OCD-ARTESIA

Amended 10-4-07
ATS-07-6060

Form 3160-3
(April 2004)

DEC 4 2007
OCD-ARTESIA

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: ☑ DRILL ☐ REENTER	5 Lease Serial No. NMLC 118710
1b. Type of Well: ☐ Oil Well ☑ Gas Well ☐ Other ☑ Single Zone ☐ Multiple Zone	6. If Indian, Allotee or Tribe Name N/A
2. Name of Operator COG Operating, LLC	7 If Unit or CA Agreement, Name and No N/A
3a. Address 550 West Texas Ave., Suite 1300 Midland, TX 79701	8. Lease Name and Well No. High Lonesome "23" Fed Com 1H
3b. Phone No. (include area code) 432-685-9158	9. API Well No. 30-015-35949
4 Location of Well (Report location clearly and in accordance with any State requirements *) At surface 900' FSL & 330' FEL, Unit P At proposed prod. zone 900' FSL & 330' FWL, Unit M	10. Field and Pool, or Exploratory Wildcat; (Wolfcamp)
14. Distance in miles and direction from nearest town or post office* Approx. 4 miles west of Loco Hills, NM	11. Sec., T. R. M. or Blk. and Survey or Area Section 23, T16S, R29E
	12. County or Parish Eddy / 13 State NM

15 Distance from proposed* location to nearest property or lease line, ft (Also to nearest drig unit line, if any) 330	16 No. of acres in lease 1560	17 Spacing Unit dedicated to this well 160
18 Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft 1560	19. Proposed Depth TV 7330', MD 11950	20. BLM/BIA Bond No on file NMB 000215
21 Elevations (Show whether DF, KDB, RT, GL, etc.) 3702'	22 Approximate date work will start* 10/01/2007	23 Estimated duration 45 days

24. Attachments

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

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

25. Signature	Name (Printed/Typed) Dwaine Moore	Date 10/04/2007
Title Agent for COG Operating, LLC		
Approved by (Signature) /s/ Don Peterson	Name (Printed/Typed) /s/ Don Peterson	Date NOV 29 2007
Title ACTING FIELD MANAGER	Office CARLSBAD FIELD OFFICE	

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

APPROVAL FOR TWO YEARS

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

*(Instructions on page 2)

If an earthen pit(s) will be utilized in association with this work, a permit must be obtained prior to pit construction.

SEE ATTACHED FOR CONDITIONS OF APPROVAL

Roswell Controlled Water Basin

APPROVAL SUBJECT TO GENERAL REQUIREMENTS AND SPECIAL STIPULATIONS ATTACHED

Amended 10-2-2007

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 – Surface Location:	NM~~LC~~ # 118710
Lease No – Bottom Hole Location:	NM~~LC~~ # 118710
Well Name:	High Lonesome "23" Federal Com #1H
Legal Description of Land:	SL: 900' FSL & 330' FEL, Unit P BHL: 900' FSL & 330' FWL, Unit M Section 23, T16S, R29E Eddy County, NM
Formation(s) (if applicable):	Undesignated (Wolfcamp)
Bond Coverage:	$25,000 statewide bond of C.O.G. Operating, LLC
BLM Bond File No:	NMB 000215

10-3-07
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
	96085	Wildcat; Wolfcamp

Property Code	Property Name	Well Number
36866	HIGH LONESOME "23" FEDERAL COM	1H

OGRID No.	Operator Name	Elevation
229137	C.O.G. OPERATING L.L.C.	3704'

Surface Location

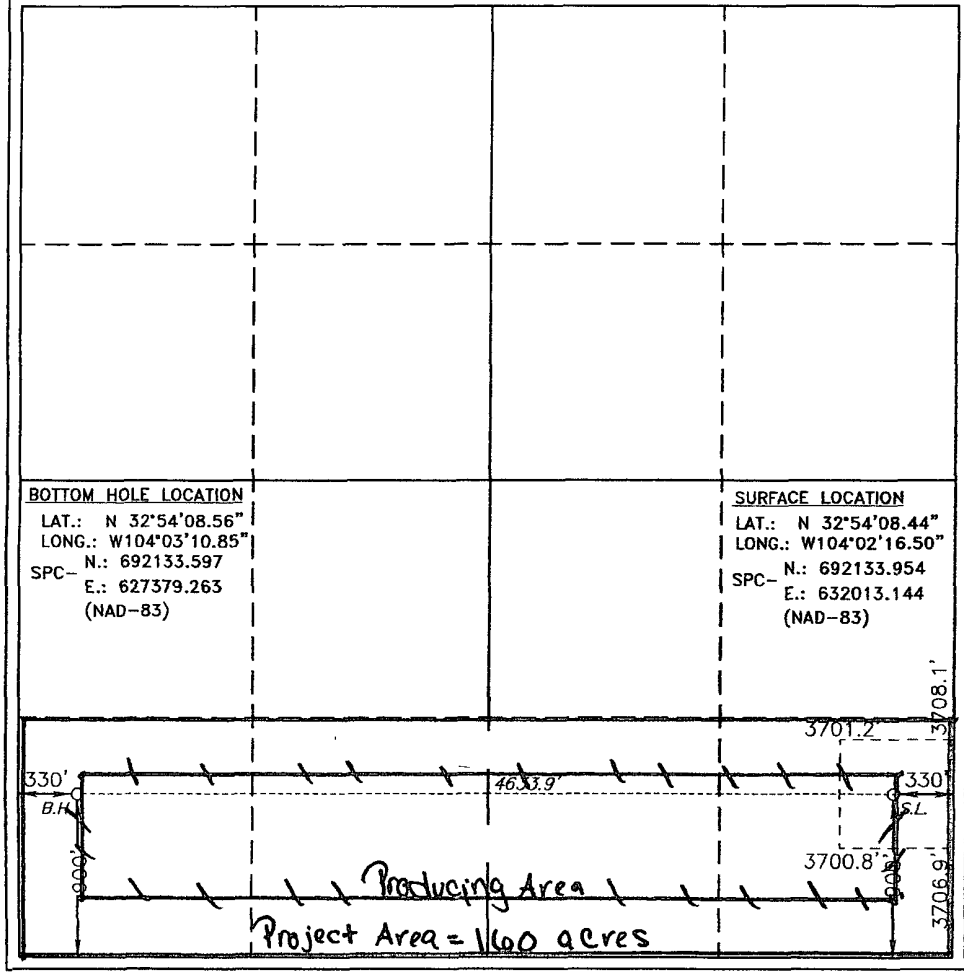
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	23	16 S	29 E		900	SOUTH	330	EAST	EDDY

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	23	16 S	29 E		900	SOUTH	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



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 10/3/07 Date

Duaine Moore Agent For COG
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 supervison, and that the same is true and correct to the best of my belief.

