AFS-11-870

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

5 Lease Serial No.
NMNM-83591

6 If Indian, Allotee or Tribe Name
N/A

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

1a Type of work ☑ DRILL ☐ REENTER

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

8 Lease Name and Well No.
GISSLER FEDERAL #5H [302499]

2 Name of Operator
COG Operating LLC [229137]

9 API Well No.
30-015- 39947

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

3b Phone No. *(include area code)*
(432) 685-4385

10 Field and Pool, or Exploratory
MAT Loco; Glorieta-Yeso [97566]

4. Location of Well *(Report location clearly and in accordance with any State requirements *)*
At surface **330' FSL & 330' FWL, Unit M**
At proposed prod zone **330' FSL & 330' FEL, Unit P**

11 Sec, T R. M or Blk. and Survey or Area
Sec 5, T17S, R30E

14 Distance in miles and direction from nearest town or post office*
2.5 miles Northeast 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 drlg. unit line, if any)	16 No of acres in lease	17 Spacing Unit dedicated to this well
330'	**1602**	**160**
18 Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft	19 Proposed Depth	20 BLM/BIA Bond No on file
1340'	**4600' TVD, 9012' MD**	**NMB000740; NMB000215**
21 Elevations (Show whether DF, KDB, RT, GL, etc)	22. Approximate date work will start*	23 Estimated duration
3685' GL	**08/31/2011**	**10 days**

24. Attachments

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

1 Well plat certified by a registered surveyor.
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)*	Date
	Kelly J. Holly	**06/08/2011**

Title
Permitting Tech

Approved by *(Signature)* /S/ JEANETTE MARTINEZ	Name *(Printed/Typed)*	Date FEB 8 2012
Title for 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

RECEIVED
FEB 14 2012
NMOCD ARTESIA

Approval Subject to General Requirements & Special Stipulations Attached

SEE ATTACHED FOR CONDITIONS OF APPROVAL

CERTIFICATION:

I hereby certify that I have inspected the proposed drill site and access route proposed herein; that I am familiar with the conditions which currently exist; that I have knowledge of state and Federal laws applicable to this operation; that the statements made in the 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 which it is approved. I also certify that I, or the company I represent, am/is 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 a false statement.

Executed this November 23 2011

George R. Smith

George R. Smith
POA agent for Lime Rock Resources IIA, L.P.
P.O. Box 458
Roswell, NM 88202
575-623-4940

Sid Ashworth
111 Bagby St., Suite 4600
Houston, TX 77002
713-292-9526 (office)
713-906-7750 (cell)

POWER OF ATTORNEY

DESIGNATION OF AGENT

LIME ROCK RESOURCES A, L.P. hereby names the following person as its agent:

Name of Agent: George R. Smith d/b/a/ Energy Administrative Services Company

Agent's Address: P.O. Box 458, Roswell, NM 88202

Agent's Telephone Number: (575) 623-4940

GRANT OF SPECIAL AUTHORITY

LIME ROCK RESOURCES A, L.P. grants its agent the authority to act for it with respect to the following only:

1. Executing forms required to be filed with the Oil Conservation Division of the New Mexico Energy, Minerals and Natural Resources Department.

2. Executive forms required to be filed with the Bureau of Land Management of the Department of Interior of the United States of America.

EFFECTIVE DATE

This power of attorney is effective immediately.

RELIANCE ON THIS POWER OF ATTORNEY

Any person, including the agent, may rely upon the validity of this power of attorney or a copy of it unless that person knows it has terminated or is invalid.

SIGNATURE AND ACKNOWLEDGMENT

LIME ROCK RESOURCES A, L.P.

By: _____

Name: Charles Adcock

Title: Managing Director – Lime Rock Resources, G.P.

Date: 10/27/2008

Address: 1111 Bagby Street, Suite 4600, Houston, TX 77002

Telephone Number: (713) 292-9512

State of TEXAS
County of HARRIS

This instrument was acknowledged before me on October 27, 2008 by Charles Adcock, Managing Director of LIME ROCK RESOURCES A, L.P. acting on behalf of said limited partnership.

Signature of notarial officer: _____
My commission expires: August 5, 2012

TERRIE POOL
Notary Public, State of Texas
My Commission Expires
August 05, 2012

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 July, 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- 39947	97866	MAR Loco; Glorieta-Yeso

Property Code	Property Name	Well Number
302499	GISSLER FEDERAL	5H

OGRID No.	Operator Name	Elevation
229137	COG OPERATING, LLC	3686'

