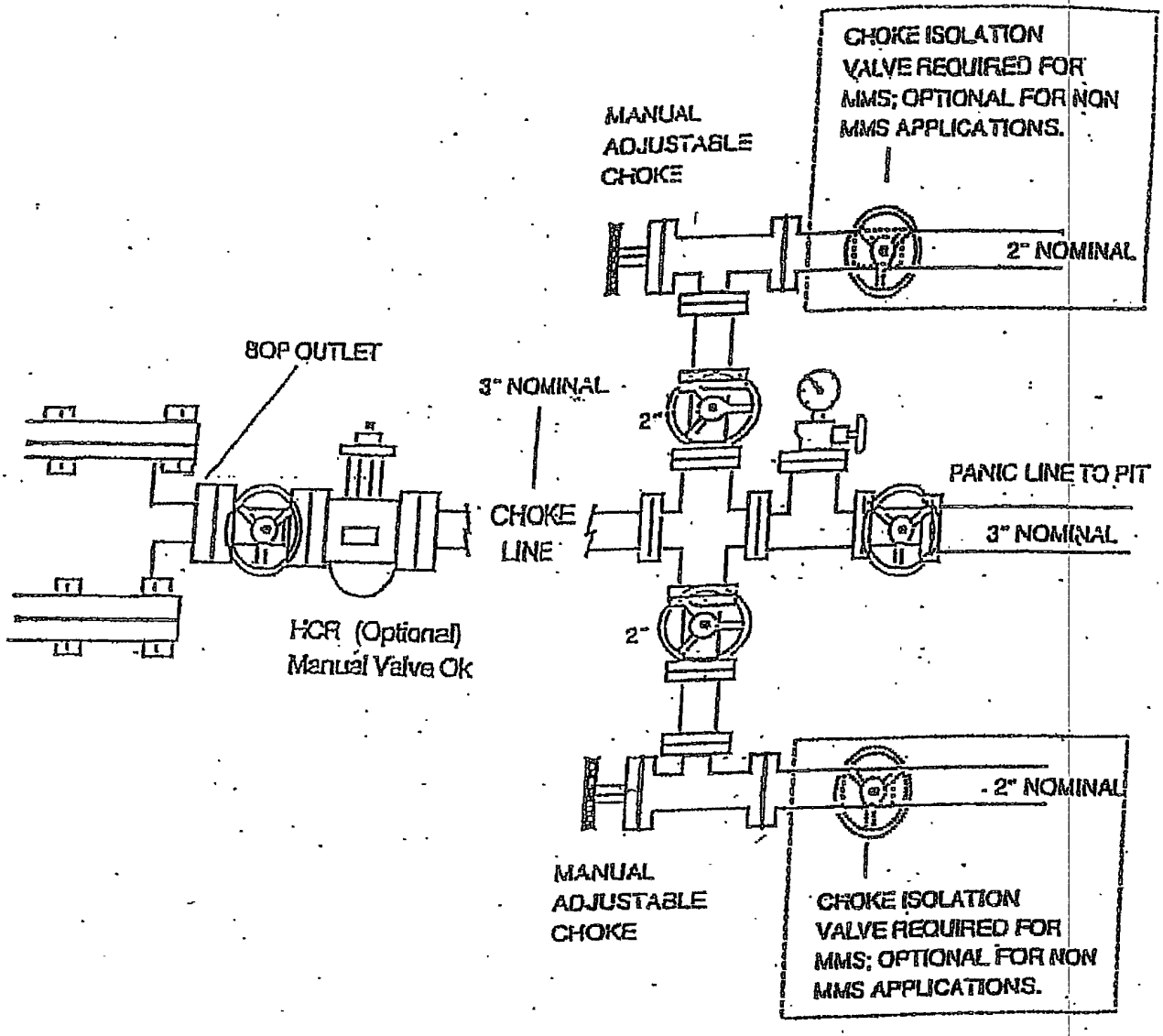
BOPE SCHEMATIC



900 SERIES

CHOKE MANIFOLD

3M SERVICE



Pathfinder Energy
Planning Report

Company:	COG Operating Company LLC.	**Date:** 09/06/2007	**Time:** 14:30:18	**Page:**	1
Field:	Blitzen	**Co-ordinate(NE) Reference:**	Site: Blitzen 35 Fed #1, Grid North		
Site:	Blitzen 35 Fed #1	**Vertical (TVD) Reference:**	SITE 3601.0		
Well:	Blitzen 35 Federal #1H	**Section (VS) Reference:**	Well (0.00N,0.00E,269.49Azi)		
Wellpath:	OH	**Plan:**	Plan #1 9-6-07		

Field: Blitzen

Map System:	US State Plane Coordinate System 1983	**Map Zone:**	New Mexico, Eastern Zone
Geo Datum:	GRS 1980	**Coordinate System:**	Site Centre
Sys Datum:	Mean Sea Level	**Geomagnetic Model:**	igrf2005

