AT5-12-216

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NMOCD ARTESIA

OCD-ARTESIA

Form 3160-3
(April 2004)

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: ☑ DRILL ☐ REENTER	5. Lease Serial No SHL:NM-055994 BHL:NM-2507
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 W. Texas Ave., Suite 100 Midland, TX 79701 3b Phone No. (include area code) 432-685-4385	8 Lease Name and Well No. Trigg 6 Federal Com #1H
4 Location of Well (Report location clearly and in accordance with any State requirements *) At surface 360' FNL & 90' FEL, Unit A, Lot 1 At proposed prod. zone 380' FNL & 330' FWL, Unit D, Lot 4	9 API Well No. 30-015- 40249 10 Field and Pool, or Exploratory Wildcat; Wolfcamp 11. Sec., T. R. M. or Blk and Survey or Area Sec 6, T16S, R31E
14 Distance in miles and direction from nearest town or post office* 2.5 miles north of Loco Hills, NM	12 County or Parish EDDY 13. State NM
15 Distance from proposed* location to nearest property or lease line, ft (Also to nearest drig. unit line, if any) 900'	16 No of acres in lease 759.63 SHL:~~480~~; BHL:854.35 17 Spacing Unit dedicated to this well 150.43
18 Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft 775'	19 Proposed Depth 8120' TVD; 12171' MD 20 BLM/BIA Bond No. on file NMB000215; NMB000740
21 Elevations (Show whether DF, KDB, RT, GL, etc) 4047' GL	22. Approximate date work will start* 06/30/2012 23. Estimated duration 15 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) Kelly J. Holly	Date 02/02/2012
Title Permitting Tech		
Approved by (Signature) /s/ Don Peterson	Name (Printed Typed)	Date MAY 04 2012
Title FIELD MANAGER	Office CARLSBAD FIELD OFFICE	

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

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

*(Instructions on page 2)

Roswell Controlled Water Basin

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

Approval Subject to General Requirements & Special Stipulations Attached

I hereby certify that I, or persons under my direct supervision, have inspected the drill site and access road proposed herein; that I am familiar with the conditions that presently exist; that I have full knowledge of State and Federal laws applicable to this operation; that the statements make in this APD package are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed in conformity with this APD package and the terms and conditions under which it is approved. I also certify that I, or COG Operating, LLC, am responsible for the operations conducted under this application. These statements are subject to the provisions of 18 U.S.C. 1001 for the filing of false statements. Executed this 27th day of September, 2011.

Signed: Carl Bird

Printed Name: Carl Bird

Position: Drilling Engineer

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

Telephone: (432) 683-7443

Field Representative (if not above signatory): Same

E-mail: cbird@conchoresources.com

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
11885 S ST. FRANCIS DR., SANTA FE, NM 87505

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

Form C-102
Revised July 16, 2010
Submit to Appropriate District Office

☐AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
30-015- 40249	96794	WILDCAT; WOLFCAMP OIL

Property Code	Property Name	Well Number
39206	TRIGG 6 FEDERAL COM	1H

OGRID No	Operator Name	Elevation
229137	COG OPERATING, LLC	4047'

Surface Location

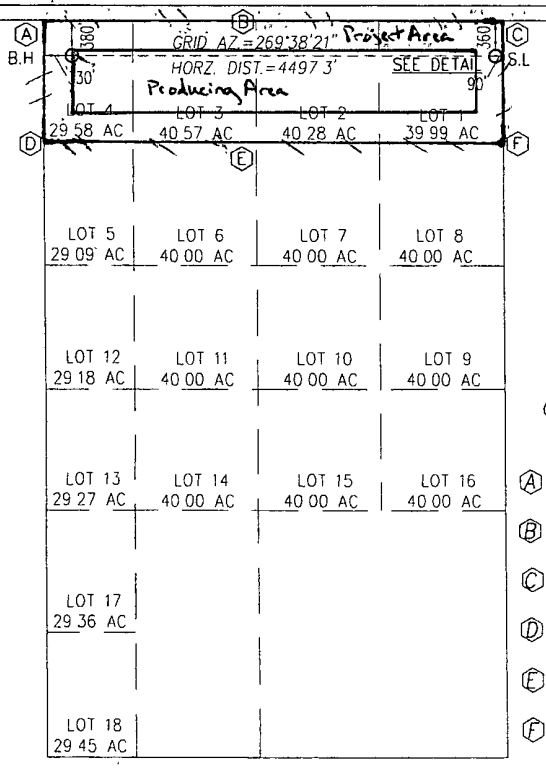
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
1	6	16-S	31-E		360	NORTH	90	EAST	EDDY

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
4	6	16-S	31-E		380	NORTH	330	WEST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
150.43			

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



SCALE: 1"=2000'

GEODETIC COORDINATES
NAD 27 NME

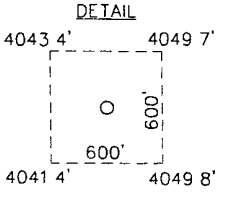
SURFACE LOCATION
Y=714692.5 N
X=632766.5 E

LAT=32.964011° N
LONG=103.900459° W

BOTTOM HOLE LOCATION
Y=714664.3 N
X=628270.4 E

TABLE OF SECTION, QUARTER & SIXTEENTH CORNER COORDINATES

Ⓐ - Y=715042.8 N, X=627939.2 E
Ⓑ - Y=715046.8 N, X=630396.9 E
Ⓒ - Y=715050.7 N, X=632854.6 E
Ⓓ - Y=713714.9 N, X=627943.6 E
Ⓔ - Y=713723.5 N, X=630402.7 E
Ⓕ - Y=713732.0 N, X=632861.9 E



OPERATOR CERTIFICATION

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

Signature — Date: 10-3-11

Kelly J. Holly
Printed Name

Kholly@concho.com
E-mail Address

SURVEYOR CERTIFICATION

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

SEPTEMBER 2, 2011
Date of Survey

Signature & Seal of Professional Surveyor.

RONALD J. EIDSON
NEW MEXICO
3239
REGISTERED PROFESSIONAL SURVEYOR

9/29/2011

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

DSS Rev 9/29/11 — JWSC W.O. 11.11.1935

ATTACHMENT TO FORM 3160-3
COG Operating, LLC
Trigg 6 Federal Com #1H
SHL: 360' FNL & 90' FEL, Unit 1
BHL: 380' FNL & 330' FWL, Unit 4
Sec 6, T16S, R31E
Eddy County, NM

1. Proration Unit Spacing: 160 Acres

2. Ground Elevation: 4047'

3. Proposed Depths: Horizontal TVD = 8,120', MD = 12,171'

4. Estimated tops of geological markers:

Quaternary	Surface
Rustler	651'
Top of Salt	736'
Base of Salt	1636'
Yates	1810'
Seven Rivers	2020'
Queen	2550'
Grayburg	3100'
San Andres	3250'
Glorietta	4920'
Paddock	5050'
Blinebry	5440'
Tubb	6060'
Drinkard	6265'
Abo	6340'
Lower Abo/Wolfcamp	8120'

5. Possible mineral bearing formations:

Water Sand	150'	Fresh Water
Yates	1810'	Oil / Gas
Queen	2550'	Oil / Gas
San Andres	3250'	Oil / Gas
Tubb	6060'	Oil / Gas
Abo	6340'	Oil / Gas
Lower Abo/Wolfcamp	8120'	Oil / Gas

6. Casing Program - **Proposed**

Hole size	Interval	OD of Casing	Weight	Cond.	Collar	Grade
See COA 17-1/2"	0' - +/-700' 765	13-3/8"	48#	New	STC	H-40 or J/K-55
Collapse sf – 5.59, Burst sf – 2.49, Tension sf – 9.58						
12 1/4"	0' - +/-3400'	9-5/8"	40#	New	STC	J/K-55
Collapse sf – 2.46, Burst sf – 1.60, Tension sf – 3.82						
8-3/4"	0' – +/-7400'	7"	26#	New	LTC	P-110
Collapse sf – 2.84, Burst sf – 1.77, Tension sf – 3.60						
6-1/8"	7300' – 12171'	4-1/2"	11.6#	New	LTC	P-110
Collapse sf – 2.63, Burst sf – 1.86, Tension sf – 2.92						

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

7. Cement Program

13 3/8" Surf. Csg. Set at +/- 700', Lead: 400sx Class "C" w/ 2% CaCl2 & 4% gel, 1.74 yd. Tail: 200sx Class "C" w/ 2% CaCl2, 1.35 yd. 167% excess, calculated to surface.

9 5/8" Intrmd. Csg. Set at +/- 3400'. Lead: 800sx 35:65:6 C:Poz:gel w/ 5pps LCM-1 0.2% sodium metasilicate, 0.3% FL5ZA, 5% NaCl, 2.05 yd. Tail: 200sx Class "C" w/ 2% CaCl2, 1.35 yd. 87% excess, calculated to surface.

7" Production Casing set at +/- 7400' MD, Lead: 800 sx 35:65:6 C:Poz w/ 1% CaCl2, 1.89 yd. Tail: 200sx Class "C" w/ 2% CaCl2, 0.35% R-3, 1.33 yd. 106% excess in open hole, calculated to surface.

4 ½" Production Liner set from +/- 7300' to +/-12171' MD, 8120' TVD, Liner run with +/- 12 isolation Packers and Sliding sleeves in un-cemented Lateral.