SEPTEMBER 24, 2007
Date Surveyed

Signature & Seal of Professional Surveyor
GARY L. JONES NEW MEXICO 7977

W.O. 627

Certificate No. Gary L. Jones 7977

BASIN SURVEYS

ATTACHMENT TO FORM 3160-3
COG Operating, LLC
High Lonesome "23" Federal Com. #1H
SL: ~~330'~~ 900' FSL & 330' FEL, Unit P
BHL: ~~330'~~ 900' FSL & 330' FWL, Unit M
Sec 23, T16S, R29E
Eddy County, NM

1. Proration Unit Spacing: 160 Acres

2. Ground Elevation: 3702'

3. Proposed Depths: Pilot hole TD = 7580', Horizontal TVD = 7330', MD = 11950'

4. Estimated tops of geological markers:

Quaternary	Surface
Yates	1030'
Queen	1850'
San Andres	2620'
Tubb	5350'
Abo	6040'
Wolfcamp	7310'

5. Possible mineral bearing formations:

Water Sand	150'	Fresh Water
Yates	1040'	Oil / Gas
Queen	1850'	Oil / Gas
San Andres	2620'	Oil / Gas
Tubb	5350'	Oil / Gas
Abo	6040'	Oil / Gas
Wolfcamp	7310'	Oil / Gas

6. Casing Program - **Proposed**

Hole size	Interval	OD of Casing	Weight	Cond.	Collar	Grade
17-1/2"	0' - +/-400'	13-3/8"	48#	New	STC	H40
Collapse sf - 2.98, Burst sf – 2.33, Tension sf – 13.42						
12 1/4"	0' - 2700'	9-5/8"	40#	New	STC	J-55
Collapse sf - 2. 86, Burst sf – 1.42, Tension sf – 7.22						
8-3/4"	0' – 6800'	5-1/2"	17#	New	~~BTC~~-LTC	L-80
Collapse sf - 2. 08, Burst sf – 2.35, Tension sf – 2.82						
7-7/8"	6800' – 11950'	5-1/2"	17#	New	BTC	L-80
Collapse sf – 1.75, Burst sf – 2.108, Tension sf – 28.19						

per operator 9/27/07

7. Cement Program

13 3/8" Surf. Csg. Set at +/- 400', Circ to Surf with +/- 400 sx Class "C" w/ 2% CaCl2, 1.35 yd.

9 5/8" Intrmd. Csg. Set at +/- 2700'. 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" Prod. Csg. Set at +/- 11950' MD. Cement casing with +/- 200 sx. 50/50/2 "C", 1.37 yd & +/- 700 sx Class "H", 1.18 yd. Est. TOC @ 5000'. ← see COA

8. Pressure Control Equipment:

see COA →

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

9. Proposed Mud Circulating System

Interval	Mud Wt.	Visc.	FL	Type Mud System
0' - 400'	8.5	28	NC	Fresh water native mud w/ paper for seepage and sweeps. Lime for PH.
400'- 2700'	9.1	30	NC	Cut brine mud, lime for PH and paper for seepage and sweeps.
2700'- 6000'	9.1	29	NC	Drill section with fresh water/cut brine circulating the reserve utilizing periodic sweeps of paper as needed for seepage control and solids removal.
6000' - 11950'	9.5	36	10	Drill pilot hole, curve and 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
High Lonesome "23" Federal Com. #1H

11. Production Hole Drilling Summary:

Drill 8-3/4" Pilot hole thru Wolfcamp, run open hole logs. Spot 150 sx. "H" Kick off plug from +/- 7300' to +/-6900'. Time drill and kick off 7-7/8" hole at +/- 6900', building curve over +/- 475' to horizontal at 7340' TVD. Drill horizontal section in a westerly direction for +/-4500' lateral. Run production casing and cement.

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 vertical 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.