Site: Blitzen 35 Fed #1

Site Position:		**Northing:**	686082.63 ft	**Latitude:**	32 53 9.263 N
From:	Map	**Easting:**	600853.51 ft	**Longitude:**	104 8 22.040 W
Position Uncertainty:	0.00 ft			**North Reference:**	Grid
Ground Level:	3580.00 ft			**Grid Convergence:**	0.11 deg

Well: Blitzen 35 Federal #1 **Slot Name:**

Well Position:	+N/-S	0.00 ft	**Northing:**	686082.63 ft	**Latitude:**	32 53 9.263 N
	+E/-W	0.00 ft	**Easting :**	600853.51 ft	**Longitude:**	104 8 22.040 W
Position Uncertainty:		0.00 ft				

Wellpath: OH

Current Datum:	SITE	**Height**	3601.00 ft	**Drilled From:**	Surface
Magnetic Data:	09/06/2007			**Tie-on Depth:**	0.00 ft
Field Strength:	49377 nT			**Above System Datum:**	Mean Sea Level
				Declination:	8.34 deg
				Mag Dip Angle:	60.80 deg

Vertical Section:	**Depth From (TVD)**	**+N/-S**	**+E/-W**	**Direction**
	ft	ft	ft	deg
	0.00	0.00	0.00	269.49

Plan: Plan #1 9-6-07

Principal:	Yes	**Date Composed:**	09/06/2007
		Version:	1
		Tied-to:	From Surface

Plan Section Information

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	TFO deg	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
6300.00	0.00	0.00	6300.00	0.00	0.00	0.00	0.00	0.00	0.00	
7031.12	91.05	264.90	6760.00	-41.65	-466.65	12.45	12.45	0.00	264.90	
7205.42	91.05	270.13	6756.80	-49.20	-640.70	3.00	0.00	3.00	89.95	
11075.20	91.05	270.13	6685.89	-40.42	-4509.82	0.00	0.00	0.00	0.00	PBHL 2

Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00	
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	
550.00	0.00	0.00	550.00	0.00	0.00	0.00	0.00	0.00	0.00	Yates
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00	
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00	
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00	
1000.00	0.00	0.00	1000.00	0.00	0.00	0.00	0.00	0.00	0.00	
1100.00	0.00	0.00	1100.00	0.00	0.00	0.00	0.00	0.00	0.00	
1200.00	0.00	0.00	1200.00	0.00	0.00	0.00	0.00	0.00	0.00	
1300.00	0.00	0.00	1300.00	0.00	0.00	0.00	0.00	0.00	0.00	
1350.00	0.00	0.00	1350.00	0.00	0.00	0.00	0.00	0.00	0.00	Queen

Pathfinder Energy
Planning Report

Company:	COG Operating Company LLC.	**Date:** 09/06/2007 **Time:** 14:30:18	**Page:** 2
Field:	Blitzen	**Co-ordinate(NE) Reference:** Site: Blitzen 35 Fed #1, Grid North	
Site:	Blitzen 35 Fed #1	**Vertical (TVD) Reference:** SITE 3601.0	
Well:	Blitzen 35 Federal #1 H	**Section (VS) Reference:** Well (0.00N,0.00E,269.49Azi)	
Wellpath:	OH	**Plan:** Plan #1 9-6-07	

Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
1400.00	0.00	0.00	1400.00	0.00	0.00	0.00	0.00	0.00	0.00	
1500.00	0.00	0.00	1500.00	0.00	0.00	0.00	0.00	0.00	0.00	
1600.00	0.00	0.00	1600.00	0.00	0.00	0.00	0.00	0.00	0.00	
1700.00	0.00	0.00	1700.00	0.00	0.00	0.00	0.00	0.00	0.00	
1800.00	0.00	0.00	1800.00	0.00	0.00	0.00	0.00	0.00	0.00	
1900.00	0.00	0.00	1900.00	0.00	0.00	0.00	0.00	0.00	0.00	
2000.00	0.00	0.00	2000.00	0.00	0.00	0.00	0.00	0.00	0.00	
2100.00	0.00	0.00	2100.00	0.00	0.00	0.00	0.00	0.00	0.00	
2120.00	0.00	0.00	2120.00	0.00	0.00	0.00	0.00	0.00	0.00	San Andres D
2200.00	0.00	0.00	2200.00	0.00	0.00	0.00	0.00	0.00	0.00	
2300.00	0.00	0.00	2300.00	0.00	0.00	0.00	0.00	0.00	0.00	
2400.00	0.00	0.00	2400.00	0.00	0.00	0.00	0.00	0.00	0.00	
2500.00	0.00	0.00	2500.00	0.00	0.00	0.00	0.00	0.00	0.00	
2600.00	0.00	0.00	2600.00	0.00	0.00	0.00	0.00	0.00	0.00	
2700.00	0.00	0.00	2700.00	0.00	0.00	0.00	0.00	0.00	0.00	
2800.00	0.00	0.00	2800.00	0.00	0.00	0.00	0.00	0.00	0.00	
2900.00	0.00	0.00	2900.00	0.00	0.00	0.00	0.00	0.00	0.00	
3000.00	0.00	0.00	3000.00	0.00	0.00	0.00	0.00	0.00	0.00	
3100.00	0.00	0.00	3100.00	0.00	0.00	0.00	0.00	0.00	0.00	
3200.00	0.00	0.00	3200.00	0.00	0.00	0.00	0.00	0.00	0.00	
3300.00	0.00	0.00	3300.00	0.00	0.00	0.00	0.00	0.00	0.00	
3400.00	0.00	0.00	3400.00	0.00	0.00	0.00	0.00	0.00	0.00	
3500.00	0.00	0.00	3500.00	0.00	0.00	0.00	0.00	0.00	0.00	
3600.00	0.00	0.00	3600.00	0.00	0.00	0.00	0.00	0.00	0.00	
3650.00	0.00	0.00	3650.00	0.00	0.00	0.00	0.00	0.00	0.00	Glorieta
3700.00	0.00	0.00	3700.00	0.00	0.00	0.00	0.00	0.00	0.00	
3800.00	0.00	0.00	3800.00	0.00	0.00	0.00	0.00	0.00	0.00	
3900.00	0.00	0.00	3900.00	0.00	0.00	0.00	0.00	0.00	0.00	
4000.00	0.00	0.00	4000.00	0.00	0.00	0.00	0.00	0.00	0.00	
4100.00	0.00	0.00	4100.00	0.00	0.00	0.00	0.00	0.00	0.00	
4200.00	0.00	0.00	4200.00	0.00	0.00	0.00	0.00	0.00	0.00	
4300.00	0.00	0.00	4300.00	0.00	0.00	0.00	0.00	0.00	0.00	
4400.00	0.00	0.00	4400.00	0.00	0.00	0.00	0.00	0.00	0.00	
4500.00	0.00	0.00	4500.00	0.00	0.00	0.00	0.00	0.00	0.00	
4600.00	0.00	0.00	4600.00	0.00	0.00	0.00	0.00	0.00	0.00	
4700.00	0.00	0.00	4700.00	0.00	0.00	0.00	0.00	0.00	0.00	
4800.00	0.00	0.00	4800.00	0.00	0.00	0.00	0.00	0.00	0.00	
4900.00	0.00	0.00	4900.00	0.00	0.00	0.00	0.00	0.00	0.00	
5000.00	0.00	0.00	5000.00	0.00	0.00	0.00	0.00	0.00	0.00	
5100.00	0.00	0.00	5100.00	0.00	0.00	0.00	0.00	0.00	0.00	
5200.00	0.00	0.00	5200.00	0.00	0.00	0.00	0.00	0.00	0.00	
5300.00	0.00	0.00	5300.00	0.00	0.00	0.00	0.00	0.00	0.00	
5400.00	0.00	0.00	5400.00	0.00	0.00	0.00	0.00	0.00	0.00	
5500.00	0.00	0.00	5500.00	0.00	0.00	0.00	0.00	0.00	0.00	
5600.00	0.00	0.00	5600.00	0.00	0.00	0.00	0.00	0.00	0.00	Abo
5700.00	0.00	0.00	5700.00	0.00	0.00	0.00	0.00	0.00	0.00	
5800.00	0.00	0.00	5800.00	0.00	0.00	0.00	0.00	0.00	0.00	
5900.00	0.00	0.00	5900.00	0.00	0.00	0.00	0.00	0.00	0.00	
6000.00	0.00	0.00	6000.00	0.00	0.00	0.00	0.00	0.00	0.00	
6100.00	0.00	0.00	6100.00	0.00	0.00	0.00	0.00	0.00	0.00	
6200.00	0.00	0.00	6200.00	0.00	0.00	0.00	0.00	0.00	0.00	
6300.00	0.00	0.00	6300.00	0.00	0.00	0.00	0.00	0.00	0.00	KOP @ 6300' MD/TVD
6400.00	12.45	264.90	6399.21	-0.96	-10.78	10.79	12.45	12.45	0.00	
6500.00	24.91	264.90	6493.76	-3.80	-42.62	42.65	12.45	12.45	0.00	

Pathfinder Energy
Planning Report

Company:	COG Operating Company LLC.	**Date:** 09/06/2007 **Time:** 14:30:18 **Page:** 3	
Field:	Blitzen	**Co-ordinate(NE) Reference:**	Site: Blitzen 35 Fed #1, Grid North
Site:	Blitzen 35 Fed #1	**Vertical (TVD) Reference:**	SITE 3601.0
Well:	Blitzen 35 Federal #1H	**Section (VS) Reference:**	Well (0.00N,0.00E,269.49Azi)
Wellpath:	OH	**Plan:**	Plan #1 9-6-07

Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
6600.00	37.36	264.90	6579.19	-8.39	-94.02	94.09	12.45	12.45	0.00	
6700.00	49.81	264.90	6651.48	-14.51	-162.56	162.68	12.45	12.45	0.00	
6756.14	56.81	264.90	6685.00	-18.51	-207.37	207.53	12.45	12.45	0.00	PBHL
6800.00	62.27	264.90	6707.23	-21.87	-245.01	245.20	12.45	12.45	0.00	
6855.41	69.17	264.90	6730.00	-26.35	-295.28	295.51	12.45	12.45	0.00	Wolfcamp
6900.00	74.72	264.90	6743.82	-30.12	-337.50	337.75	12.45	12.45	0.00	
7000.00	87.17	264.90	6759.52	-38.88	-435.67	436.00	12.45	12.45	0.00	
7031.12	91.05	264.90	6760.00	-41.65	-466.65	467.01	12.45	12.45	0.00	EOC @ 7031' MD, 91.05° IN
7100.00	91.05	266.97	6758.74	-46.53	-535.35	535.74	3.00	0.00	3.00	
7200.00	91.05	269.97	6756.90	-49.21	-635.28	635.70	3.00	0.00	3.00	
7205.42	91.05	270.13	6756.80	-49.20	-640.70	641.12	3.00	0.00	3.00	
7205.56	91.05	270.13	6756.80	-49.20	-640.84	641.26	0.00	0.00	0.00	EOT @ 7206' MD, 270.13° A
7300.00	91.05	270.13	6755.07	-48.99	-735.26	735.67	0.00	0.00	0.00	
7400.00	91.05	270.13	6753.24	-48.76	-835.25	835.65	0.00	0.00	0.00	
7500.00	91.05	270.13	6751.41	-48.53	-935.23	935.63	0.00	0.00	0.00	
7600.00	91.05	270.13	6749.57	-48.31	-1035.21	1035.60	0.00	0.00	0.00	
7700.00	91.05	270.13	6747.74	-48.08	-1135.20	1135.58	0.00	0.00	0.00	
7800.00	91.05	270.13	6745.91	-47.85	-1235.18	1235.56	0.00	0.00	0.00	
7900.00	91.05	270.13	6744.08	-47.63	-1335.16	1335.54	0.00	0.00	0.00	
8000.00	91.05	270.13	6742.24	-47.40	-1435.15	1435.51	0.00	0.00	0.00	
8100.00	91.05	270.13	6740.41	-47.17	-1535.13	1535.49	0.00	0.00	0.00	
8200.00	91.05	270.13	6738.58	-46.95	-1635.11	1635.47	0.00	0.00	0.00	
8300.00	91.05	270.13	6736.75	-46.72	-1735.09	1735.44	0.00	0.00	0.00	
8400.00	91.05	270.13	6734.91	-46.49	-1835.08	1835.42	0.00	0.00	0.00	
8500.00	91.05	270.13	6733.08	-46.26	-1935.06	1935.40	0.00	0.00	0.00	
8600.00	91.05	270.13	6731.25	-46.04	-2035.04	2035.37	0.00	0.00	0.00	
8700.00	91.05	270.13	6729.42	-45.81	-2135.03	2135.35	0.00	0.00	0.00	
8800.00	91.05	270.13	6727.58	-45.58	-2235.01	2235.33	0.00	0.00	0.00	
8900.00	91.05	270.13	6725.75	-45.36	-2334.99	2335.30	0.00	0.00	0.00	
9000.00	91.05	270.13	6723.92	-45.13	-2434.97	2435.28	0.00	0.00	0.00	
9100.00	91.05	270.13	6722.09	-44.90	-2534.96	2535.26	0.00	0.00	0.00	
9200.00	91.05	270.13	6720.25	-44.68	-2634.94	2635.24	0.00	0.00	0.00	
9300.00	91.05	270.13	6718.42	-44.45	-2734.92	2735.21	0.00	0.00	0.00	
9400.00	91.05	270.13	6716.59	-44.22	-2834.91	2835.19	0.00	0.00	0.00	
9500.00	91.05	270.13	6714.76	-44.00	-2934.89	2935.17	0.00	0.00	0.00	
9600.00	91.05	270.13	6712.92	-43.77	-3034.87	3035.14	0.00	0.00	0.00	
9700.00	91.05	270.13	6711.09	-43.54	-3134.86	3135.12	0.00	0.00	0.00	
9800.00	91.05	270.13	6709.26	-43.32	-3234.84	3235.10	0.00	0.00	0.00	
9900.00	91.05	270.13	6707.43	-43.09	-3334.82	3335.07	0.00	0.00	0.00	
10000.00	91.05	270.13	6705.59	-42.86	-3434.80	3435.05	0.00	0.00	0.00	
10100.00	91.05	270.13	6703.76	-42.63	-3534.79	3535.03	0.00	0.00	0.00	
10200.00	91.05	270.13	6701.93	-42.41	-3634.77	3635.00	0.00	0.00	0.00	
10300.00	91.05	270.13	6700.10	-42.18	-3734.75	3734.98	0.00	0.00	0.00	
10400.00	91.05	270.13	6698.26	-41.95	-3834.74	3834.96	0.00	0.00	0.00	
10500.00	91.05	270.13	6696.43	-41.73	-3934.72	3934.93	0.00	0.00	0.00	
10600.00	91.05	270.13	6694.60	-41.50	-4034.70	4034.91	0.00	0.00	0.00	
10700.00	91.05	270.13	6692.77	-41.27	-4134.68	4134.89	0.00	0.00	0.00	
10800.00	91.05	270.13	6690.93	-41.05	-4234.67	4234.87	0.00	0.00	0.00	
10900.00	91.05	270.13	6689.10	-40.82	-4334.65	4334.84	0.00	0.00	0.00	
11000.00	91.05	270.13	6687.27	-40.59	-4434.63	4434.82	0.00	0.00	0.00	
11075.20	91.05	270.13	6685.89	-40.42	-4509.82	4510.00	0.00	0.00	0.00	PBHL 2