8. Pressure Control Equipment:

After setting 13 3/8" casing and installing 3000 psi casing head, NU 3000 psi double ram BOP and 3000 psi annular BOP. Test double ram BOP and manifold to 3000 psi with clear fluid and annular to 1500 psi using an independent tester, this equipment will be used continuously until 4 ½" liner is set. After setting 9 5/8" casing, the bottom spool will be removed and B section will be installed and Double Studded Adapter will be nipped up above the B section. After setting 7" casing, the remaining spacer spool will be removed, the C section will be installed with a Double Studded Adapter above the C section. 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' - 700' 765	8.5	28	NC	Fresh water brine mud w/ paper for seepage and sweeps. Lime for PH.
700'- 3400'	9.1	30	NC	Cut brine mud, lime for PH and paper for seepage and sweeps.
3400'- 7400'	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.
7400' - 12171'	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. Production Hole Drilling Summary:

Set 7" production casing at +/- 7400'. Drill 6-1/8" hole and kick off at +/- 7642', building curve over +/- 450' to horizontal at 8120' TVD. Drill horizontal section in a Westerly direction for +/- 4256' lateral to TD at +/-12,171' MD, 8120' TVD. Run 4-1/2" production liner in Open hole lateral and set isolation packers and liner top packer @ +/- 7300' MD.

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 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 ***4 ½"*** production casing has been run 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 120 degrees and estimated maximum bottom hole pressure is 3160 psig. Low levels of Hydrogen sulfide have been monitored in producing wells in the area, so H2S may be present while drilling of the well. An H2S plan is attached to the Drilling Program. No major loss of circulation zones has been reported in offsetting wells.

14. Anticipated Starting Date

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

CONCHO

COG Operating LLC

Eddy County, NM (NAN27 NME)
Trigg 6 Federal Com #1H
Trigg 6 Federal Com #1H

OH

Plan: Plan #1 8 3/4" Hole
SHL = 330' FNL & 330' FEL
BHL = 330' FNL & 330' FWL

Standard Planning Report

20 October, 2011

Scientific Drilling

Database:	EDM 5000 1 Single User Db	**Local Co-ordinate Reference:**	Site Trigg 6 Federal Com #1H
Company:	COG Operating LLC	**TVD Reference:**	GL Elev @ 4047 0usft
Project:	Eddy County, NM (NAN27 NME)	**MD Reference:**	GL Elev @ 4047 0usft
Site:	Trigg 6 Federal Com #1H	**North Reference:**	Grid
Well:	Trigg 6 Federal Com #1H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1 8 3/4" Hole		

Project Eddy County, NM (NAN27 NME)

Map System:	US State Plane 1927 (Exact solution)	**System Datum:**	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site Trigg 6 Federal Com #1H

Site Position:		**Northing:**	714,722 40 usft	**Latitude:**	32° 57' 50 746 N
From:	Map	**Easting:**	632,526 50 usft	**Longitude:**	103° 54' 4 467 W
Position Uncertainty:	0 0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0 24 °

Well Trigg 6 Federal Com #1H

Well Position	**+N/-S**	0 0 usft	**Northing:**	714,722 40 usft	**Latitude:**	32° 57' 50 746 N
	+E/-W	0.0 usft	**Easting:**	632,526 50 usft	**Longitude:**	103° 54' 4 467 W
Position Uncertainty		0 0 usft	**Wellhead Elevation:**		**Ground Level:**	4,047 0 usft

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	10/20/11	7 75	60 80	48,986

Design Plan #1 8 3/4" Hole

Audit Notes:

Version:		**Phase:**	PLAN	**Tie On Depth:**	0 0

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0 0	269 89

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0 0	0 00	0 00	0.0	0 0	0 0	0 00	0 00	0 00	0.00	
7,642 5	0 00	0 00	7,642 5	0.0	0 0	0 00	0 00	0 00	0 00	
8,392 5	90 00	269 89	8,120 0	-0 9	-477 5	12 00	12.00	0.00	269 89	
12,171 4	90 00	269 89	8,120 0	-8 1	-4,256 3	0 00	0 00	0 00	0 00	PBHL-Trigg 6 Federal

Database:	EDM 5000 1 Single User Db	**Local Co-ordinate Reference:**	Site Trigg 6 Federal Com #1H
Company:	COG Operating LLC	**TVD Reference:**	GL Elev @ 4047 0usft
Project:	Eddy County, NM (NAN27 NME)	**MD Reference:**	GL Elev @ 4047 0usft
Site:	Trigg 6 Federal Com #1H	**North Reference:**	Grid
Well:	Trigg 6 Federal Com #1H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1 8 3/4" Hole		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0 0	0 00	0 00	0 0	0 0	0 0	0 0	0 00	0 00	0.00
7,642 5	0 00	0 00	7,642 5	0 0	0 0	0 0	0 00	0 00	0 00
KOP Start Build 12.00°/100'									
7,700 0	6 90	269 89	7,699 9	0 0	-3 5	3 5	12 00	12 00	0 00
7,800 0	18 90	269 89	7,797 2	0 0	-25 7	25 7	12.00	12 00	0 00
7,900 0	30 90	269 89	7,887 7	-0 1	-67 8	67 8	12 00	12 00	0 00
8,000 0	42 90	269 89	7,967 5	-0.2	-127 7	127 7	12 00	12 00	0 00
8,100 0	54.90	269 89	8,033 2	-0 4	-202 9	202 9	12 00	12 00	0 00
8,200 0	66 90	269 89	8,081 7	-0 6	-290 1	290 1	12 00	12 00	0.00
8,300 0	78 90	269 89	8,111 1	-0 7	-385 5	385 5	12 00	12 00	0 00
8,392 5	90 00	269 89	8,120 0	-0 9	-477 5	477 5	12 00	12 00	0 00
EOC Start Hold At 90°									
8,400 0	90 00	269 89	8,120 0	-0 9	-484 9	484 9	0 00	0 00	0 00
8,500 0	90 00	269 89	8,120 0	-1 1	-584 9	584 9	0 00	0 00	0 00
8,600.0	90 00	269 89	8,120 0	-1 3	-684 9	684 9	0 00	0.00	0 00
8,700 0	90 00	269 89	8,120 0	-1 5	-784.9	784 9	0 00	0 00	0 00
8,800 0	90 00	269 89	8,120 0	-1 7	-884.9	884 9	0 00	0 00	0.00
8,900 0	90 00	269.89	8,120 0	-1 9	-984 9	984 9	0 00	0 00	0 00
9,000 0	90 00	269 89	8,120 0	-2 1	-1,084.9	1,084 9	0 00	0 00	0 00
9,100 0	90 00	269 89	8,120 0	-2 3	-1,184 9	1,184 9	0 00	0 00	0 00
9,200 0	90.00	269 89	8,120 0	-2 4	-1,284.9	1,284 9	0 00	0 00	0 00
9,300 0	90 00	269 89	8,120 0	-2 6	-1,384 9	1,384.9	0 00	0 00	0 00
9,400 0	90 00	269 89	8,120 0	-2.8	-1,484 9	1,484 9	0 00	0 00	0 00
9,500 0	90 00	269 89	8,120 0	-3 0	-1,584 9	1,584 9	0 00	0 00	0 00
9,600 0	90 00	269 89	8,120 0	-3 2	-1,684 9	1,684 9	0 00	0 00	0 00
9,700 0	90 00	269 89	8,120 0	-3 4	-1,784 9	1,784 9	0 00	0 00	0 00
9,800 0	90 00	269 89	8,120 0	-3 6	-1,884 9	1,884 9	0 00	0 00	0 00
9,900 0	90 00	269 89	8,120 0	-3 8	-1,984 9	1,984.9	0 00	0 00	0.00
10,000.0	90 00	269 89	8,120 0	-4 0	-2,084 9	2,084 9	0.00	0 00	0 00
10,100 0	90 00	269 89	8,120 0	-4 2	-2,184 9	2,184 9	0 00	0 00	0 00
10,200 0	90 00	269 89	8,120 0	-4 3	-2,284 9	2,284 9	0 00	0 00	0.00
10,300.0	90 00	269.89	8,120.0	-4 5	-2,384 9	2,384 9	0 00	0 00	0 00
10,400 0	90 00	269.89	8,120.0	-4 7	-2,484 9	2,484 9	0 00	0 00	0 00
10,500 0	90 00	269 89	8,120 0	-4 9	-2,584 9	2,584 9	0 00	0 00	0 00
10,600 0	90 00	269 89	8,120 0	-5 1	-2,684 9	2,684 9	0 00	0 00	0 00
10,700 0	90 00	269 89	8,120 0	-5 3	-2,784 9	2,784 9	0 00	0 00	0 00
10,800 0	90 00	269 89	8,120 0	-5 5	-2,884.9	2,884.9	0 00	0 00	0 00
10,900 0	90 00	269 89	8,120 0	-5 7	-2,984 9	2,984 9	0 00	0 00	0 00
11,000 0	90 00	269 89	8,120.0	-5 9	-3,084 9	3,084 9	0 00	0 00	0 00
11,100 0	90 00	269.89	8,120 0	-6 1	-3,184 9	3,184 9	0 00	0 00	0 00
11,200 0	90 00	269 89	8,120 0	-6 3	-3,284 9	3,284 9	0 00	0 00	0.00
11,300 0	90.00	269 89	8,120 0	-6 4	-3,384 9	3,384 9	0 00	0 00	0 00
11,400 0	90 00	269 89	8,120.0	-6 6	-3,484.9	3,484 9	0 00	0 00	0.00
11,500 0	90 00	269 89	8,120 0	-6 8	-3,584 9	3,584 9	0 00	0 00	0 00
11,600 0	90 00	269 89	8,120 0	-7 0	-3,684 9	3,684 9	0 00	0 00	0 00
11,700 0	90 00	269 89	8,120 0	-7 2	-3,784 9	3,784 9	0 00	0 00	0 00
11,800 0	90 00	269 89	8,120 0	-7 4	-3,884 9	3,884 9	0 00	0 00	0 00
11,900 0	90 00	269 89	8,120 0	-7 6	-3,984 9	3,984 9	0 00	0 00	0 00
12,000 0	90 00	269 89	8,120 0	-7 8	-4,084 9	4,084 9	0 00	0 00	0 00
12,100 0	90 00	269 89	8,120 0	-8 0	-4,184 9	4,184.9	0 00	0 00	0 00
12,171 4	90 00	269 89	8,120 0	-8 1	-4,256 3	4,256 3	0 00	0 00	0 00
PBHL Trigg 6 Federal Com #1H									