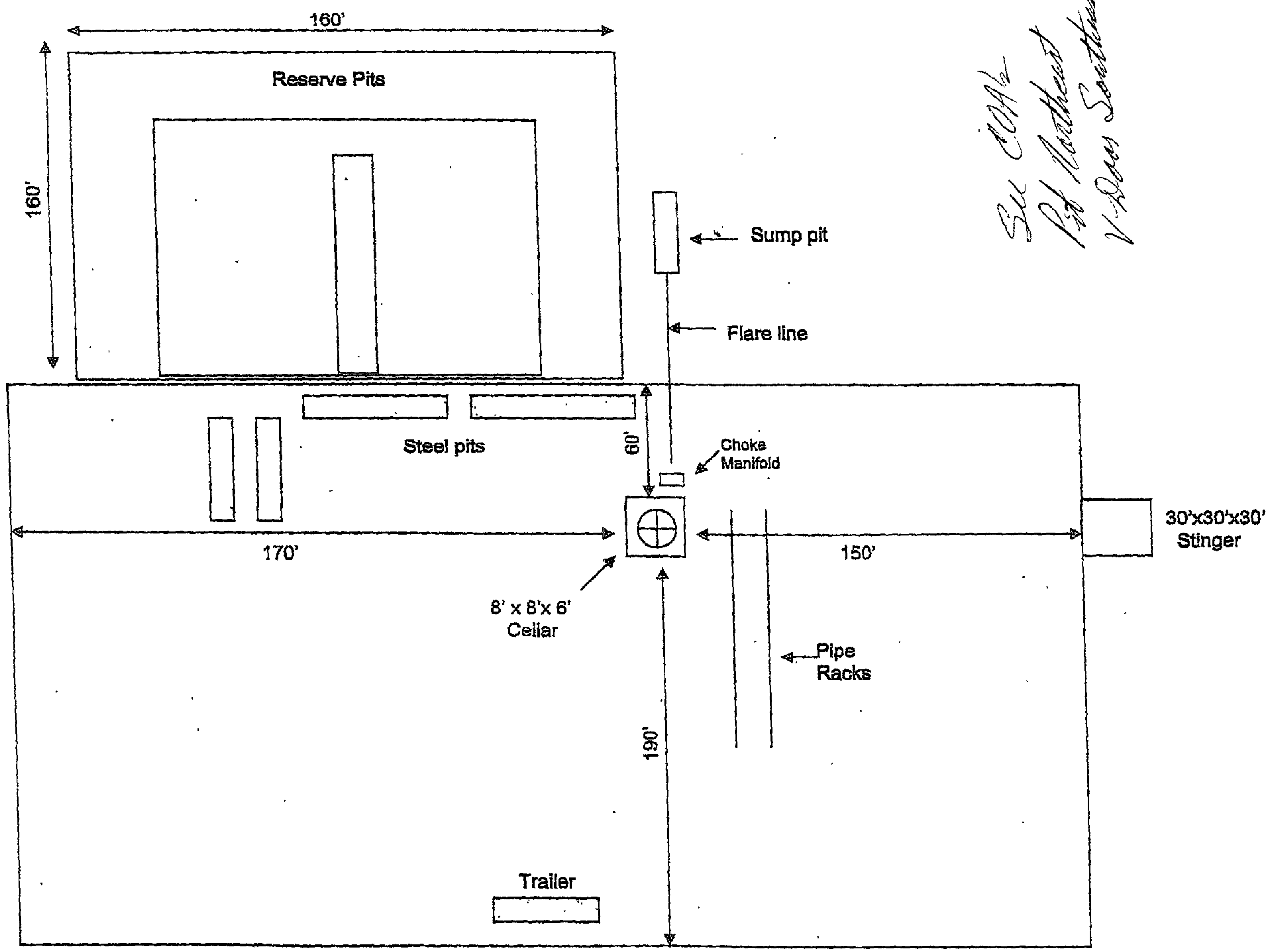
13. Abnormal Conditions, Pressures, Temperatures and Potential Hazards: 3160 per operation 9/27/07

No abnormal pressures or temperatures are anticipated. The estimated bottom hole at TD is 120 degrees and estimated maximum bottom hole pressure is 2300 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 October 1, 2007 with drilling and completion operations lasting approximately 45 days.

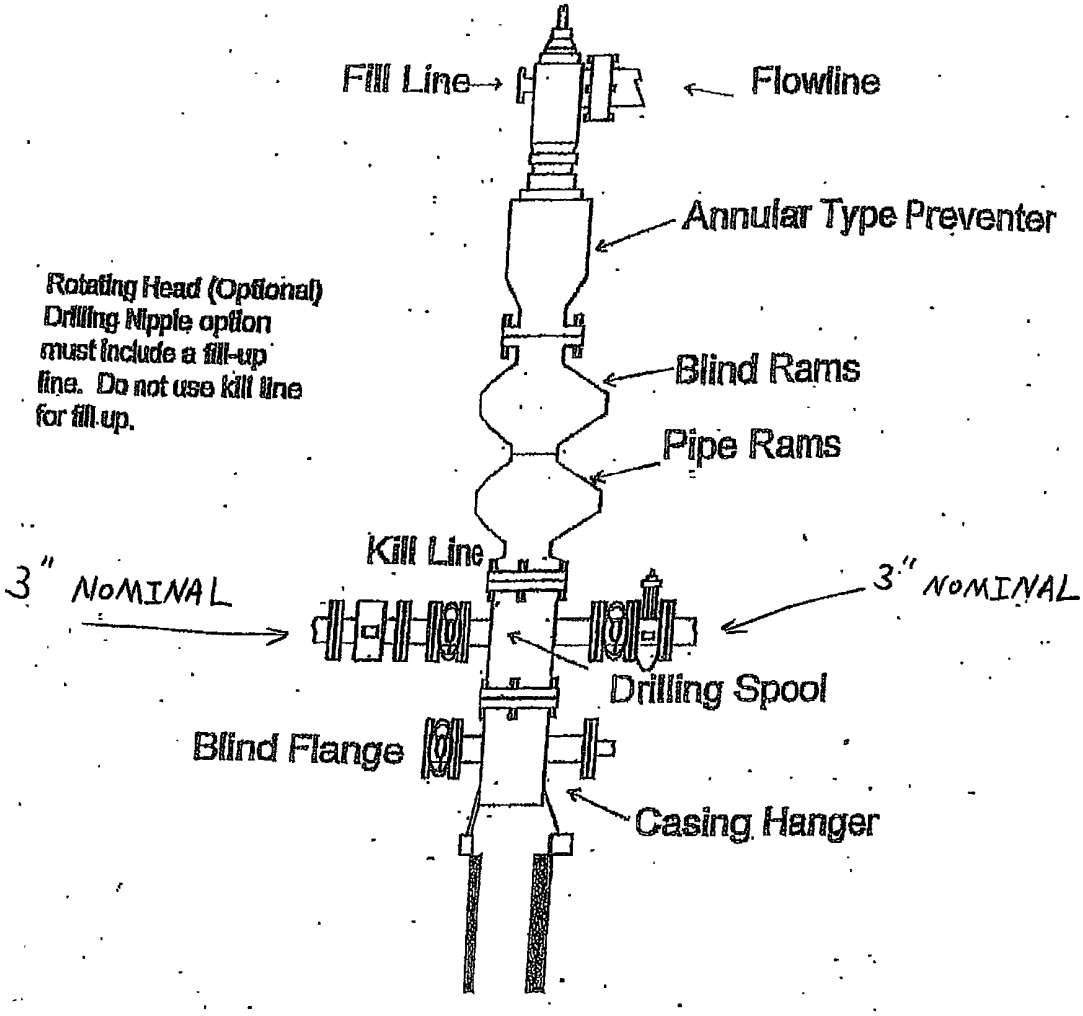
Exhibit "F"