Pathfinder Energy
Planning Report

Company:	COG Operating Company LLC	**Date:** 09/06/2007 **Time:** 14:30:18	**Page:** 4
Field:	Blitzen	**Co-ordinate(NE) Reference:** Site: Blitzen 35 Fed #1, Grid North	
Site:	Blitzen 35 Fed #1	**Vertical (TVD) Reference:** SITE 3601.0	
Well:	Blitzen 35 Federal #1 H	**Section (VS) Reference:** Well (0.00N,0.00E,269.49Azi)	
Wellpath:	OH	**Plan:** Plan #1 9-6-07	

Targets

Name	Description Dip.	Dir.	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	<---- Latitude ----> Deg	Min	Sec	<---- Longitude ----> Deg	Min	Sec
PBHL 2			6685.00	-40.42	-4509.82	686042.21	596343.69	32	53	8.942 N	104	9	14.929 W
PBHL			6685.00	10.19	-4568.13	686092.82	596285.38	32	53	9.443 N	104	9	15.612 W

Formations

MD ft	TVD ft	Formations	Lithology	Dip Angle deg	Dip Direction deg
550.00	550.00	Yates		0.00	0.00
1350.00	1350.00	Queen		0.00	0.00
2120.00	2120.00	San Andres D		0.00	0.00
3650.00	3650.00	Glorieta		0.00	0.00
5600.00	5600.00	Abo		0.00	0.00
6855.41	6730.00	Wolfcamp		0.00	0.00

Annotation

MD ft	TVD ft	
6300.00	6300.00	KOP @ 6300' MD/TVD
7031.12	6760.00	EOC @ 7031' MD, 91.05° INC, 6760' TVD, Begin Turn
7205.56	6756.80	EOT @ 7206' MD, 270.13° AZI, Hold to TD
11075.19	6685.89	TD @ 11075' MD

COG Operating Company LLC.

PATHFINDER

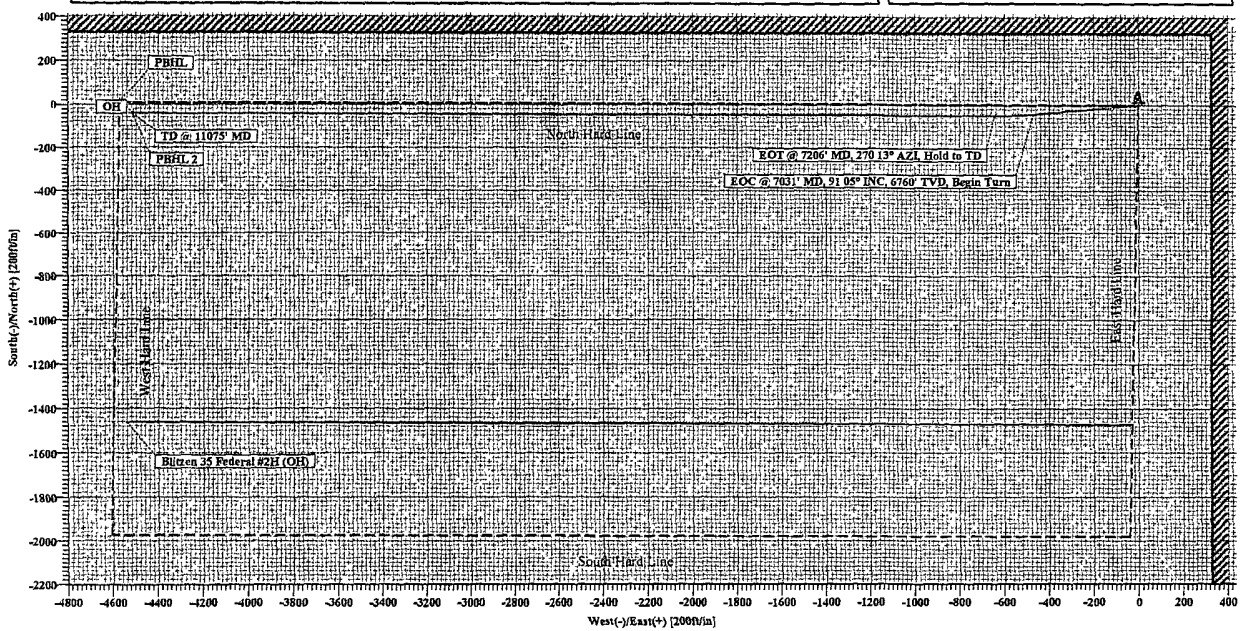
Field: Blitzen
Site: Blitzen 35 Fed #1
Well: Blitzen 35 Federal #1H
Wellpath: OH
Plan: Plan #1 9-6-07