Database:	EDM 5000 1 Single User Db	**Local Co-ordinate Reference:**	Site Trigg 6 Federal Com #1H
Company:	COG Operating LLC	**TVD Reference:**	GL Elev @ 4047 0usft
Project:	Eddy County, NM (NAN27 NME)	**MD Reference:**	GL Elev @ 4047 0usft
Site:	Trigg 6 Federal Com #1H	**North Reference:**	Grid
Well:	Trigg 6 Federal Com #1H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1 8 3/4" Hole		

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PBHL-Trigg 6 Federal C - plan hits target center - Point	0 00	0 00	8,120 0	-8 1	-4,256 3	714,714 30	628,270 20	32° 57' 50 836 N	103° 54' 54.424 W

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
7,642 5	7,642 5	0 0	0 0	KOP Start Build 12 00°/100'
8,392 5	8,120 0	-0 9	-477 5	EOC Start Hold At 90°

CONCHO

Scientific Drilling for COG Operating LLC
Site: Eddy County, NM (NAN27 NME)
Well: Trigg 6 Federal Com #1H
Wellbore: OH
Design: Plan #1 8 3/4" Hole

Scientific Drilling

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.0	0 00	0 00	0 0	0.0	0 0	0.00	0 00	0 0	
2	7642 5	0.00	0.00	7642 5	0 0	0 0	0 00	0 00	0 0	
3	8392 5	90 00	269.89	8120 0	-0 9	-477.5	12 00	269 89	477 5	
4	12171 4	90 00	269.89	8120 0	-8.1	-4256 3	0.00	0.00	4256 3	PBHL-Trigg 6 Federal Com #1H

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
PBHL-Trigg 6 Federal Com #1H	8120 0	-8.1	-4256.3	714714.30	628270 20	32°57' 50 836 N	103°54' 54 424 W	Point

AZIMUTH CORRECTIONS
ALL AZIMUTHS MUST BE CORRECTED TO GRID
GRID CORRECTIONS MUST BE APPLIED BEFORE PLOTTING
To convert a Magnetic Direction to a Grid Direction, Add 7.52°
To convert a True Direction to a Grid Direction, Subtract 0.24°

PROJECT DETAILS Eddy County, NM (NAN27 NME)

Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico East 3001
System Datum: Mean Sea Level

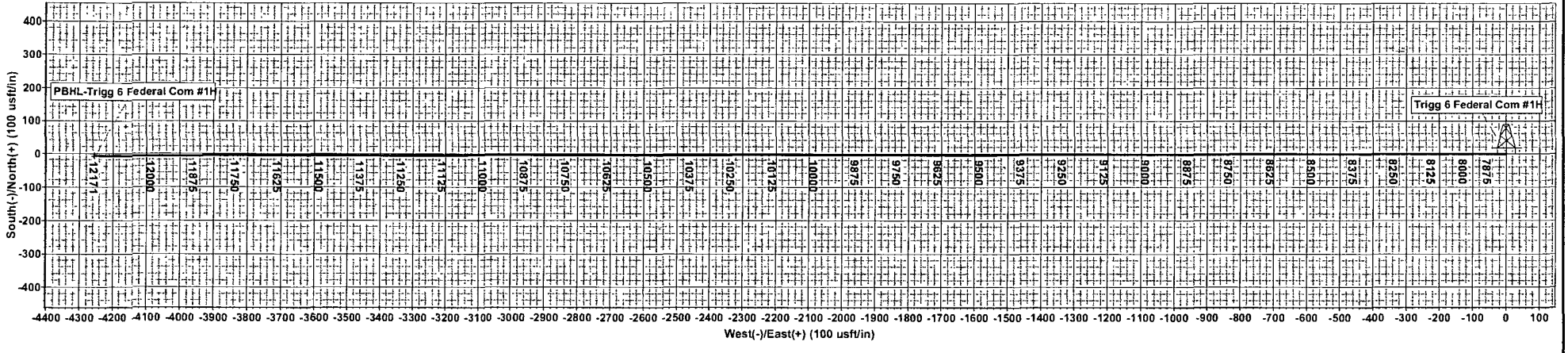
Plan: Plan #1 8 3/4" Hole (Trigg 6 Federal Com #1H/OH)

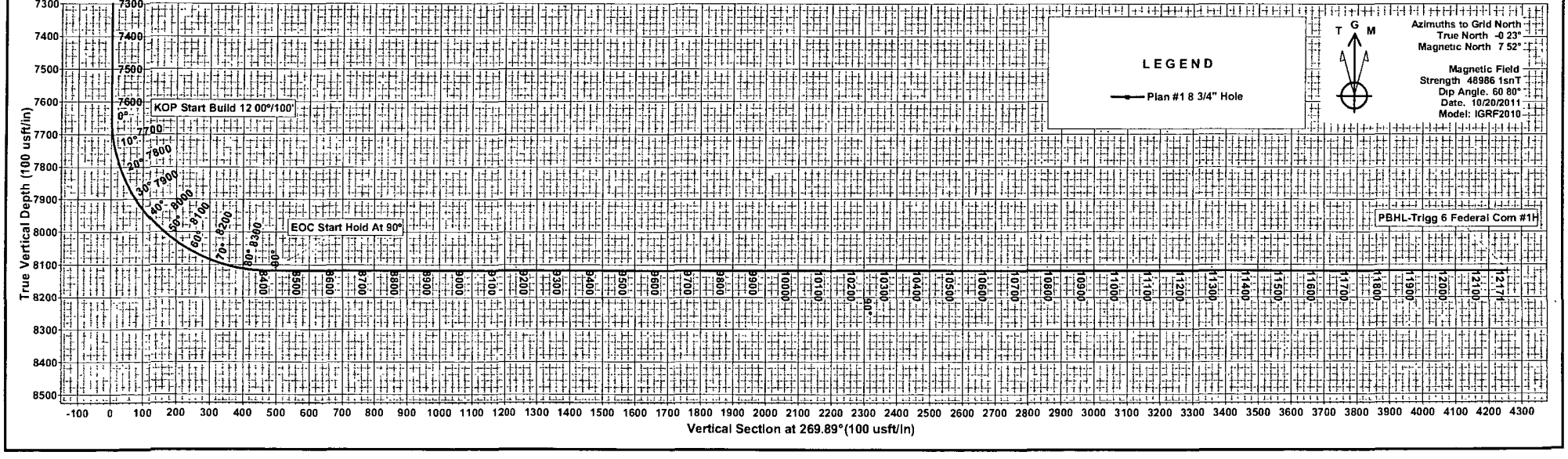
Created By: Julio Pina Date: 20-Oct-11
Checked: _____ Date: _____
Reviewed _____ Date _____

WELL DETAILS: Trigg 6 Federal Com #1H

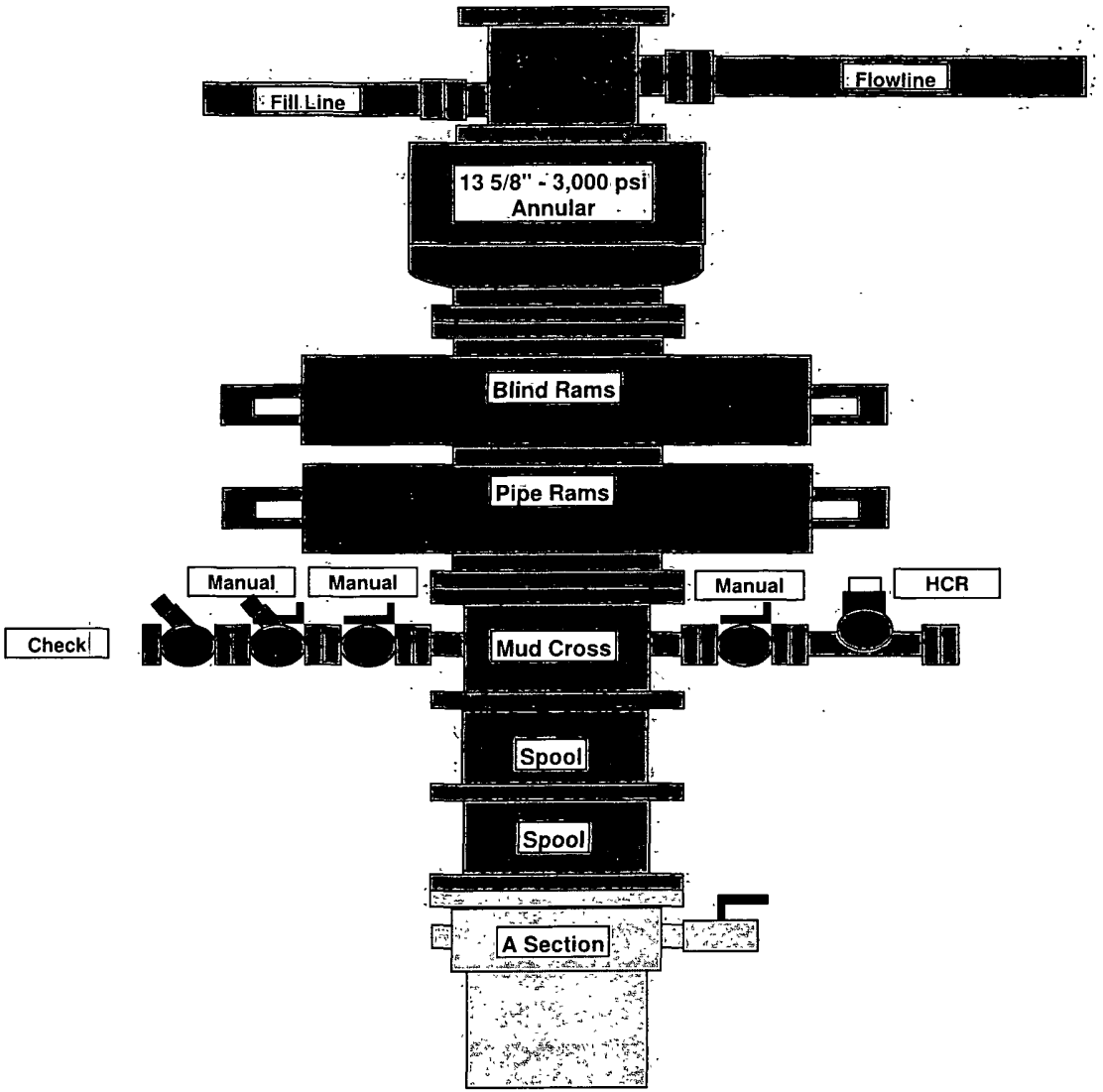
Ground Level 4047 0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0 0	0 0	714722 40	632526 50	32°57' 50 746 N	103°54' 4.467 W	