Surface Location

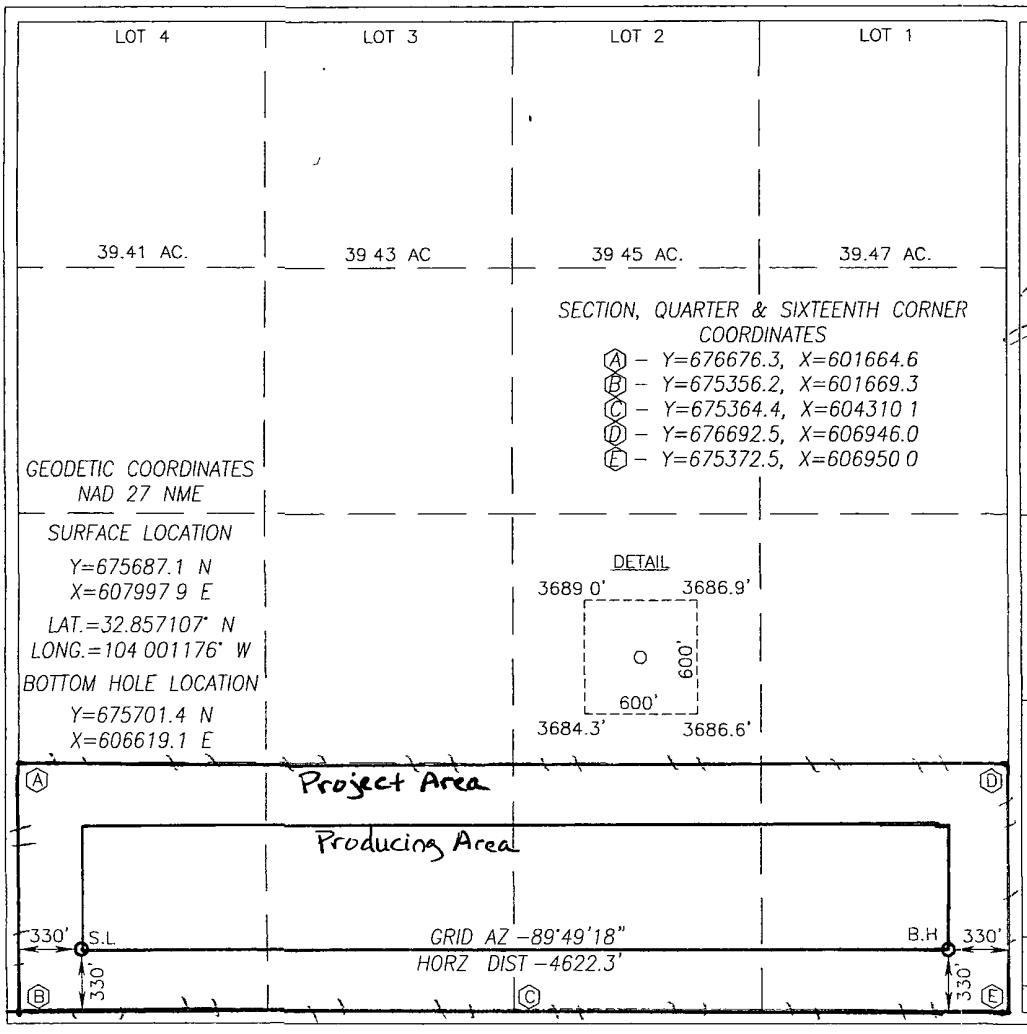
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	5	17-S	30-E		330	SOUTH	330	WEST	EDDY

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	5	17-S	30-E		330	SOUTH	330	EAST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
160			

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



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 7/27/2011 Date

Robyn Odom
Printed Name

Rodom@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.

JULY 12, 2011
Date of Survey

Signature & Seal of Professional Surveyor:

RONALD J. EIDSON NEW MEXICO 3239 REGISTERED PROFESSIONAL SURVEYOR

Ronald J. Eidson 7/25/2011

Certificate Number Gary G. Eidson 12641
Ronald J. Eidson 3239

LA REV 7/25/11 JWSC W.O.: 11.11.1494

SECTION 5, TOWNSHIP 17 SOUTH, RANGE 30 EAST, N.M.P.M.