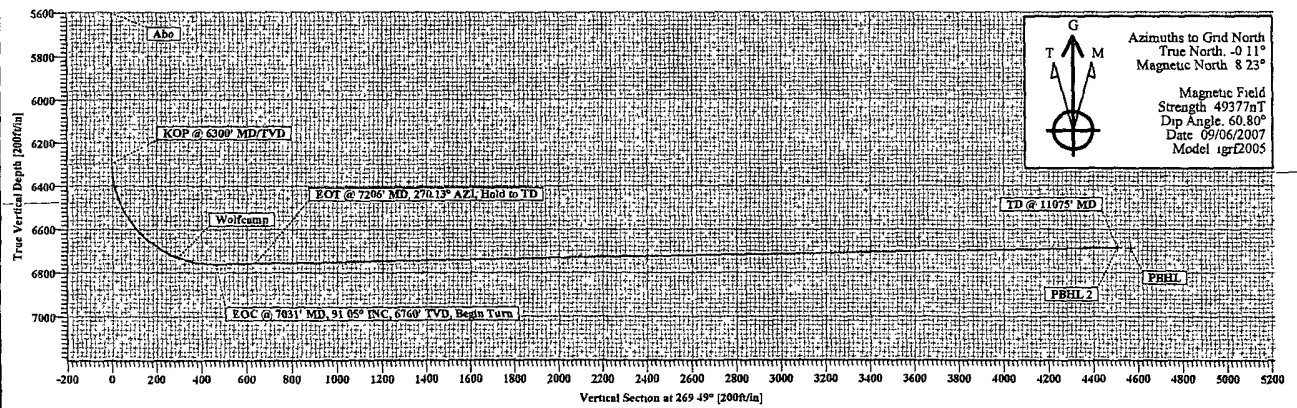
SECTION DETAILS

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	
2	6300.00	0.00	0.00	6300.00	0.00	0.00	0.00	0.00	0.00	
3	7031.12	91.05	264.90	6760.00	-41.65	-466.65	12.45	264.90	467.01	
4	7205.42	91.05	270.13	6756.80	-49.20	-640.70	3.00	89.95	641.12	
5	11075.20	91.05	270.13	6685.89	-40.42	-4509.82	0.00	0.00	4510.00	PBHL 2

FORMATION TOP DETAILS

No	TVDPath	MDPath	Formation
1	550.00	550.00	Yates
2	1350.00	1350.00	Queen
3	2120.00	2120.00	San Andres D
4	3650.00	3650.00	Glorieta
5	5600.00	5600.00	Abo
6	6730.00	6855.41	Wolfcamp





Azimuths to Grid North
True North: -0.11°
Magnetic North: 8.23°

Magnetic Field
Strength: 49377nT
Dip Angle: 60.80°
Date: 09/06/2007
Model: igrf2005

SITE DETAILS

Blitzen 35 Fed #1

Site Centre Northing: 686082.63
Easting: 600853.51

Ground Level: 3580.00
Positional Uncertainty: 0.00
Convergence: 0.11

TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
PBHL 2	6685.00	-40.42	-4509.82	Point
PBHL	6685.00	10.19	-4568.13	Point

WELLPATH DETAILS

OH

Rig Ref. Datum: SITE 3601.00ft

V.Section Angle	Origin +N/-S	Origin +E/-W	Starting From TVD
269.49°	0.00	0.00	0.00