13 5/8" 3M BOP
FOR 12 1/4" HOLE SECTION



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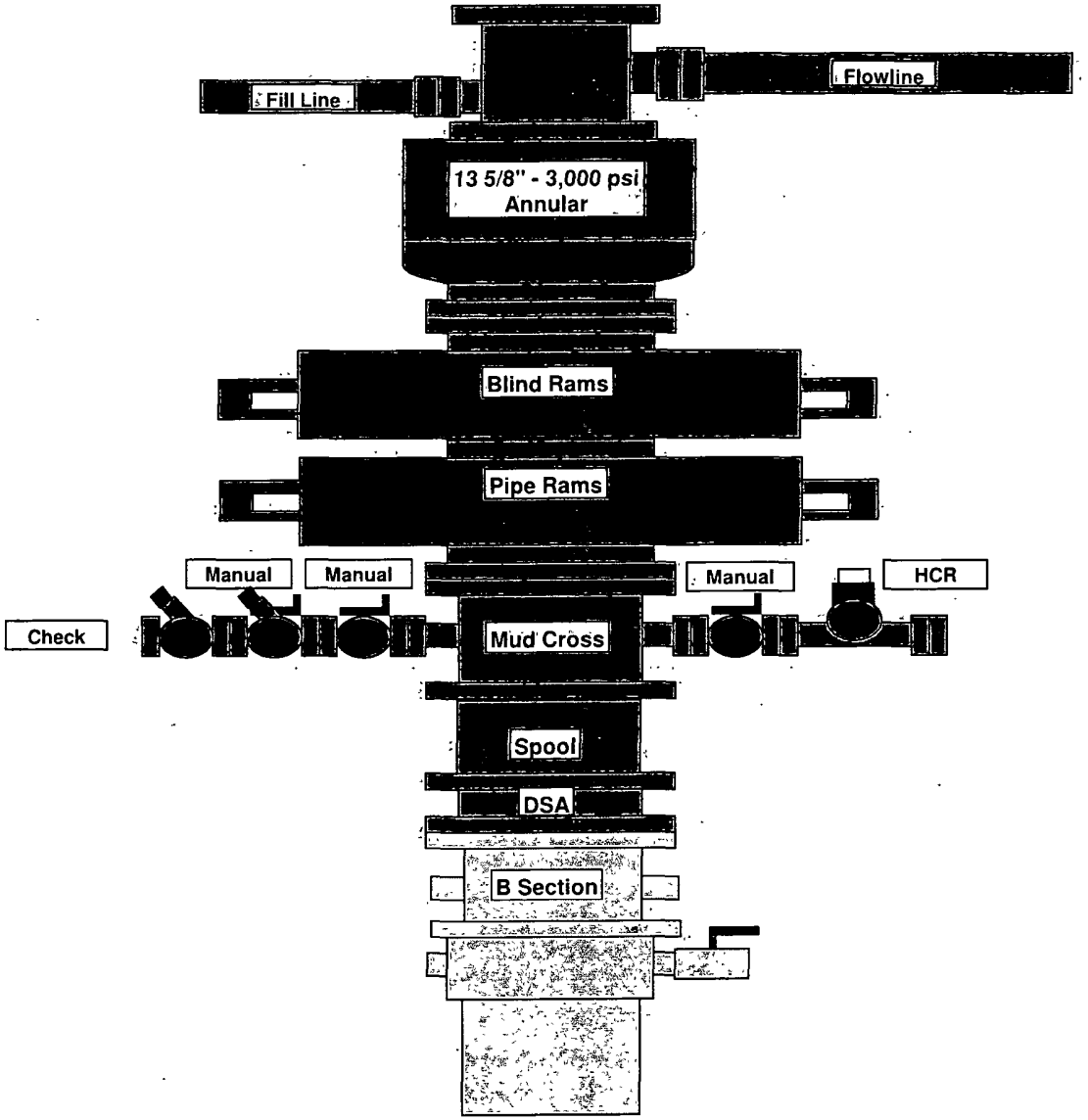
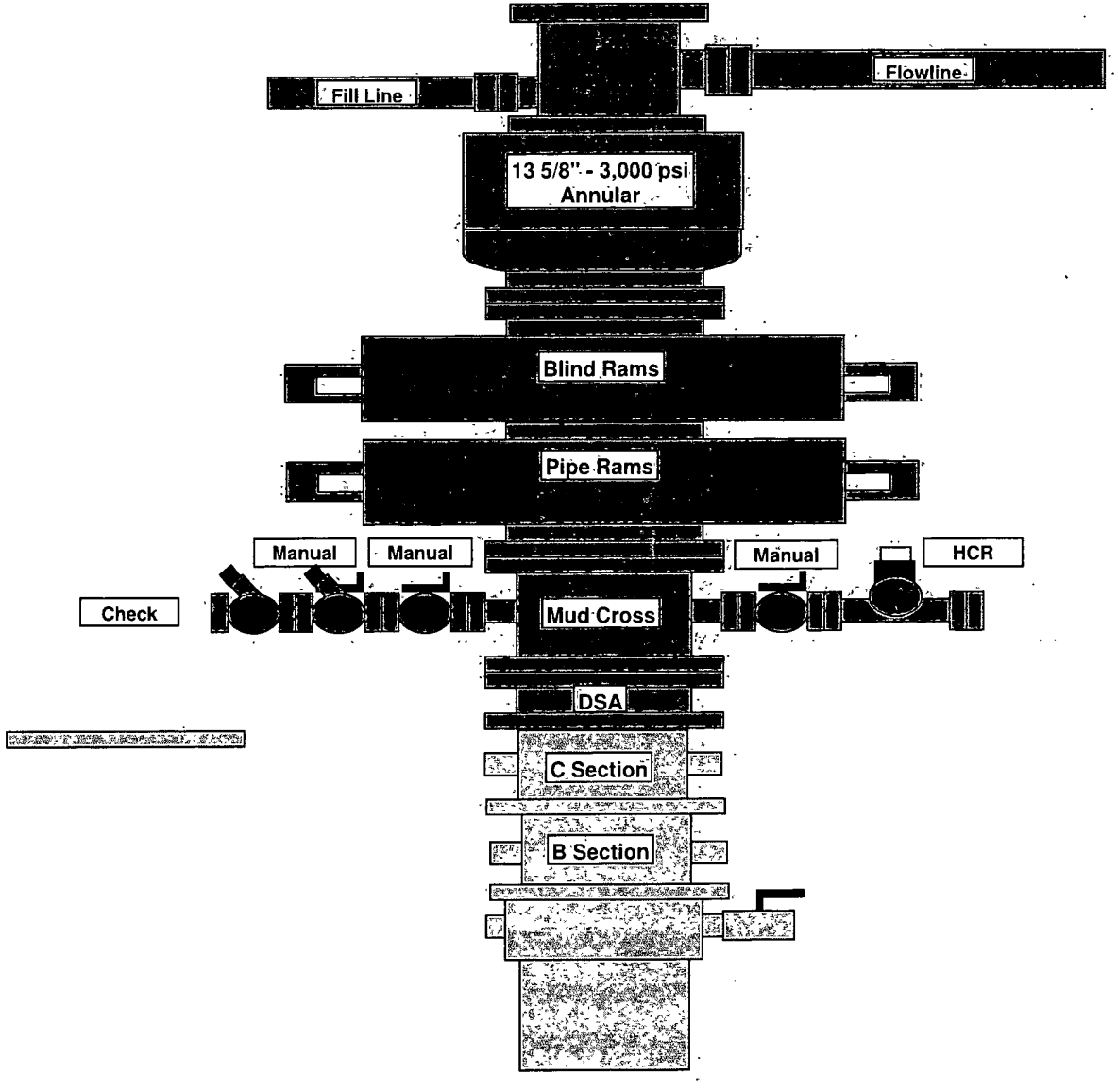
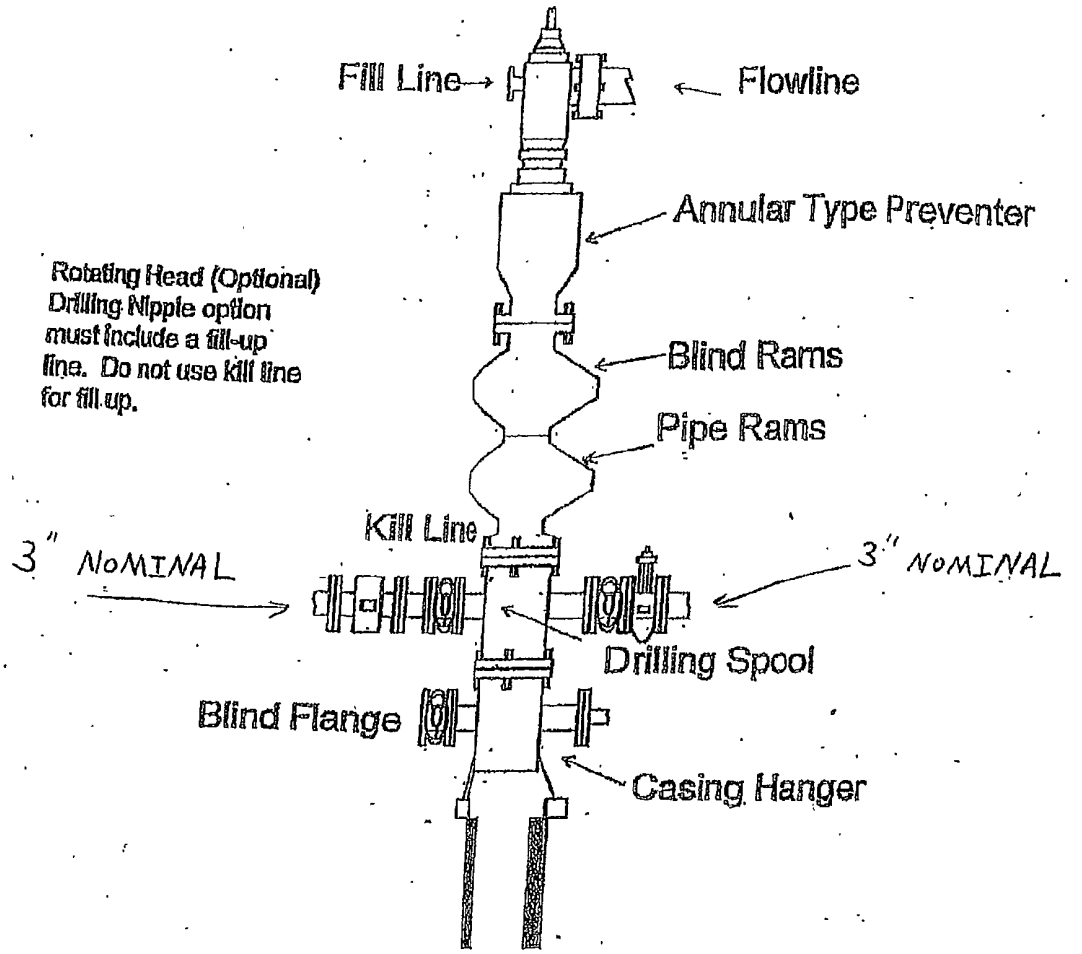
FOR 8 3/4" HOLE SECTION