EDDY COUNTY NEW MEXICO

LINE TABLE

LINE	BEARING	DISTANCE	LINE	BEARING	DISTANCE
L1	S44°30'42E	658 0' (TIE)	L23	S89°58'43"W	477 0'
L2	S16°04'07"W	36.1'	L24	N04°20'20"W	2924.2' (TIE)
L3	S81°55'08"E	663.7'	L25	N09°33'47"W	2956 8' (TIE)
L4	S36°43'01"W	220 3'	L26	S89°58'43"W	340 6'
L5	N01°14'29"E	130.1'	L27	N15°55'27"W	3031.9' (TIE)
L6	S67°12'02"E	1205.4 (TIE)	L28	N21°13'08"W	3127.5' (TIE)
L7	S51°36'45"E	1246.0' (TIE)	L29	S89°58'43"W	359 9'
L8	S81°58'07"E	797 8'	L30	N27°05'59"W	3274 8' (TIE)
L9	S79°41'12"E	584 7'	L31	S71°20'04"W	2079 0'
L10	S00°02'38"E	61 1'	L32	S41°50'49"E	140.9'
L11	S57°51'50"E	380 6'	L33	S68°59'12"W	3009 4' (TIE)
L12	S01°01'30"E	11 7'	L34	N54°01'11"E	1874 0' (TIE)
L13	N00°00'41"E	135 9'	L35	N07°36'12"E	290.3'
L14	N63°58'17"W	446 6'	L36	N71°47'34"E	904 1' (TIE)
L15	S11°32'24"W	838 0' (TIE)	L37	S89°58'43"W	359 9'
L16	S43°41'33"W	1075 3' (TIE)	L38	N62°24'17"E	980 3' (TIE)
L17	S46°08'22"W	679 7' (TIE)	L39	N50°43'32"E	1172 0' (TIE)
L18	S65°15'07"W	981.6' (TIE)	L40	N28°59'19"E	1020.3' (TIE)
L19	S55°35'53"W	3627 4' (TIE)	L41	S24°41'39"E	1212 0' (TIE)
L20	S44°23'55"E	70 6'	L42	S13°17'50"W	1011 1'
L21	N79°59'53"W	2999.2' (TIE)	L43	N25°26'37"E	615 4' (TIE)
L22	N05°00'44"E	2927.2' (TIE)	L44	S60°06'34"W	537 4' (TIE)

NOTE

BEARINGS SHOWN HEREON ARE MERCATOR GRID AND CONFORM TO THE NEW MEXICO COORDINATE SYSTEM "NEW MEXICO EAST ZONE" NORTH AMERICAN DATUM 1983. DISTANCES ARE SURFACE VALUES

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

COG OPERATING, LLC

SURVEY OF ACCESS ROADS IN THE GISSLER FEDERAL LEASE CROSSING SECTION 5, TOWNSHIP 17 SOUTH, RANGE 30 EAST, N.M.P.M., EDDY COUNTY, NEW MEXICO

Survey Date 9/13/11		Sheet 2 of 2 Sheets	
W O Number. 11.11 1897		Drawn By ACR	
Date 10/21/11	Rev	CAD 11111897	Rel W O

ATTACHMENT TO FORM 3160-3
COG Operating, LLC
Gissler Federal #5H
SHL: 330' FSL & 330' FWL, Unit M
BHL: 330' FSL & 330' FEL, Unit P
Sec 5, T17S, R30E
Eddy County, NM

1. Proration Unit Spacing: 160 Acres

2. Ground Elevation: 3685'

3. Proposed Depths: Horizontal TVD = 4,850', MD = 9,012'

4. Estimated tops of geological markers:

Quaternary	Surface
Top of Salt	500'
Base of Salt	1000'
Yates	1250'
Seven Rivers	1475'
Queen	2150'
Grayburg	2550'
San Andres	2875'
Glorieta	4300'
Paddock	4400'
Blinebry	4800'
Tubb	5900'

5. Possible mineral bearing formations:

Water Sand	150'	Fresh Water
Grayburg	2550'	Oil/Gas
San Andres	2875'	Oil/Gas
Glorieta	4300'	Oil/Gas
Paddock	4400'	Oil/Gas
Blinebry	4800'	Oil/Gas
Tubb	5900'	Oil/Gas

No other formations are expected to give up oil, gas or fresh water in measurable quantities. Setting 13 3/8" casing to ~~450'~~ and circulating cement back to the surface will protect the surface fresh water sand. The Salt Section will be protected by setting 9 5/8" casing to 1350' and circulating cement, in a single or multi-stage job and/or with an ECP, back to the surface. Any shallower zones above TD, which contain commercial quantities of oil and/or gas, will have cement circulated across them. This will be achieved by cementing, with a single or multi-stage job, the 5 1/2" production casing back 200' into the intermediate casing (although cement volume is actually calculated to surface), to be run at TD. If wellbore conditions arise that require immediate action and/or a change to this program, COG Operating LLC personnel will always react to protect the wellbore and/or environment.

See COA

See COA

6. Casing Program - **Proposed**

Hole size	Interval	OD of Casing	Weight	Cond.	Collar	Grade
17-1/2"	0' - +/-~~450~~ 355'	13-3/8"	48#	New	STC	H-40 or J/K-55
Collapse sf – 3.87, Burst sf – 8.70, Tension sf – 14.91						
12-1/4"	0' - +/-1350'	9-5/8"	36#	New	STC	J/K-55
Collapse sf – 2.88, Burst sf – 5.01, Tension sf – 8.11						
8-3/4"	0' – 9012'	5-1/2"	17#	New	LTC	L-80
Collapse sf – 2.74, Burst sf – 3.37, Tension sf – 4.22						

See COA

7. Cement Program

13 3/8" Surface Csg: Set at +/- ~~450~~'MD, Lead Slurry: 450sx Class "C" w/ 2% CaCl2 & .25 pps CF, 1.32 yield. 90% excess, calculated to surface.