ANNOTATIONS

No.	TVD	MD	Annotation
1	6300.00	6300.00	KOP @ 6300' MD/TVD
2	6760.00	7031.12	EOC @ 7031' MD, 91.05° INC, 6760' TVD, Begin Turn
3	6756.80	7205.56	EOT @ 7206' MD, 270.13° AZI, Hold to TD
4	6685.89	11075.19	TD @ 11075' MD

Wellpath: (Blitzen 35 Federal #1(OH))
Created By: Derek Crocker Date: 09/06/2007

COG OPERATING, LLC

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

Blitzen "35" Federal 1H
NEW DRILL WELL
SL: 330' FNL & 990' FEL, UNIT A
BHL: 330' FNL & 330' FWL, UNIT D
SECTION 35, 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

GENERAL H2S EMERGENCY ACTIONS

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

1. All personnel will immediately evacuate to an up-wind and if possible up-hill "safe area".

2. If for any reason a person must enter the hazardous area, they must wear a SCBA (self-contained breathing apparatus).

3. Always use the "buddy system".

4. Isolate the well / problem if possible.

5. Account for all personnel.

6. Display the proper colors warning all unsuspecting personnel of the danger at hand.

7. Contact the company representative as soon as possible if not at the location (use the enclosed call list as instructed).

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

EMERGENCY PROCEDURES FOR AN UNCONTROLLABLE RELEASE OF H2S

1. All personnel will don the self-contained breathing apparatus.

2. Remove all personnel to the "safe area: (always use the "buddy system").

3. Contact company representative if not on location.

4. Set in motion the steps to protect and / or remove the general public to any upwind "safe are". Maintain strict security and safety procedures while dealing with the source.

5. No entry to any unauthorized personnel.

6. Notify the appropriate agencies:
   City Police - City streets
   State Police - State Roads
   County Sheriff - County Roads

7. Call the NMOCD.

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

EMERGENCY CALL LIST

	Office	Cell	Home
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 ppg 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)(concentration)(Q)] (0.6258)

10,000 ppm + = .01
1,000 ppm + = .001
100 ppm + = .0001
10 ppm + = .00001

Calculation for the 500 ppm ROE:

X = [(0.4546)(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:

ROE for 100 ppm X=[(1.589)(.00010)(200,000)] (0.6258)
X=8.8'
ROE for 500 ppm X=[(.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 effected area is safe to enter.

PROCEDURE FOR IGNITING AN UNCONTROLLABLE CONDITION

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

1. Human life and / or property are endangered.

2. There is no hope of bringing the situation under control with the prevailing conditions at the site.

Instructions for Igniting the Well:

1. Two people are required. They must be equipped with positive pressure, self-contained breathing apparatus and "D"-ring style, full body, OSHA approved safety harness. Non-flammable rope will be attached.

2. One of the people will be a qualified safety person who will test the atmosphere for 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 that Carbon Monoxide. Occupational exposure limits for Hydrogen sulfide and other gasses are compared below in Table 1. toxicity table for H2S and physical effects are shown in Table II.

Table 1
Permissible Exposure Limits of Various Gasses

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

Definitions

A. TLV – Threshold Limit Value is the concentration employees may be exposed to based on a TWA (time weighted average) for eight (8) hours in one day for 40 hours in one (1) week. This is set by ACGIH (American Conference of Governmental Hygienists and regulated by OSHA.

B. STEL – Short Term Exposure Limit is the 15 minute average concentration an employee may be exposed to providing that the highest exposure never exceeds the OEL (Occupational Exposure Limit). The OEL for H2S is 19 PPM.

C. IDLH – Immediately Dangerous to Life and Health is the concentration that has been determined by the ACGIH to cause serious health problems or death if exposed to this level. The IDLH for H2S is 100 PPM.

D. TWA – Time Weighted Average is the average concentration of any chemical or gas for an eight (8) hour period. This is the concentration that any employee may be exposed to based on an TWA.

TABLE II
Toxicity Table of 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 gasses are usually described in the context of seven major categories:

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

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

COLOR – TRANSPARENT

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

ODOR – ROTTEN EGGS

Hydrogen Sulfide has a distinctive offensive smell, similar to "rotten eggs". For this reason it earned its common name "sour gas". However, 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.

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

C.O.G. Operating, LLC
Blitzen "35 Federal #1H
SL: 330' FNL & 990' FEL, Unit A
BHL: 330' FNL & 330' FWL, Unit D
Sec 35, T16S, R28E
Eddy County, New Mexico

LOCATED
Approx 10 miles Northwest of Loco Hill, NM

OIL & GAS LEASE
SL: State of New Mexico
BHL: NMLC #103876

RECORD TITLE LESSEE
COG Operating, LLC, 550 W. Texas, Suite 1300, Midland, TX 79701

BOND COVERAGE
$25,000 statewide bond of C.O.G. Operating, L.L.C.