13 5/8" 3M BOP
FOR 6 1/8" HOLE SECTION



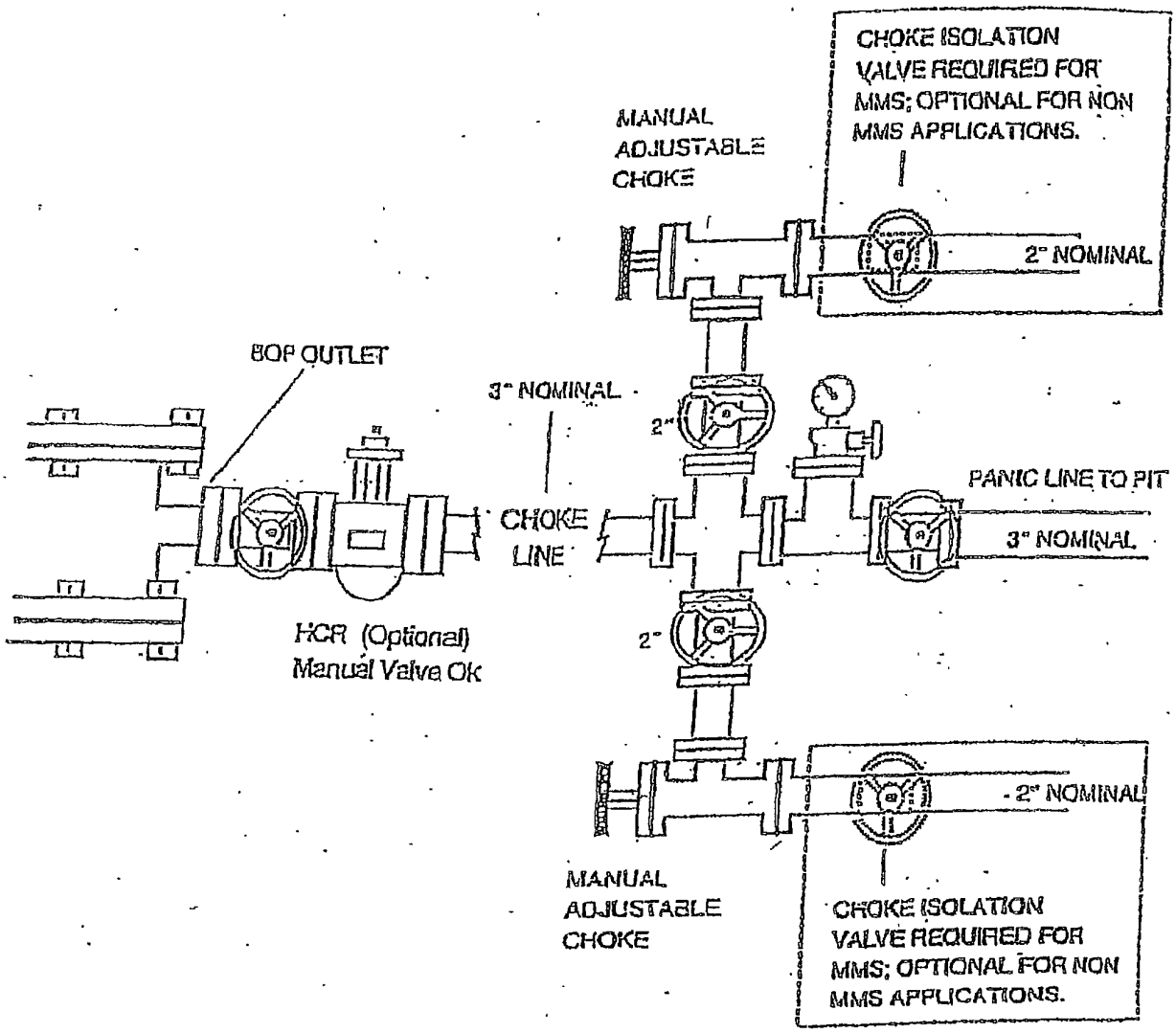
BOPE SCHEMATIC



900 SERIES

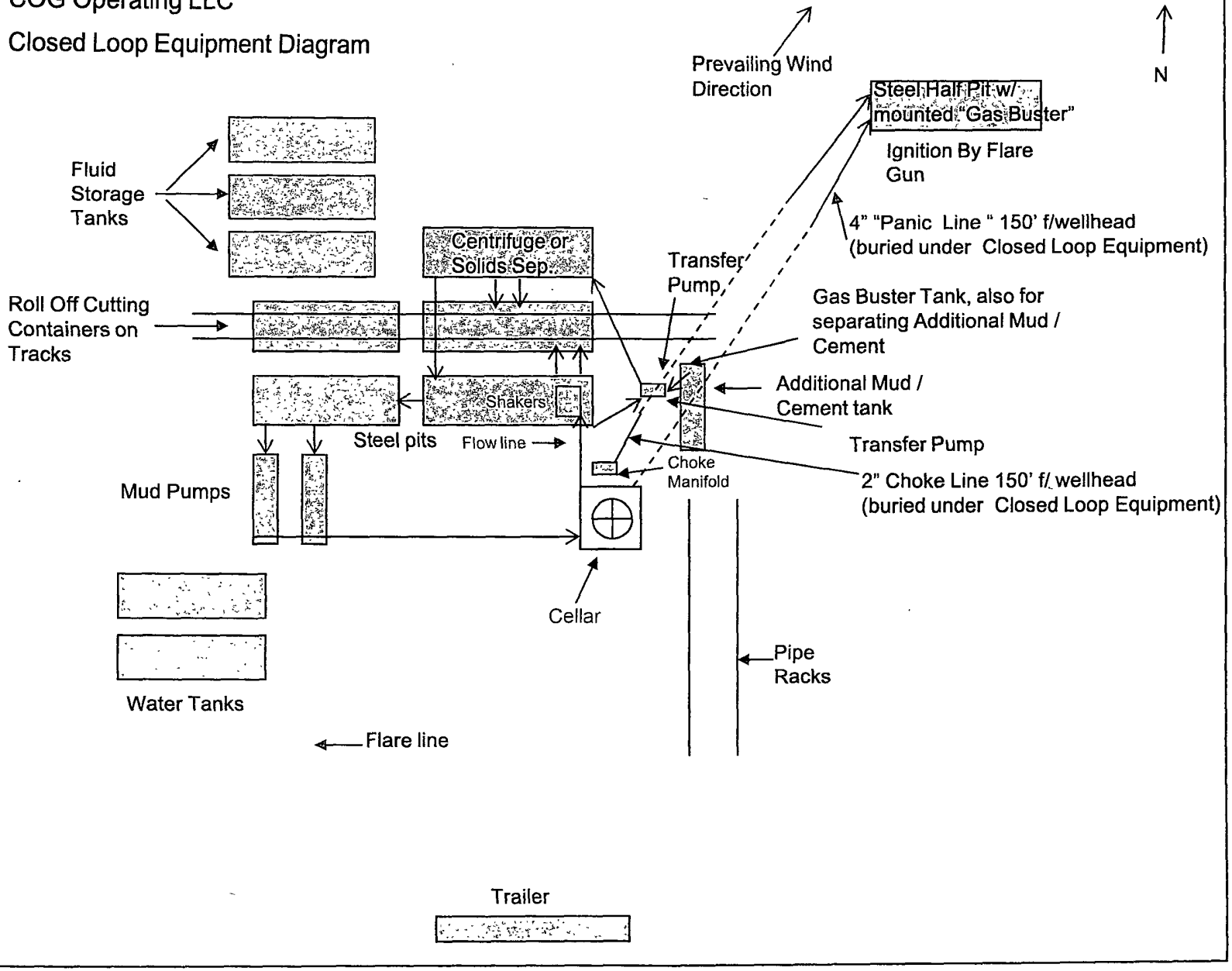
CHOKE MANIFOLD

3M SERVICE



COG Operating LLC

Closed Loop Equipment Diagram



Closed Loop Operation & Maintenance Procedure

All drilling fluid circulated over shaker(s) with cuttings discharged into roll off container.