See COA½
Pit Northeast
V-Door Southeast

Exhibit "G"

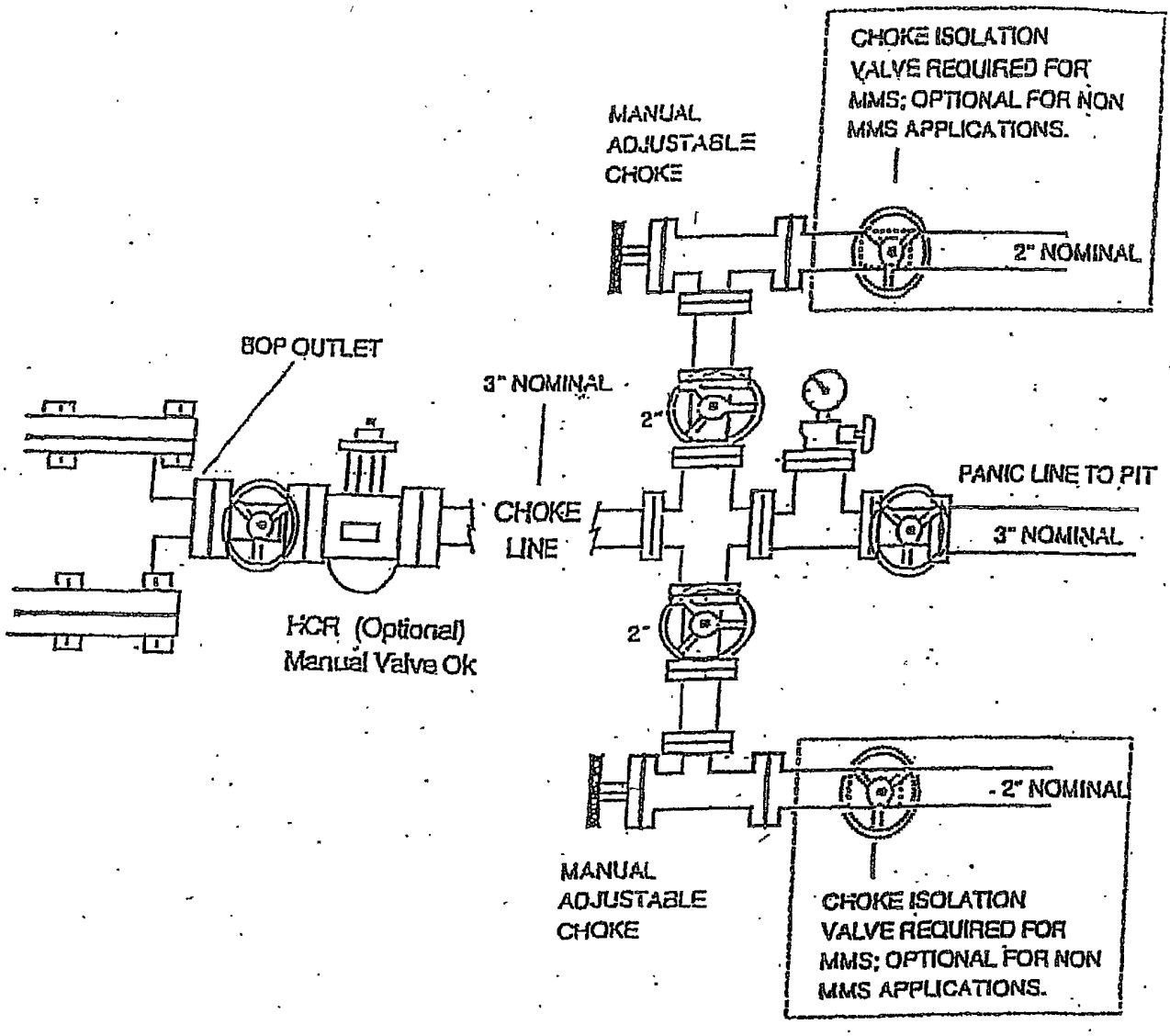
BOPE SCHEMATIC



900 SERIES

Exhibit "H"

CHOKE MANIFOLD
5M SERVICE



Pathfinder Energy
Planning Report

Company:	COG Operating Company LLC.	**Date:** 09/12/2007 **Time:** 15:37:26 **Page:**	1
Field:	High Lonesome	**Co-ordinate(NE) Reference:**	Site: High Lonesome 23 Fed Com #1H
Site:	High Lonesome 23 Fed Com #1H	**Vertical (TVD) Reference:**	SITE 3723.0
Well:	High Lonesome 23 Fed Com #1H	**Section (VS) Reference:**	Well (0.00N,0.00E,269.99Azi)
Wellpath:	OH	**Plan:**	Plan #1 9-12-07

Field: High Lonesome

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: High Lonesome 23 Fed Com #1H

Site Position:		**Northing:**	691563.99 ft	**Latitude:**	32	54	2.785 N
From:	Map	**Easting:**	632014.98 ft	**Longitude:**	104	2	16.418 W
Position Uncertainty:	0 00 ft			**North Reference:**			Grid
Ground Level:	3702.00 ft			**Grid Convergence:**			0.16 deg

Well: High Lonesome 23 Fed Com #1H **Slot Name:**

Well Position:	+N/-S	0.00 ft	**Northing:**	691563 99 ft	**Latitude:**	32	54	2.785 N
	+E/-W	0.00 ft	**Easting :**	632014 98 ft	**Longitude:**	104	2	16 418 W
Position Uncertainty:		0.00 ft						