9 5/8" Intrmd. Csg: Set at +/- 1350'MD. **Single Stage:** Lead Slurry: 300 sx 50:50:10:C:Poz:Gel w/ 5% salt, 5 pps LCM-1 .25 pps CF, 2.45 yield. Tail Slurry: 200 sx Class "C" w/ 2% CaCl2, 1.32 yield. 194% excess, calculated to surface.

See COA

Multi Stage: **Stage 1:** 200 sx Class "C" w/ 2% CaCl2, 1.32 yield. 194% excess. **Stage 2:** 300 sx 50:50:10:C:Poz:Gel w/ 5% salt, 5 pps LCM-1 .25 pps CF, 2.45 yield, back to surface, 176% excess; assumption for tool is lost circulation. Multi stage tool to be set at approximately, depending on hole conditions, 500' (50' below the surface casing). Cement volumes will be adjusted proportionately for depth changes of multi stage tool.

5 1/2" Production Csg: Set at +/- 9,012'MD. **Single Stage:** Lead Slurry: 500 sx 35:65:6:C:Poz:Gel w/ 5% salt, 5 pps LCM, .2% SMS, .3% FL-52A, .125 pps CF, 2.01 yd. Inter. Slurry: 400 sx 50:50:2:C:Poz:Gel w/ 5% salt, 3 pps LCM, .6% SMS, 1% FL-25, 1% BA-58, .125 pps CF, .3% FL-52A; 1.37 yield Tail Slurry: 600 sx Class "H" SOLUCEM-H w/ .7% HR-601, 2.62 yield 21% excess in open hole, calculated to surface.

See COA

Multi Stage: **Stage 1:** (Assumed TD of 9,012'MD to DV at 2900') Lead Slurry: 400 sx 50:50:2:C:Poz:Gel w/ 5% salt, 3 pps LCM, .6% SMS, 1% FL-25, 1% BA-58, .125 pps CF, .3% FL-52A; 1.37 yield Tail Slurry: 600 sx Class "H" SOLUCEM-H w/ .7% HR-601, 2.62 yield; 10% excess. **This is a minimum volume and will be adjusted up after caliper is run.** **Stage 2:** Lead Slurry: 400 sx 50:50:2:C:Poz:Gel w/ 5% salt, 3 pps LCM, .6% SMS, 1% FL-25, 1% BA-58, .125 pps CF, .3% FL-52A; 1.37 yield. Tail Slurry: 250 sx Class C w/ 0.3% R-3 + 1.5% CD-32, 1.02 yield. 30% excess calculated back to surface (no need for excess in casing overlap).
Multi stage tool to be set at approximately, depending on hole conditions, 2900'. Cement volumes will be adjusted proportionately for depth changes of multi stage tool; assumption for use of tool is water flow.

8. Pressure Control Equipment:

The blowout preventer equipment (BOP) shown in Exhibit #9 will consist of a double ram-type (2000 psi WP) preventer, and in some cases possibly a 2000 psi Hydril type annular preventer as provided for in Onshore Order #2. This unit will be hydraulically operated and the ram type preventer will be equipped with blind rams on top of 4 1/2" drill pipe rams on the bottom. A 13-5/8" will be used during the drilling of the well. The BOP will be nipped up on the 13 3/8" surface casing with BOP equipment and tested to 2000 psi. After setting 9-5/8" the BOP will then be nipped up on the 9-5/8" intermediate casing and tested by a third party to 2000 psi and used continuously until total depth is reached. Pipe rams will be operationally checked each 24-hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment (Exhibit #10) will include a Kelly cock and floor safety valve, choke lines and a choke manifold (Exhibit #11) with a 2000 psi WP rating.

9. Proposed Mud Circulating System

Interval	Mud Wt.	Visc.	FL	Type Mud System
0' - 450' 355	8.5	28	NC	Fresh water native mud w/ paper for seepage and sweeps. Lime for PH.
450'- 1350'	10	30	NC	Brine mud, lime for PH and paper for seepage and sweeps.
1350'- 9,012'	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.

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

10. Production Hole Drilling Summary:

Drill 8 ¾" hole and kick off at +/- 4120', building curve over +/- 750' to horizontal at 4600' TVD. Drill horizontal section in a Easterly direction for +/-4140' lateral to TD at +/-9012' MD, 4600' TVD. Run 5-1/2" production casing in Open hole lateral and cement to surface.

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. No electric logging to be performed on this well. See COA

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

    C. Drill Stem test is not anticipated.

    D. No conventional coring is anticipated.

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

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

    No abnormal pressures or temperatures are anticipated. The estimated bottom hole at TD is 90 degrees and estimated maximum bottom hole pressure is 1800 psig. Measurable gas volumes or Hydrogen Sulfide levels have not been encountered during drilling operations in this area, however 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 ***August 15, 2011*** with drilling and completion operations lasting approximately ***90*** days.