Fluid and fines below shaker(s) are circulated with transfer pump through centrifuge(s) or solids separator with cuttings and fines discharged into roll off container.

Fluid is continuously re-circulated through equipment with polymer added to aid separation of cutting fines.

Roll off containers are lined and de-watered with fluids re-circulated into system.

Additional tank is used to capture unused drilling fluid or cement returns from casing jobs.

This equipment will be maintained 24 hrs./day by solids control personnel and or rig crews that stay on location.

Cuttings will be hauled to either:

CRI (permit number R9166)
or
GMI (permit number 711-019-001)

dependent upon which rig is available to drill this well.

COG OPERATING, LLC

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

C.O.G. Operating, LLC
NEW DRILL WELL
Trigg 6 Federal #1
SHL: 330' FNL & 330' FEL, Unit A, Lot 1
BHL: 330' FNL & 330' FWL, Unit D, Lot 4
Sec 6, T16S, R31E
Eddy County, New Mexico

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

COG Operating LLC

Hydrogen Sulfide Drilling Operation Plan

I. HYDROGEN SULFIDE TRAINING

All personnel, whether regularly assigned, contracted, or employed on an unscheduled basis, will receive training from a qualified instructor in the following areas prior to commencing drilling operations on this well:

1. The hazards an characteristics of hydrogen sulfide (H2S)
2. The proper use and maintenance of personal protective equipment and life support systems.
3. The proper use of H2S detectors alarms warning systems, briefing areas, evacuation procedures, and prevailing winds.
4. The proper techniques for first aid and rescue procedures.

In addition, supervisory personnel will be trained in the following areas:

1. The effects of H2S on metal components. If high tensile tubular are to be used, personnel well be trained in their special maintenance requirements.
2. Corrective action and shut-in procedures when drilling or reworking a well and blowout prevention and well control procedures.
3. The contents and requirements of the H2S Drilling Operations Plan and Public Protection Plan.

There will be an initial training session just prior to encountering a known or probable H2S zone (within 3 days or 500 feet) and weekly H2S and well control drills for all personnel in each crew. The initial training session shall include a review of the site specific H2S Drilling Operations Plan and the Public Protection Plan. **The concentrations of H2S of wells in this area from surface to TD are low enough that a contingency plan is not required.**

II. H2S SAFETY EQUIPMENT AND SYSTEMS

Note: All H2S safety equipment and systems will be installed, tested, and operational when drilling reaches a depth of 500 feet above, or three days prior to penetrating the first zone containing or reasonable expected to contain H2S.

1. **Well Control Equipment:**

   A. Flare line.

   B. Choke manifold.

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

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

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

   A. Mark II Survive air 30-minute units located in the doghouse and at briefing areas, as indicated on well site diagram.

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

   A. 1 portable H2S monitors positioned on location for best coverage and response. These units have warning lights and audible sirens when H2S levels of 20 PPM are reached.

4. **Visual warning systems:**

   A. Wind direction indicators as shown on well site diagram (Exhibit #8).

   B. Caution/Danger signs (Exhibit #7) shall be posted on roads providing direct access to location. Signs will be painted a high visibility yellow with black lettering of sufficient size to be readable at a reasonable distance from the immediate location. Bilingual signs will be used, when appropriate. See example attached.

5. **Mud program:**

   A. The mud program has been designed to minimize the volume of H2S circulated to surface. Proper mud weight, safe drilling practices, and the use of H2S scavengers will minimize hazards when penetrating H2S bearing zones.

6. **Metallurgy:**

   A. All drill strings, casings, tubing, wellhead, blowout preventer, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H2S service.

   B. All elastomers used for packing and seals shall be H2S trim.

7. **Communication:**

   A. Radio communications in company vehicles including cellular telephone and 2-way radio.

   B. Land line (telephone) communication at Office.

8. **Well testing:**

   A. Drill stem testing will be performed with a minimum number of personnel in the immediate vicinity, which are necessary to safely and adequately conduct the test. The drill stem testing will be conducted during daylight hours and formation fluids will not be flowed to the surface. All drill-stem-testing operations conducted in an H2S environment will use the closed chamber method of testing.

   B. There will be no drill stem testing.

EXHIBIT #7

WARNING

YOU ARE ENTERING AN H2S

AUTHORIZED PERSONNEL ONLY

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

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

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

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

COG Operating LLC

EXHIBIT 8

Drilling Location - H2S Safety Equipment Diagram

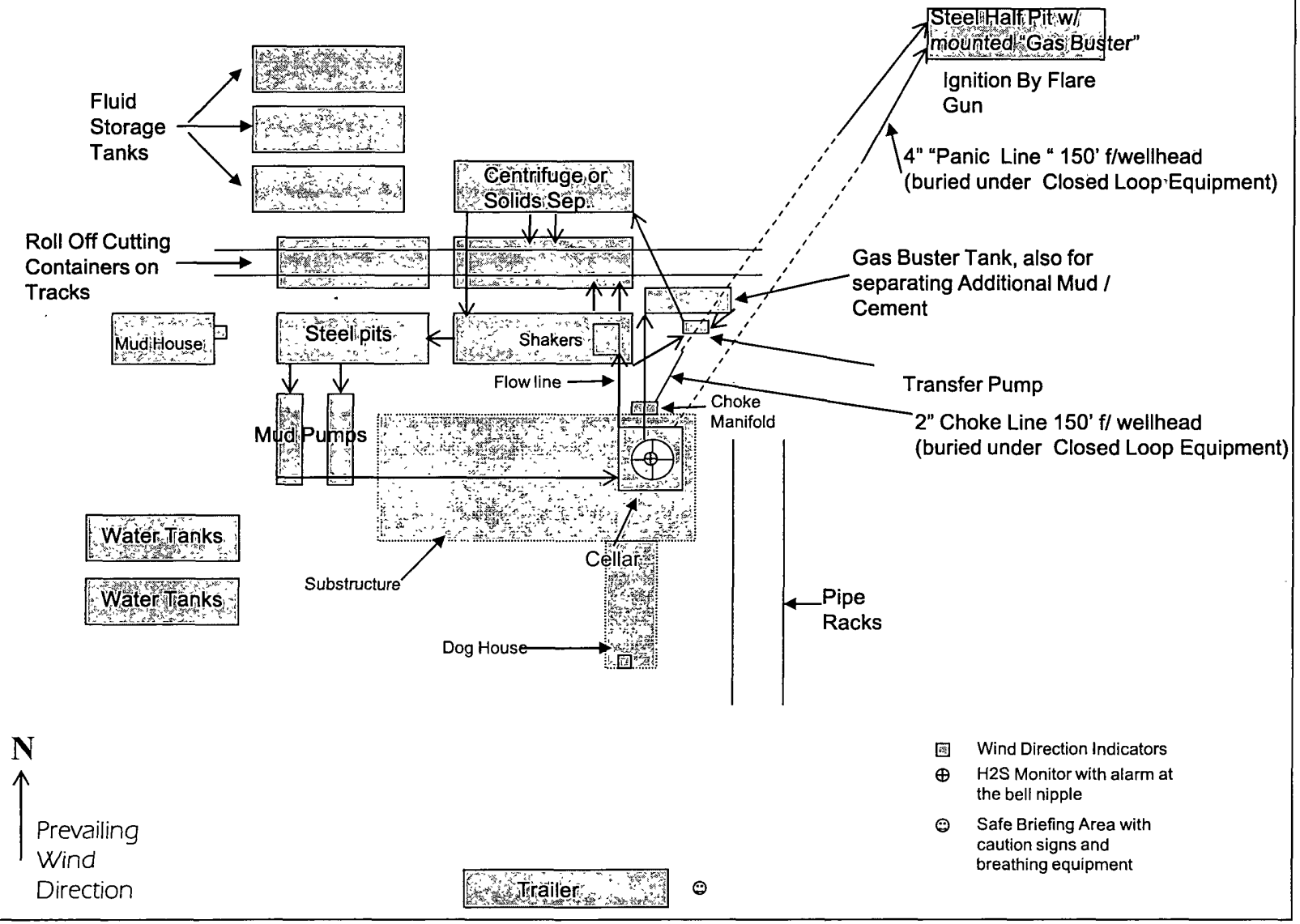


TABLE OF CONTENTS

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 area." Maintain strict security and safety procedures while dealing with the source.
5. No entry to any unauthorized personnel.
6. Notify the appropriate agencies:
   City Police – City Streets
   State Police – State Roads
   County Sheriff – County Roads
7. Call the NMOCD.