Wellpath: OH

Drilled From:	Surface		
Tie-on Depth:	0 00 ft		
Current Datum:	SITE	**Height** 3723.00 ft	**Above System Datum:** Mean Sea Level
Magnetic Data:	09/12/2007		**Declination:** 8.29 deg
Field Strength:	49396 nT		**Mag Dip Angle:** 60.83 deg

Vertical Section: Depth From (TVD) ft	+N/-S ft	+E/-W ft	Direction deg
7280.00	0.00	0 00	269 99

Plan: Plan #1 9-12-07 **Date Composed:** 09/12/2007
Version: 1
Principal: No **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	
6852 50	0 00	0.00	6852.50	0.00	0.00	0.00	0.00	0.00	0.00	
7602.56	90.00	275.00	7330.00	41.62	-475 68	12.00	12.00	0.00	275 00	
7771.12	90.70	269.99	7328.97	48.96	-644 03	3 00	0.42	-2.97	-82.00	
11761.40	90.70	269.99	7280.00	48.41	-4634 01	0.00	0 00	0.00	0.00	Revised PBHL

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	
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	
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	

Pathfinder Energy
Planning Report

Company:	COG Operating Company LLC.	**Date:** 09/12/2007 **Time:** 15:37:26 **Page:** 2	
Field:	High Lonesome	**Co-ordinate(NE) Reference:**	Site: High Lonesome 23 Fed Com #1H
Site:	High Lonesome 23 Fed Com #1H	**Vertical (TVD) Reference:**	SITE 3723.0
Well:	High Lonesome 23 Fed Com #1H	**Section (VS) Reference:**	Well (0.00N,0.00E,269.99Azi)
Wellpath:	OH	**Plan:**	Plan #1 9-12-07

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
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	
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	
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	
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	
6400.00	0.00	0.00	6400.00	0.00	0.00	0.00	0.00	0.00	0.00	
6500.00	0.00	0.00	6500.00	0.00	0.00	0.00	0.00	0.00	0.00	
6600.00	0.00	0.00	6600.00	0.00	0.00	0.00	0.00	0.00	0.00	
6700.00	0.00	0.00	6700.00	0.00	0.00	0.00	0.00	0.00	0.00	
6800.00	0.00	0.00	6800.00	0.00	0.00	0.00	0.00	0.00	0.00	
6852.50	0.00	0.00	6852.50	0.00	0.00	0.00	0.00	0.00	0.00	KOP @ 6852' MD, Begin Bu

Pathfinder Energy
Planning Report

Company:	COG Operating Company LLC.	**Date:** 09/12/2007 **Time:** 15:37:26 **Page:**	3
Field:	High Lonesome	**Co-ordinate(NE) Reference:**	Site: High Lonesome 23 Fed Com #1H
Site:	High Lonesome 23 Fed Com #1H	**Vertical (TVD) Reference:**	SITE 3723.0
Well:	High Lonesome 23 Fed Com #1H	**Section (VS) Reference:**	Well (0.00N,0.00E,269 99Azi)
Wellpath:	OH	**Plan:**	Plan #1 9-12-07