CONCHO

COG Operating LLC

Eddy County, NM (NAN27 NME)
Gissler Federal #5H
Gissler Federal #5H

OH

Plan: Plan #1 - 6-1/8" Hole
SHL = 330' FSL & 330' FWL
BHL = 330' FSL & 330' FEL

Standard Planning Report

16 May, 2011

Scientific Drilling
Directional Drilling Operations

Database:	EDM-Julio	**Local Co-ordinate Reference:**	Site Gissler Federal #5H
Company:	COG Operating LLC	**TVD Reference:**	GL Elev @ 3685 40usft
Project:	Eddy County, NM (NAN27 NME)	**MD Reference:**	GL Elev @ 3685 40usft
Site:	Gissler Federal #5H	**North Reference:**	Grid
Well:	Gissler Federal #5H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1 - 6-1/8" 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	Gissler Federal #5H				
Site Position:		**Northing:**	675,687 60 usft	**Latitude:**	32° 51' 25.589 N
From:	Map	**Easting:**	601,999 00 usft	**Longitude:**	104° 0' 4 221 W
Position Uncertainty:	0 00 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0 18 °

Well	Gissler Federal #5H					
Well Position	**+N/-S**	0 00 usft	**Northing:**	675,687 60 usft	**Latitude:**	32° 51' 25 589 N
	+E/-W	0 00 usft	**Easting:**	601,999 00 usft	**Longitude:**	104° 0' 4 221 W
Position Uncertainty		0 00 usft	**Wellhead Elevation:**		**Ground Level:**	3,685.40 usft

Wellbore	OH				
Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	IGRF2010	2011/05/16	7 84	60 70	48,956

Design	Plan #1 - 6-1/8" Hole				
Audit Notes:					
Version:		**Phase:**	PLAN	**Tie On Depth:**	0 00
Vertical Section:	**Depth From (TVD) (usft)**	**+N/-S (usft)**	**+E/-W (usft)**	**Direction (°)**	
	0.00	0.00	0.00	89 82	

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 00	0 00	0 00	0 00	0 00	0.00	0 00	0 00	0 00	0.00	
4,122 54	0 00	0 00	4,122 54	0 00	0 00	0.00	0 00	0 00	0 00	
4,872 54	90 00	89.82	4,600 00	1 48	477 46	12 00	12 00	0 00	89 82	
9,011 99	90 00	89.82	4,600 00	14 30	4,616 90	0 00	0 00	0 00	0 00	PBHL-Gissler #5H