SURFACE OWNER
State of New Mexico

MINERAL OWNER
Bureau of Land Management

GRAZING TENANT
Bogle LTD CO LLC, PO Box 460, Dexter, NM 88230; 505-734-5442

POOL
Wolfcamp

PROPOSED TOTAL DEPTH
This well will be drilled to a Total Vertical Depth of approximately 6760' and a Measured Depth of approximately 11300'

EXHIBITS

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

EXISTING ROADS

A. Exhibit A is a portion of a section map showing the location of the proposed well as staked.

B. Exhibit B is a map showing existing roads in the vicinity of the proposed well site.

C. Directions to well location: From the junction of US Hwy 82 and Co. Rd. 209 (Turkey Track), Go North on Co. Rd. 209 for approx. 5.0 miles to lease road, continue North approx. 0.6 miles to Lease Rd., on Lease Rd., go west 0.3 to lease road, thence north on lease road for 0.3 miles to lease rd., thence North on Lease Rd., for 0.3 miles to proposed lease road.

ACCESS ROADS

A. Length and Width: 1304.7' long and 30' wide. The access road will be built and is shown on Exhibit E.

B. Surface Material: Existing

C. Maximum Grad: Less than five percent

D. Turnouts: None necessary

E. Drainage Design: Existing

F. Culverts: None necessary

G. Gates and Cattle Guards: None needed

LOCATION OF EXISITING WELLS

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

LOCATION OF EXISTING AND/OR PROPOSED FACILITIES

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

LOCATION AND TYPE OF WATER SUPPLY

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

METHODS OF HANDLING WASTE DISPOSAL

A. Drilling fluids will be allowed to evaporate in the drilling pits until the pits are dry.

B. Water produced during tests will be disposed of in the drilling pits.

C. Oil produced during tests will be stored in test tanks.

D. Trash will be contained in a trash trailer and removed from well site.

E. All trash and debris will be removed from the well site within 30 days after finishing drilling and/or completion operations.

ANCILLARY FACILITIES

None required.

WELL SITE LAYOUT

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

PLANS FOR RESTORATION OF THE SURFACE

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

B. After abandonment, all equipment, trash, and junk will be removed and the site will be clean.

OTHER INFORMATION

A. **Topography:**
The topography consists of sandy soil with native grasses. No wildlife was observed, but the usual inhabitants of this region are Jackrabbits, Reptiles, Coyotes, etc.

B. **Soil:** Topsoil at the well site is sandy soil.

C. **Flora and Fauna:** The location is in an area sparsely covered with mesquite and range grasses.

D. **Ponds and Streams:** There are no rivers, lakes, ponds, or streams in the area.

E. **Residences and Other Structures:** There are no residences within a mile of the proposed well site.

F. **Archaeological, Historical, and Cultural sites:** An Archaeological Survey has been ordered and a copy to be sent to the BLM Office.

G. **Land Use:** Grazing

ONLEASE RIGHT OF WAY REQUEST

Requesting Right of Way for all onlease appurtenances, including proposed lease roads and electric lines.

A. **Roads: Building of a proposed lease road 1304.7' in length. (See Exhibit E).**

OPERATOR'S REPRESENTATIVE

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

CERTIFICATION

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

9/6/07
Date

John Coffman
C.O.G. Operating, LLC

VII. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

The BLM is to be notified a minimum of 2 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, (505) 361-2822

1. **Although no significant amounts of Hydrogen Sulfide have been reported, it is always a potential hazard. Please report any measured amounts 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.

3. When floor controls are required, (3M or Greater) 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.

B. CASING

1. The **13-3/8** inch surface casing shall be set **above the salt at approximately 300** feet and cemented to the surface. **BLM geologist indicates that salt is shallow in this area.**

   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 a surface log readout will be used or a cement bond log shall be run to verify the top of the cement.

   b. Wait on cement (WOC) time 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. (This is to include the lead cement).

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 action will be done prior to drilling out that string.

Possible lost circulation in the Grayburg and San Andres formations.
Possible high pressure gas bursts from the Wolfcamp formation.

2. The minimum required fill of cement behind the **9-5/8** inch intermediate casing is: **Casing to be set at approximately 1900 feet in the top of the San Andres formation.**

   ☒ Cement to surface. If cement does not circulate see B.1.a-d above.

3. The minimum required fill of cement behind the **5-1/2** inch production casing is:

   ☒ Cement should tie-back at least 200 feet into previous casing string. Operator shall provide method of verification. **Additional cement will be required.**

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. The appropriate BLM office shall be notified a minimum of 2 hours in advance for a representative to witness the tests.

   a. The tests shall be done by an independent service company.

   b. The results of the test shall be reported to the appropriate BLM office.

   c. 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.

   d. 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.

e. 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.

f. A variance to test the surface casing and BOP/BOPE to the reduced pressure of **1000** psi with the rig pumps is approved.

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.

Engineer on call phone (after hours): Carlsbad: (505) 706-2779

WWI 092807