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
6900 00	5 70	275.00	6899.92	0 21	-2.35	2.35	12.00	12.00	0.00	
7000 00	17 70	275.00	6997.67	1 97	-22.51	22 51	12.00	12.00	0.00	
7100.00	29 70	275.00	7089.07	5.47	-62.48	62.48	12.00	12.00	0.00	
7200.00	41.70	275.00	7170.13	10.54	-120 50	120.50	12.00	12.00	0.00	
7300.00	53.70	275.00	7237.31	16.98	-194 05	194.04	12 00	12.00	0.00	
7382 08	63.55	275.00	7280.00	23.08	-263 77	263 77	12.00	12.00	0.00	PBHL
7400.00	65 70	275.00	7287.68	24.49	-279.90	279.89	12.00	12.00	0.00	
7500.00	77 69	275.00	7319 03	32.75	-374 30	374 30	12.00	12.00	0.00	
7600 00	89.69	275.00	7329 99	41.39	-473 14	473.13	12.00	12 00	0.00	
7602.56	90.00	275.00	7330.00	41.62	-475 68	475.68	12 00	12 00	0.00	EOC @ 7603' MD, 7330' TVD
7700.00	90 41	272.11	7329.65	47 65	-572.93	572.92	3 00	0.42	-2.97	
7771 12	90 70	269 99	7328.97	48 96	-644 03	644.02	3 00	0.42	-2.97	EOB&T @ 7771' MD, 90.7° I
7800.00	90.70	269.99	7328.61	48.95	-672.91	672.90	0 00	0.00	0.00	
7900 00	90.70	269 99	7327 38	48.94	-772 90	772.90	0.00	0.00	0.00	
8000 00	90.70	269.99	7326 16	48 92	-872.89	872.89	0 00	0.00	0.00	
8100.00	90 70	269.99	7324.93	48 91	-972 89	972.88	0.00	0 00	0.00	
8200.00	90 70	269 99	7323.70	48.90	-1072.88	1072.87	0.00	0 00	0.00	
8300.00	90 70	269 99	7322 48	48.88	-1172 87	1172 87	0.00	0.00	0 00	
8400 00	90.70	269 99	7321 25	48.87	-1272 86	1272 86	0 00	0.00	0 00	
8500.00	90 70	269.99	7320.02	48.86	-1372 86	1372 85	0 00	0.00	0.00	
8600 00	90.70	269 99	7318 79	48.84	-1472.85	1472.84	0.00	0 00	0.00	
8700 00	90 70	269 99	7317 57	48.83	-1572.84	1572 84	0 00	0 00	0.00	
8800.00	90.70	269 99	7316.34	48 81	-1672 83	1672 83	0 00	0.00	0 00	
8900.00	90.70	269.99	7315.11	48 80	-1772.82	1772 82	0 00	0 00	0.00	
9000.00	90 70	269.99	7313.89	48 79	-1872.82	1872.81	0.00	0 00	0.00	
9100 00	90 70	269.99	7312 66	48.77	-1972 81	1972 80	0 00	0.00	0 00	
9200.00	90.70	269.99	7311.43	48.76	-2072 80	2072 80	0.00	0 00	0.00	
9300.00	90 70	269 99	7310.20	48 75	-2172.79	2172.79	0.00	0 00	0.00	
9400 00	90.70	269 99	7308 98	48.73	-2272 79	2272.78	0.00	0.00	0.00	
9500.00	90.70	269 99	7307.75	48.72	-2372 78	2372 77	0 00	0.00	0 00	
9600.00	90 70	269.99	7306.52	48.71	-2472.77	2472 77	0.00	0.00	0.00	
9700.00	90 70	269.99	7305.30	48.69	-2572.76	2572.76	0.00	0.00	0 00	
9800.00	90.70	269.99	7304.07	48.68	-2672 76	2672.75	0.00	0.00	0.00	
9900.00	90.70	269.99	7302.84	48.66	-2772 75	2772.74	0 00	0.00	0.00	
10000.00	90.70	269.99	7301 61	48.65	-2872.74	2872.74	0.00	0.00	0.00	
10100.00	90.70	269.99	7300.39	48.64	-2972.73	2972.73	0.00	0.00	0.00	
10200.00	90 70	269.99	7299.16	48.62	-3072 73	3072 72	0.00	0.00	0.00	
10300 00	90.70	269.99	7297 93	48.61	-3172.72	3172 71	0.00	0.00	0.00	
10400.00	90 70	269.99	7296.71	48.60	-3272.71	3272.71	0.00	0.00	0.00	
10500.00	90.70	269.99	7295.48	48.58	-3372.70	3372.70	0.00	0.00	0.00	
10600.00	90.70	269.99	7294.25	48.57	-3472.70	3472.69	0.00	0.00	0.00	
10700 00	90.70	269.99	7293.02	48.56	-3572.69	3572.68	0 00	0.00	0.00	
10800.00	90 70	269.99	7291.80	48.54	-3672.68	3672.68	0.00	0.00	0.00	
10900 00	90.70	269.99	7290.57	48.53	-3772.67	3772.67	0.00	0.00	0.00	
11000.00	90 70	269.99	7289.34	48.51	-3872.67	3872.66	0.00	0.00	0.00	
11100.00	90.70	269.99	7288 12	48.50	-3972.66	3972.65	0.00	0.00	0.00	
11200 00	90 70	269.99	7286 89	48.49	-4072 65	4072.65	0.00	0.00	0.00	
11300 00	90 70	269.99	7285.66	48.47	-4172.64	4172.64	0 00	0.00	0.00	
11400.00	90.70	269.99	7284 43	48.46	-4272.64	4272.63	0.00	0.00	0.00	
11500.00	90.70	269 99	7283 21	48.45	-4372.63	4372.62	0.00	0.00	0.00	
11600 00	90.70	269.99	7281.98	48.43	-4472.62	4472.62	0.00	0.00	0.00	
11700 00	90 70	269 99	7280.75	48.42	-4572 61	4572 61	0.00	0.00	0.00	
11761 40	90 70	269 99	7280.00	48 41	-4634.01	4634.00	0 00	0.00	0.00	Revised PBHL

Pathfinder Energy
Planning Report

Company:	COG Operating Company LLC.	**Date:**	09/12/2007	**Time:** 15:37:26	**Page:** 4
Field:	High Lonesome	**Co-ordinate(NE) Reference:**	Site: High Lonesome 23 Fed Com #1H		
Site:	High Lonesome 23 Fed Com #1H	**Vertical (TVD) Reference:**	SITE 3723 0		
Well:	High Lonesome 23 Fed Com #1H	**Section (VS) Reference:**	Well (0 00N,0.00E,269.99Azi)		
Wellpath:	OH	**Plan:**	Plan #1 9-12-07		

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			7280.00	-0.47	-4634.01	691563.52	627380.98	32	54	2.905 N	104	3	10.772 W
Revised PBHL			7280.00	48 41	-4634 01	691612 40	627380 98	32	54	3 389 N	104	3	10.770 W

Annotation

MD ft	TVD ft	
6852.50	6852.50	KOP @ 6852' MD, Begin Build @ 12°/100'
7602.56	7330.00	EOC @ 7603' MD, 7330' TVD, Begin B & T @ 3° DLS
7771.12	7328.97	EOB&T @ 7771' MD, 90 7° INC, 269.99° AZI

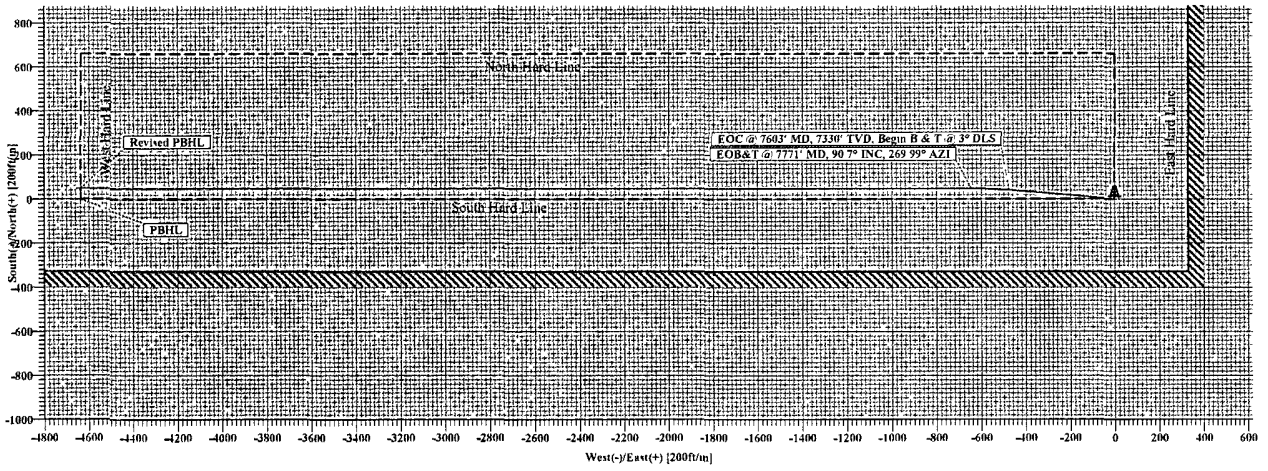
COG Operating Company LLC.