Database:	EDM-Julio	**Local Co-ordinate Reference:**	Site Gissler Federal #5H
Company:	COG Operating LLC	**TVD Reference:**	GL Elev @ 3685.40usft
Project:	Eddy County, NM (NAN27 NME)	**MD Reference:**	GL Elev @ 3685 40usft
Site:	Gissler Federal #5H	**North Reference:**	Grid
Well:	Gissler Federal #5H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1 - 6-1/8" 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 00	0 00	0 00	0 00	0.00	0 00	0 00	0 00	0.00	0.00
1,254 00	0 00	0 00	1,254.00	0.00	0.00	0.00	0 00	0.00	0 00
Yates									
2,144 00	0 00	0.00	2,144 00	0 00	0 00	0 00	0 00	0.00	0 00
Queen									
2,883.00	0 00	0 00	2,883 00	0 00	0 00	0 00	0 00	0 00	0 00
San Andres									
4,122 54	0 00	0 00	4,122 54	0 00	0 00	0 00	0 00	0.00	0 00
KOP Start Build 12.00°/100'									
4,200 00	9 30	89 82	4,199 66	0 02	6 27	6 27	12 00	12.00	0 00
4,300 00	21 30	89.82	4,295 94	0 10	32 60	32 60	12 00	12 00	0 00
4,314 10	22 99	89 82	4,309 00	0.12	37 92	37 92	12 00	12 00	0.00
Glorieta									
4,388.55	31 92	89 82	4,375 00	0.22	72 21	72 21	12.00	12 00	0 00
Paddock									
4,400.00	33.30	89 82	4,384 64	0 24	78 38	78 38	12 00	12 00	0 00
4,500 00	45 30	89.82	4,461 89	0.44	141 59	141 59	12 00	12 00	0 00
4,600.00	57 30	89.82	4,524 31	0.68	219 49	219 49	12 00	12 00	0 00
4,700 00	69 30	89 82	4,569 16	0 96	308 66	308.66	12.00	12 00	0 00
4,800.00	81 30	89 82	4,594 50	1.26	405 21	405 21	12.00	12 00	0 00
4,872 54	90 00	89 82	4,600 00	1 48	477 47	477 47	12 00	12.00	0.00
EOC hold 90.00°									
4,900.00	90 00	89 82	4,600 00	1 56	504.93	504 93	0 00	0 00	0 00
5,000 00	90 00	89 82	4,600 00	1 87	604 93	604 93	0 00	0 00	0 00
5,100.00	90 00	89.82	4,600 00	2 18	704 93	704 93	0 00	0 00	0 00
5,200.00	90 00	89 82	4,600.00	2 49	804 93	804.93	0 00	0 00	0 00
5,300 00	90 00	89 82	4,600 00	2 80	904 93	904 93	0 00	0 00	0.00
5,400 00	90 00	89.82	4,600 00	3 11	1,004.92	1,004 93	0 00	0.00	0.00
5,500 00	90 00	89 82	4,600 00	3 42	1,104 92	1,104 93	0 00	0.00	0.00
5,600 00	90 00	89 82	4,600 00	3 73	1,204 92	1,204 93	0 00	0 00	0 00
5,700 00	90 00	89 82	4,600 00	4 04	1,304 92	1,304 93	0 00	0 00	0 00
5,800 00	90.00	89 82	4,600 00	4 35	1,404.92	1,404 93	0 00	0 00	0 00
5,900.00	90 00	89 82	4,600 00	4 66	1,504 92	1,504 93	0 00	0 00	0 00
6,000 00	90 00	89.82	4,600 00	4 97	1,604.92	1,604 93	0 00	0 00	0 00
6,100 00	90 00	89 82	4,600.00	5 28	1,704 92	1,704.93	0.00	0 00	0 00
6,200.00	90 00	89.82	4,600 00	5 59	1,804 92	1,804 93	0.00	0 00	0.00
6,300.00	90 00	89 82	4,600 00	5 90	1,904.92	1,904 93	0 00	0.00	0 00
6,400 00	90 00	89 82	4,600 00	6 21	2,004 92	2,004 93	0 00	0 00	0 00
6,500 00	90 00	89 82	4,600.00	6 52	2,104 92	2,104 93	0 00	0 00	0 00
6,600 00	90 00	89 82	4,600 00	6 83	2,204 92	2,204 93	0 00	0 00	0 00
6,700 00	90 00	89.82	4,600 00	7 14	2,304 92	2,304 93	0.00	0.00	0 00
6,800 00	90 00	89 82	4,600.00	7 45	2,404 92	2,404.93	0.00	0 00	0 00
6,900 00	90 00	89 82	4,600 00	7 76	2,504 92	2,504 93	0 00	0 00	0.00
7,000 00	90 00	89.82	4,600 00	8 07	2,604 92	2,604 93	0 00	0 00	0 00
7,100 00	90 00	89 82	4,600 00	8 38	2,704 92	2,704.93	0 00	0.00	0 00
7,200 00	90 00	89 82	4,600 00	8 69	2,804 92	2,804 93	0 00	0 00	0 00
7,300.00	90 00	89 82	4,600 00	9 00	2,904.92	2,904 93	0 00	0 00	0 00
7,400.00	90 00	89 82	4,600 00	9.31	3,004 92	3,004 93	0.00	0 00	0 00
7,500 00	90 00	89.82	4,600.00	9 62	3,104 91	3,104 93	0.00	0 00	0 00
7,600.00	90 00	89.82	4,600 00	9 93	3,204 91	3,204.93	0 00	0 00	0 00
7,700.00	90 00	89.82	4,600 00	10 24	3,304 91	3,304 93	0.00	0 00	0 00
7,800.00	90 00	89 82	4,600 00	10 55	3,404 91	3,404 93	0.00	0 00	0 00
7,900 00	90 00	89 82	4,600 00	10 86	3,504 91	3,504 93	0 00	0 00	0 00

Database:	EDM-Julio	**Local Co-ordinate Reference:**	Site Gissler Federal #5H
Company:	COG Operating LLC	**TVD Reference:**	GL Elev @ 3685 40usft
Project:	Eddy County, NM (NAN27 NME)	**MD Reference:**	GL Elev @ 3685.40usft
Site:	Gissler Federal #5H	**North Reference:**	Grid
Well:	Gissler Federal #5H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1 - 6-1/8" 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)
8,000 00	90 00	89.82	4,600 00	11.17	3,604 91	3,604 93	0.00	0 00	0 00
8,100 00	90.00	89 82	4,600 00	11 48	3,704.91	3,704.93	0 00	0 00	0 00
8,200 00	90 00	89 82	4,600 00	11 79	3,804 91	3,804 93	0 00	0 00	0 00
8,300 00	90 00	89 82	4,600 00	12 09	3,904 91	3,904 93	0.00	0.00	0 00
8,400 00	90 00	89.82	4,600 00	12 40	4,004 91	4,004 93	0 00	0 00	0 00
8,500 00	90.00	89 82	4,600 00	12.71	4,104 91	4,104 93	0 00	0.00	0.00
8,600.00	90 00	89.82	4,600 00	13 02	4,204 91	4,204 93	0.00	0 00	0 00
8,700 00	90 00	89 82	4,600 00	13 33	4,304 91	4,304 93	0 00	0 00	0 00
8,800 00	90 00	89 82	4,600 00	13.64	4,404 91	4,404 93	0 00	0.00	0 00
8,900 00	90.00	89 82	4,600 00	13.95	4,504 91	4,504 93	0 00	0.00	0 00
9,000.00	90 00	89 82	4,600 00	14 26	4,604 91	4,604 93	0 00	0 00	0 00
9,011.99	90 00	89.82	4,600 00	14.30	4,616 90	4,616 92	0 00	0.00	0 00
PBHL-Gissler #5H									