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

EMERGENCY CALL LIST

	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 ppm H2S is present, the ROE calculations will be done to determine if the following is warranted:

* 100 ppm at any public area (any place not associated with this site).

* 500 ppm at any public road (any road which the general public may travel).

* 100 ppm radius of 3000' will be assumed if there is insufficient data to do the calculations, and there is a reasonable expectation that H2S could be present in concentrations greater than 100 ppm in the gas mixture.

Calculation for the 100 ppm ROE:

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 will 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 preformed:

    * Working near the top or on top of a tank.
    * Disconnecting any line where H2S can reasonably be expected.
    * Sampling air in the area to determine if toxic concentrations of H2S exist.
    * Working in areas where over 10 ppm of H2S has been detected.
    * At any time there is a doubt of the level of H2S in the area.

2. All personnel shall be trained in the use of SCBA prior to working in a potentially hazardous location.

3. Facial hair and standard eyeglasses are not allowed with SCBA.

4. Contact lenses are never allowed with SCBA.

5. When breaking out any line where H2S can reasonably be expected.

6. After each use, the SCBA unit shall be cleaned, disinfected, serviced and inspected.

7. All SCBA shall be inspected monthly.

RESCUE & FIRST AID FOR VICTIMS OF H2S POISONING

* Do not panic.

* Remain calm and think.

* Get on the breathing apparatus.

* Remove the victim to the safe breathing area as quickly as possible, upwind and uphill from source or crosswind to achieve upwind.

* Notify emergency response personnel.

* Provide artificial respiration and / or CPR as necessary.

* Remove all contaminated clothing to avoid further exposure.

* A minimum of two (2) personnel on location shall be trained in CPR and First Aid.

Toxic Effects of H2S Poisoning

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

Table I
Permissible Exposure Limits of Various Gases

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

Definitions

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

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

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

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

TABLE II

Toxicity Table of H2S

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

PHYSICAL PROPERTIES OF H2S

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

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

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

COLOR – TRANSPARENT

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

ODOR – ROTTEN EGGS

Hydrogen Sulfide has a distinctive offensive smell, similar to "rotten eggs." For this reason it earned its common name "sour gas." However, H2S, even in low concentrations, is so toxic that it attacks and quickly impairs a victim's sense of smell, so it could be fatal to rely on your nose as a detection device.

VAPOR DENSITY – SPECIFIC GRAVITY OF 1.192

Hydrogen Sulfide is heavier than air so it tends to settle in low-lying areas like pits, cellars or tanks. If you find yourself in a location where H2S is known to exist, protect yourself. Whenever possible, work in an area upwind and keep to higher ground.

EXPLOSIVE LIMITS – 4.3% TO 46%

Mixed with the right proportion of air or oxygen, H2S will ignite and burn or explode, producing another alarming element of danger besides poisoning.

FLAMMABILITY

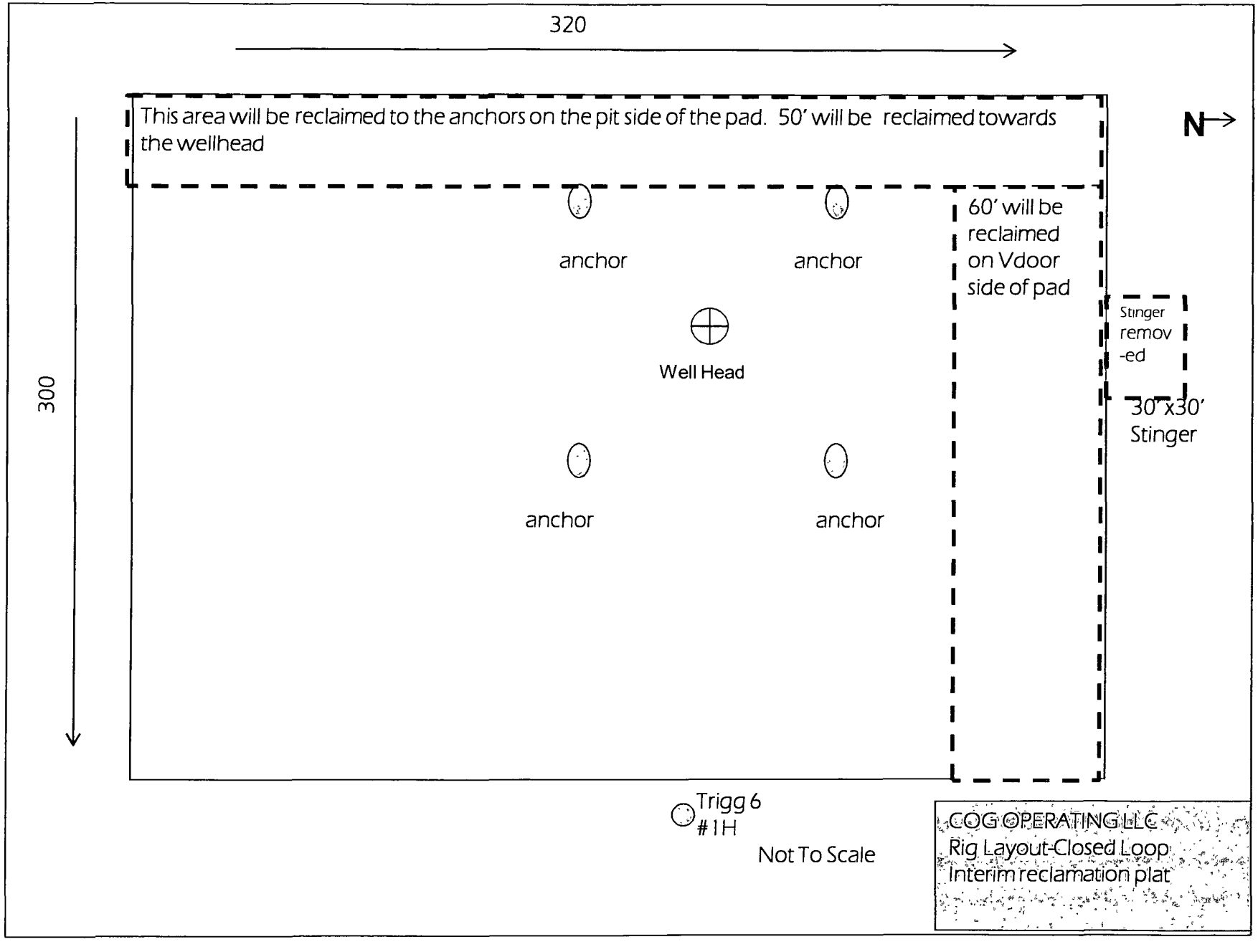
Hydrogen Sulfide will burn readily with a distinctive clear blue flame, producing Sulfur Dioxide (SO2), another hazardous gas that irritates the eyes and lungs.

SOLUBILITY – 4 TO 1 RATIO WITH WATER

Hydrogen Sulfide can be dissolved in liquids, which means that it can be present in any container or vessel used to carry or hold well fluids including oil, water, emulsion and sludge. The solubility of H2S is dependent on temperature and pressure, but if conditions are right, simply agitating a fluid containing H2S may release the gas into the air.

BOILING POINT – (-76 degrees Fahrenheit)

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


320
This area will be reclaimed to the anchors on the pit side of the pad. 50' will be reclaimed towards the wellhead
N
60' will be reclaimed on Vdoor side of pad
anchor
anchor
Well Head
Stinger remov -ed
30' x30' Stinger
300
anchor
anchor
Trigg 6 #1H
Not To Scale
COG OPERATING LLC
Rig Layout-Closed Loop
Interim reclamation plat

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	COG OPERATING LLC
LEASE NO.:	NM2507
WELL NAME & NO.:	1H TRIGG 6 FEDERAL COM
SURFACE HOLE FOOTAGE:	360' FNL & 90' FEL
BOTTOM HOLE FOOTAGE	380' FNL & 330' FWL
LOCATION:	Section 6, T.16 S., R.31 E., NMPM
COUNTY:	Eddy County, New Mexico

TABLE OF CONTENTS

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

I. GENERAL PROVISIONS

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

II. PERMIT EXPIRATION

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

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

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

IV. NOXIOUS WEEDS

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

V. SPECIAL REQUIREMENT(S)

Pipeline Placement:
The surface pipeline shall be installed no farther than 6 feet from and parallel to the existing lease road.

Timing Limitation Stipulation / Condition of Approval for lesser prairie-chicken: Oil and gas activities including 3-D geophysical exploration, and drilling will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Additionally, no new drilling will be allowed within up to 200 meters of leks known at the time of permitting. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 feet from the source of the noise.

Ground-level Abandoned Well Marker to avoid raptor perching: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well. For more installation details, contact the Carlsbad Field Office at 575-234-5972.

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

VI. CONSTRUCTION

A. NOTIFICATION

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-6235 at least 3 working days prior to commencing construction of the access road and/or well pad.

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

B. TOPSOIL

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

C. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

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

D. FEDERAL MINERAL MATERIALS PIT

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

E. WELL PAD SURFACING

Surfacing of the well pad is not required.

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

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

F. ON LEASE ACCESS ROADS

Road Width
The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed twenty (20) feet.

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

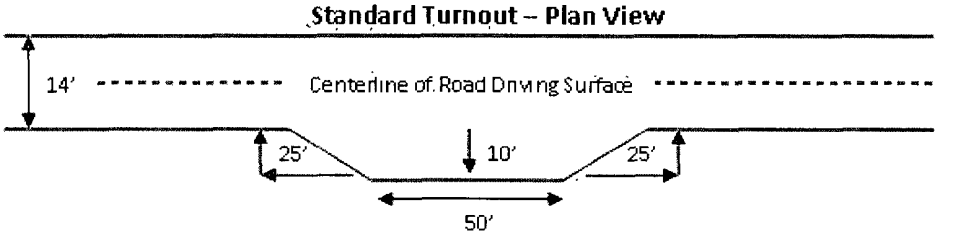
Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

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

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

Ditching
Ditching shall be required on both sides of the road.