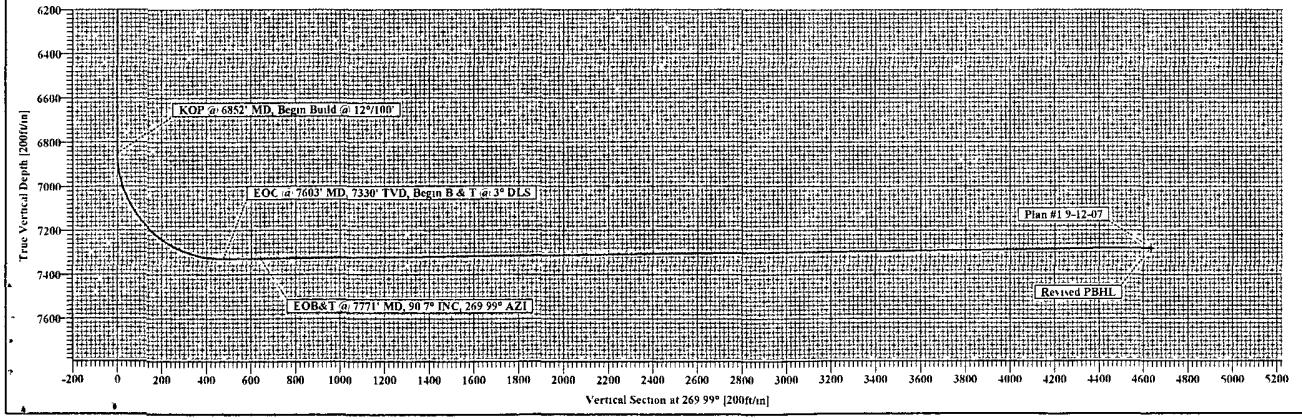
PATHFINDER

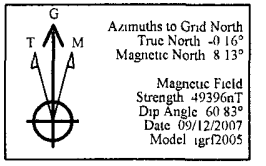
Field: High Lonesome
Site: High Lonesome 23 Fed Com #1H
Well: High Lonesome 23 Fed Com #1H
Wellpath: OH
Plan: Plan #1 9-12-07

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	6852 50	0 00	0 00	6852 50	0 00	0 00	0 00	0 00	0 00	
3	7602 56	90 00	275 00	7330 00	41 62	-475 68	12 00	275 00	475 68	
4	7771 12	90 70	269 99	7328 97	48 96	-644 03	3 00	-82 00	644 02	
5	11761 40	90 70	269 99	7280 00	48 41	-4634 01	0 00	0 00	4634 00	Revised PBHL







Azimuths to Grid North
True North -0 16°
Magnetic North 8 13°

Magnetic Field
Strength 49396nT
Dip Angle 60 83°
Date 09/12/2007
Model igrf2005

SITE DETAILS

High Lonesome 23 Fed Com #1H

Site Centre Northing 691563 99
Easting 632014 98

Ground Level 3702 00
Positional Uncertainty 0 00
Convergence 0 16

TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Shape
PBHL	7280 00	-0 47	-4634 01	Point
Revised PBHL	7280 00	48 41	-4634 01	Point

WELLPATH DETAILS

OH

Rig Ref Datum: SITE 3723 00ft

V Section Angle	Origin +N/-S	Origin +E/-W	Starting From TVD
269 99°	0 00	0 00	7280 00

ANNOTATIONS

No	TVD	MD	Annotation
1	6852 50	6852 50	KOP @ 6852' MD, Begin Build @ 12°/100'
2	7330 00	7602 56	EOC @ 7603' MD, 7330' TVD, Begin B & T @ 3° DLS
3	7328 97	7771 12	EOB&T @ 7771' MD, 90 7° INC 269 99° AZI

Plan: Plan #1 9-12-07 (High Lonesome 23 Fed Com #1H, OH)
Created By: Derek Dodson Date: 09/12/2007

Amended 10-4-2007

COG OPERATING, LLC

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

High Lonesome "23" Federal Com #1H
NEW DRILL WELL
SL: 900' FSL & 330' FEL, Unit P
BHL: 900' FSL & 330' FWL, Unit M
Sec 23, T16S, R29E
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:

X = [(1.589)(concentration)(Q)] (0.6258)

Calculation for the 500 ppm ROE:

X = [(0.4546)(concentration)(Q)] (.06258)

(H2S concentrations in decimal form)

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

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
High Lonesome "23" Federal Com #1H
SL: 900' FSL & 330' FEL, Unit P
BHL: 900' FSL & 330' FWL, Unit M
Sec 23, T16S, R29E
Eddy County, New Mexico

LOCATED

Approximately 4 miles West from Loco Hills, New Mexico

OIL & GAS LEASE

SL: NMLC #118710
BHL: NMLC #118710

RECORD TITLE LESSEE

SL: COG Operating, LLC, 550 W. Texas, Suite 1300, Midland, TX 79701- 57.5 %
Rubicon Oil and Gas II LP, 508 W. Wall Suite 500, Midland, TX 79701- 42.5 %
BHL: COG Operating, LLC, 550 W. Texas, Suite 1300, Midland, TX 79701- 57.5 %
Rubicon Oil and Gas II LP, 508 W. Wall Suite 500, Midland, TX 79701- 42.5 %

BOND COVERAGE

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

SURFACE OWNER

Bureau of Land Management

MINERAL OWNER

Bureau of Land Management

GRAZING TENANT

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

POOL

Undesignated (Wolfcamp)

PROPOSED TOTAL DEPTH

This well will be drilled to a Total Vertical Depth of approximately 7330' and a Measured Depth of approximately 11,950'.