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-Gissler #5H - plan hits target center - Point	0 00	0 01	4,600 00	14.30	4,616 90	675,701 90	606,615 90	32° 51' 25.584 N	103° 59' 10 096 W

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,254 00	1,254 00	Yates			
2,144.00	2,144 00	Queen			
2,883 00	2,883 00	San Andres			
4,314.10	4,309 00	Glorieta			
4,388 55	4,375 00	Paddock			

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
4,122 54	4,122 54	0 00	0.00	KOP Start Build 12.00°/100'
4,872 54	4,600 00	1 48	477 47	EOC hold 90 00°

CONCHO

Scientific Drilling for COG Operating LLC
Site: Eddy County, NM (NAN27 NME)
Well: Gissler Federal #5H
Wellbore: OH
Design: Plan #1 - 6-1/8" Hole

Scientific Drilling
Directional Drilling Operations

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.00	0 00	0.00	0 00	0.00	0 00	0 00	0 00	0.00	
2	4122 54	0 00	0.00	4122.54	0.00	0 00	0.00	0 00	0.00	
3	4872.54	90 00	89.82	4600 00	1.48	477 46	12 00	89 82	477.46	
4	9011 99	90 00	89 82	4600.00	14 30	4616 90	0.00	0 00	4616.92	PBHL-Gissler #5H

Plan: Plan #1 - 6-1/8" Hole (Gissler Federal #5H/OH)

Created By: Julio Pina Date 16-May-11

Checked: _____ Date. _____

Reviewed: _____ Date: _____

WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
PBHL-Gissler #5H	4600 00	14.30	4616 90	675701.90	606615.90	32°51' 25.584 N	103°59' 10.096 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 7.66°
To convert a True Direction to a Grid Direction, Subtract 0.18°

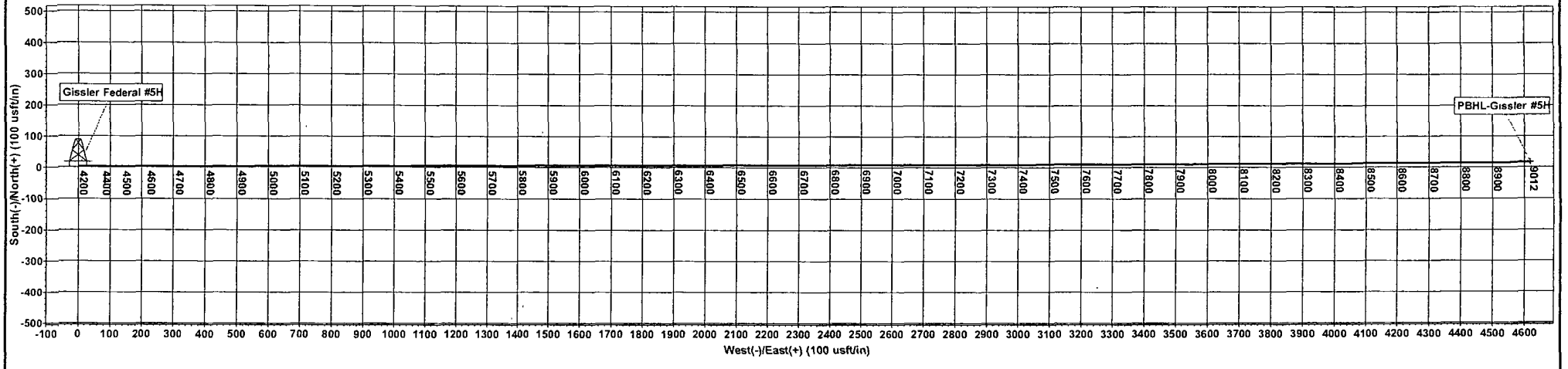
PROJECT DETAILS: Eddy County, NM (NAN27 NME)