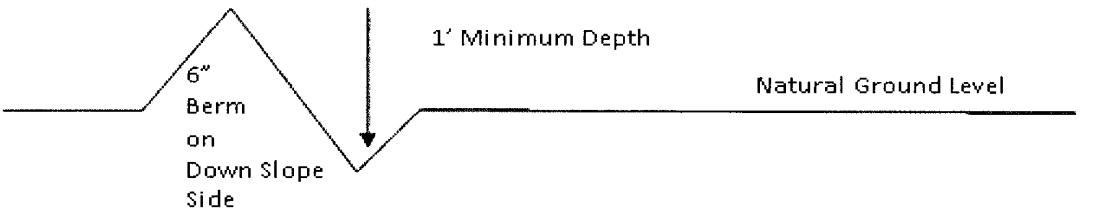
Turnouts
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall be constructed on all blind curves. Turnouts shall conform to the following diagram:



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

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

Cross Section of a Typical Lead-off Ditch



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

Formula for Spacing Interval of Lead-off Ditches

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

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

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

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

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

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

Fence Requirement

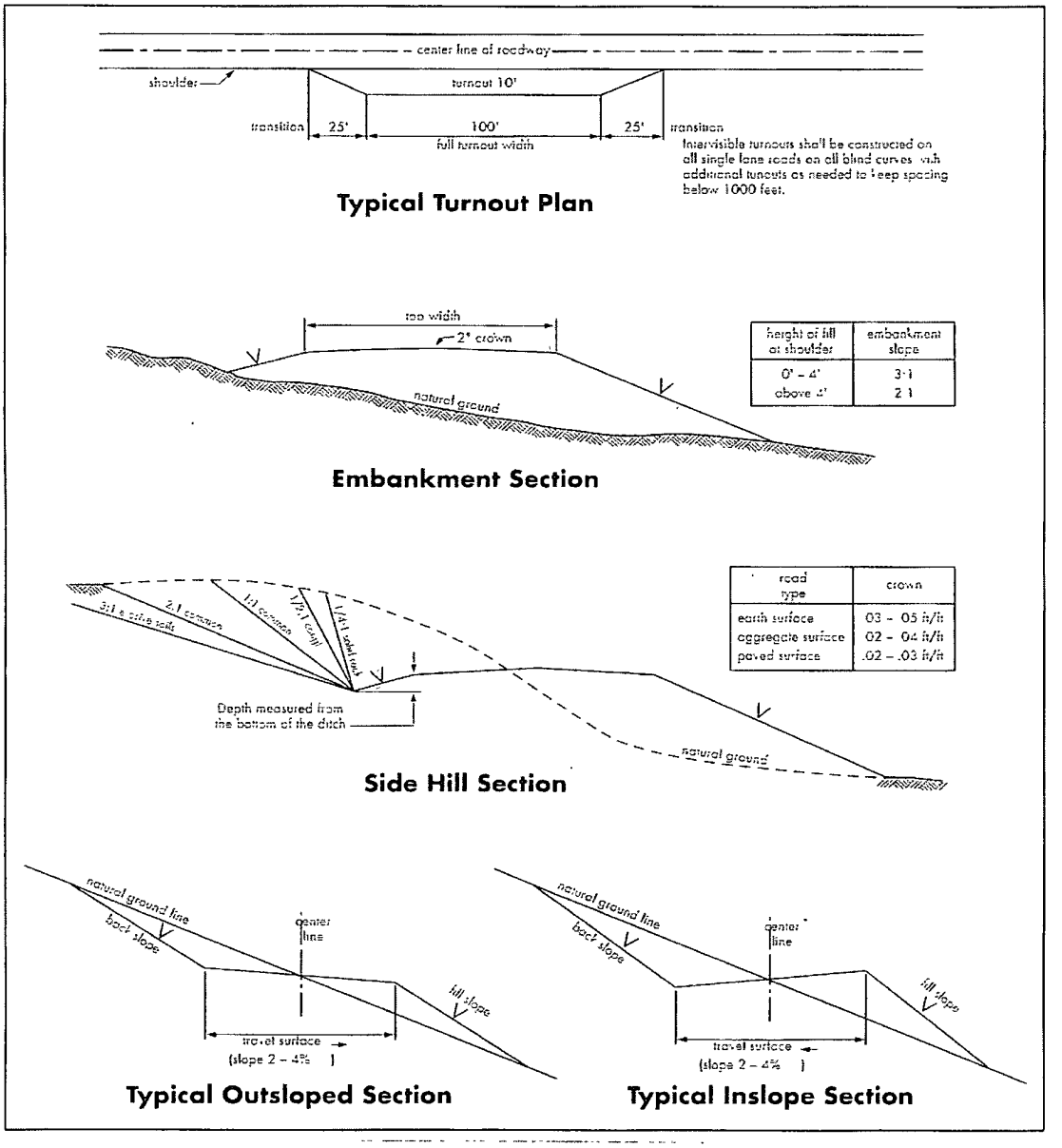
Where entry is required across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting.

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

Public Access

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

Figure 1 – Cross Sections and Plans For Typical Road Sections



VII. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

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

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

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

1. **Hydrogen Sulfide has been reported as a hazard, but no measurements have been recorded. It is recommended that monitoring equipment be onsite for potential Hydrogen Sulfide. If Hydrogen Sulfide is encountered, please report measurements and formations to the BLM.**

2. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval. **If the drilling rig is removed without approval – an Incident of Non-Compliance will be written and will be a "Major" violation.**

3. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works is located, this does not include the dog house or stairway area.

4. **The record of the drilling rate along with the GR/N well log run in the vertical portion of hole shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.**

B. CASING

Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.).

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

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

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

Possible water and brine flows in the Salado and Artesia Groups.
Possible Lost Circulation in the Grayburg and San Andres formations.

1. The **13-3/8** inch surface casing shall be set at approximately **765** feet **(a minimum of 25 feet into the Rustler Anhydrite and above the salt)** and cemented to the surface.

    a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.

    b. Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.

    c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.

    d. If cement falls back, remedial cementing will be done prior to drilling out that string.

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

    ☒ Cement to surface. If cement does not circulate, contact the appropriate BLM office.

3. The minimum required fill of cement behind the **7** inch production casing is:

    ☒ Cement to surface. If cement does not circulate, contact the appropriate BLM office.

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

   ☒ Cement not required – Packer/Port system to be used.

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

C. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.

2. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **3000 (3M)** psi.

   a. **For surface casing only:** If the BOP/BOPE is to be tested against casing, the wait on cement (WOC) time for that casing is to be met (see WOC statement at start of casing section). Independent service company required.

3. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.

   a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

   b. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (18 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).

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

d. All tests are required to be recorded on a calibrated test chart. **A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.**

e. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug.

D. DRILL STEM TEST

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

E. WASTE MATERIAL AND FLUIDS

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

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

CRW 050412

VIII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

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

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

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

B. PIPELINES

STANDARD STIPULATIONS FOR SURFACE INSTALLED PIPELINES

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

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

1. The holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.

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

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

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

a. Activities of the holder including, but not limited to construction, operation, maintenance, and termination of the facility.

b. Activities of other parties including, but not limited to:

(1) Land clearing.
(2) Earth-disturbing and earth-moving work.
(3) Blasting.
(4) Vandalism and sabotage.

c. Acts of God.

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

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

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

of any responsibility as provided herein.

6. The pipeline shall be routed no farther than 6 feet from and parallel to existing roads. The authorized right-of-way width will be **20** feet. 14 feet of the right-of-way width will consist of existing disturbance (existing lease roads) and the remaining 6 feet will consist of area adjacent to the disturbance. All construction and maintenance activity will be confined to existing roads.

7. No blading or clearing of any vegetation will be allowed unless approved in writing by the Authorized Officer.

8. The holder shall install the pipeline on the surface in such a manner that will minimize suspension of the pipeline across low areas in the terrain. In hummocky of duney areas, the pipeline will be "snaked" around hummocks and dunes rather then suspended across these features.

9. The pipeline shall be buried with a minimum of **24** inches under all roads, "two-tracks," and trails. Burial of the pipe will continue for 20 feet on each side of each crossing. The condition of the road, upon completion of construction, shall be returned to at least its former state with no bumps or dips remaining in the road surface.

10. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

11. In those areas where erosion control structures are required to stabilize soil conditions, the holder will install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound resource management practices.

12. Excluding the pipe, all above-ground structures not subject to safety requirement shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be a color which simulates "Standard Environmental Colors" – **Shale Green**, Munsell Soil Color No. 5Y 4/2; designated by the Rocky Mountain Five State Interagency Committee.

13. The pipeline will be identified by signs at the point of origin and completion of the right-of-way and at all road crossings. At a minimum, signs will state the holder's name, BLM serial number, and the product being transported. Signs will be maintained in a legible condition for the life of the pipeline.

14. The holder shall not use the pipeline route as a road for purposes other than routine

maintenance as determined necessary by the Authorized Officer in consultation with the holder. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway.

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

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

IX. INTERIM RECLAMATION

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

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

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

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

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

X. FINAL ABANDONMENT & RECLAMATION

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

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

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

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

Ground-level Abandoned Well Marker to avoid raptor perching: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well.

Seed Mixture for LPC Sand/Shinnery Sites

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

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

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

Species	lb/acre
Plains Bristlegrass	5lbs/A
Sand Bluestem	5lbs/A
Little Bluestem	3lbs/A
Big Bluestem	6lbs/A
Plains Coreopsis	2lbs/A
Sand Dropseed	1lbs/A

*Pounds of pure live seed:

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