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. 216 (Kewanee), go North on Co. Rd. 216 for approx. 5.3 miles to proposed lease road.

ACCESS ROADS

A. Length and Width: 1684.7' long and 30' wide. The access road will be built and is shown on Exhibit E-1 and E-2.

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 EXISI8TING 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.

A. Roads: Building of a proposed lease road 1684.7' in length. (See Exhibit E-1 and E-2).

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.

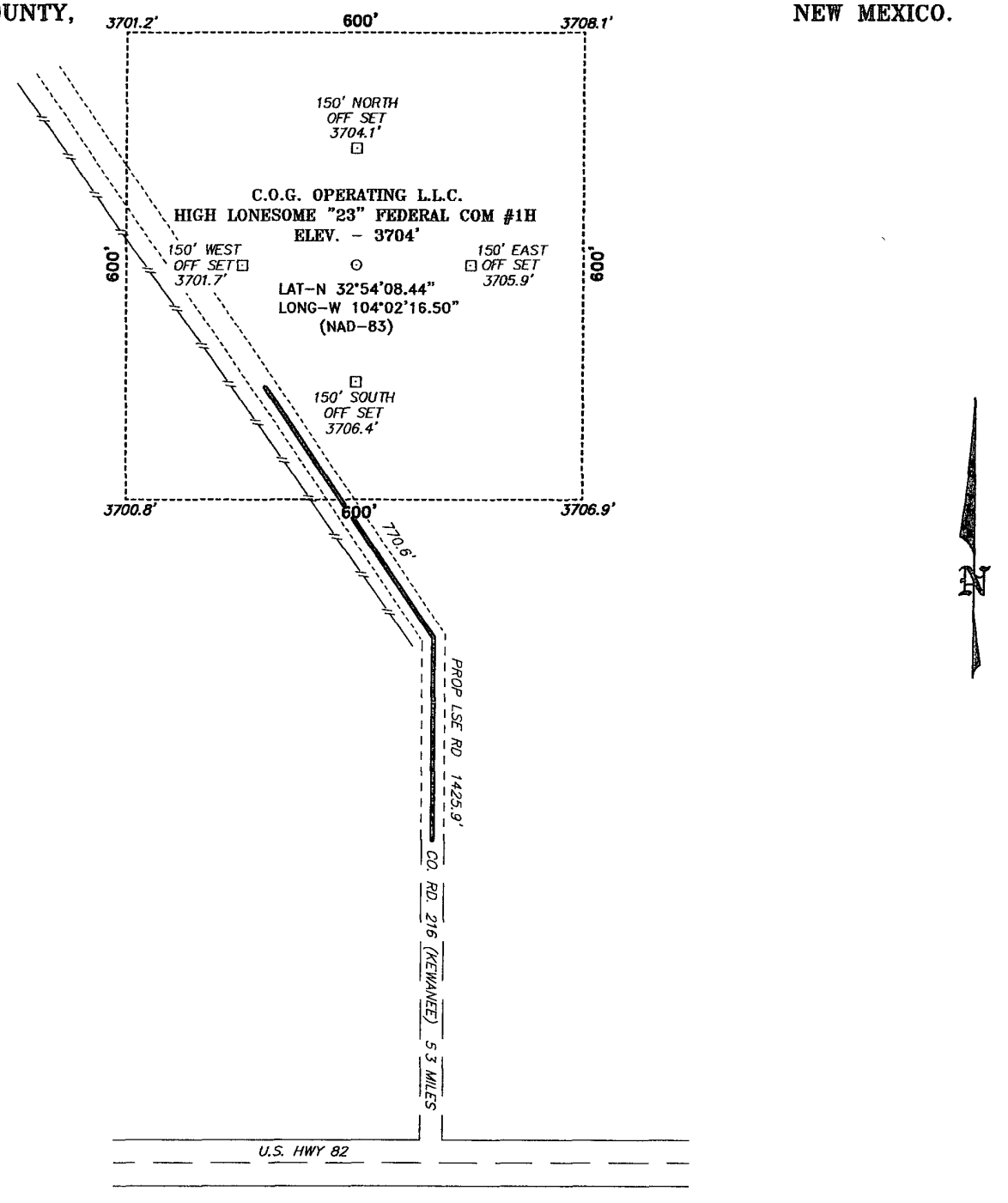
8-7-07
Date

John Coffman
C.O.G. Operating, LLC

Exhibit "E-1"

SECTION 23, TOWNSHIP 16 SOUTH, RANGE 29 EAST, N.M.P.M.,

EDDY COUNTY, NEW MEXICO.



DIRECTIONS TO LOCATION:

FROM THE JUNCTION OF US. HWY 82 AND CO RD. 216 (KEWANEE), GO NORTH ON CO. RD. 216 FOR APPROX. 5.3 MILES TO PROPOSED LEASE ROAD.

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

REF: HIGH LONESOME "23" FED COM #1H / Well Pad Topo

THE HIGH LONESOME "23" FED COM #1H LOCATED 900' FROM THE SOUTH LINE AND 330' FROM THE EAST LINE OF SECTION 23, TOWNSHIP 16 SOUTH, RANGE 29 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO.

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

W.O. Number: 18627	Drawn By: J. M. SMALL		
Date: 09-24-2007	Disk: JMS 18627W	Survey Date: 09-24-2007	Sheet 1 of 1 Sheets

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 Hydrogen Sulfide has not been reported in this section, it is always a potential hazard. If H2S is encountered, please report measurements 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 **a minimum of 25 feet into the Rustler Anhydrite and above the salt at approximately 400** feet 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 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 in the Wolfcamp formation.

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

   ☒ Cement to surface. If cement does not circulate see B.1.a-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 to achieve this height of cement.**

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 092407