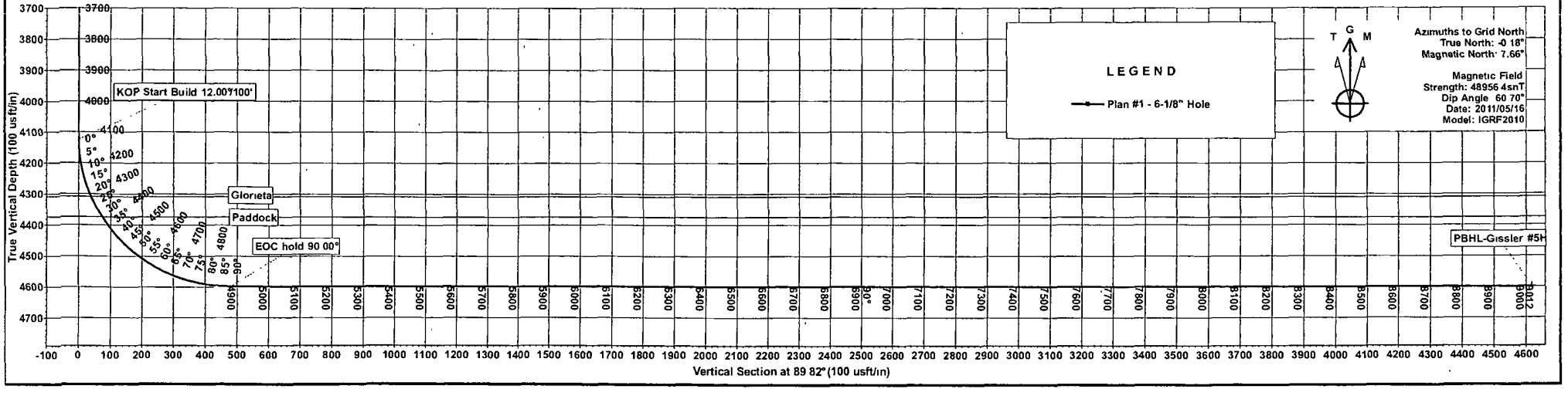
Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico East 3001
System Datum: Mean Sea Level

WELL DETAILS. Gissler Federal #5H

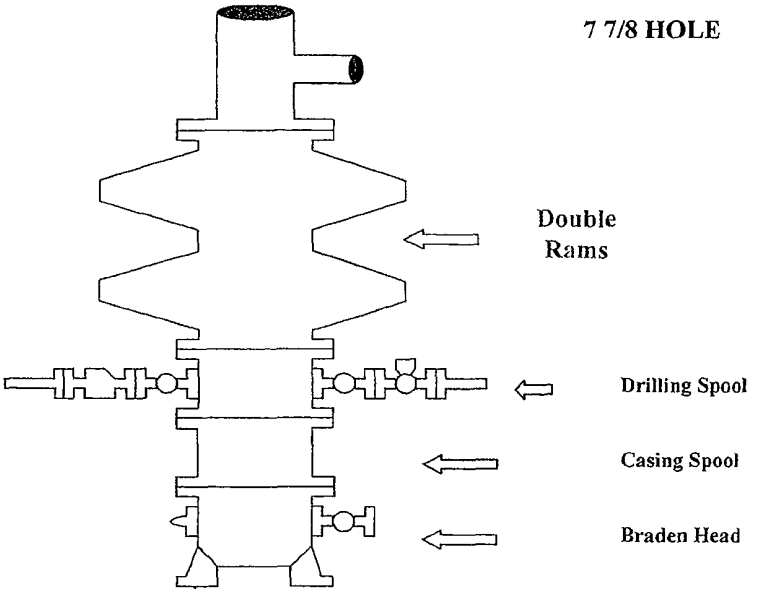
Ground Level: 3685 40

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	675687 60	601999.00	32°51' 25.589 N	104°0' 4 221 W	



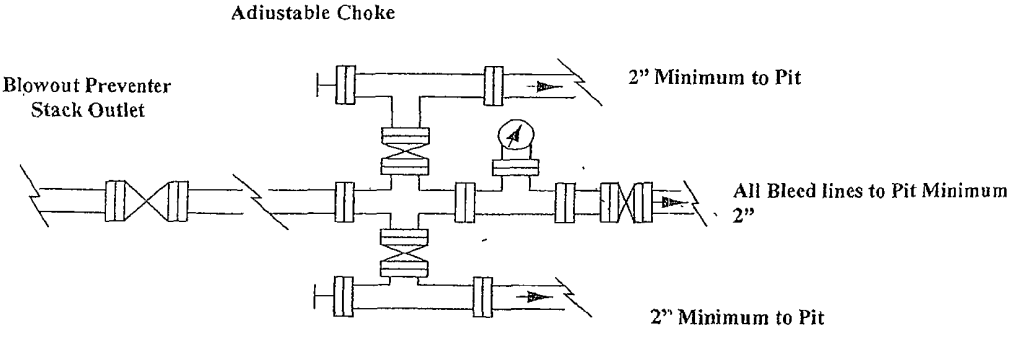


COG Operating LLC
Exhibit #9
BOPE and Choke Schematic



Minimum 4" Nominal choke and kill lines

Choke Manifold Requirement (2000 psi WP)
No Annular Required



Adjustable Choke
(or Positive)

NOTES REGARDING THE BLOWOUT PREVENTERS
Master Drilling Plan
Eddy County, New Mexico

1. Drilling nipple to be so constructed that it can be removed without use of a welder through rotary table opening, with minimum I.D. equal to preventer bore.
2. Wear ring to be properly installed in head.
3. Blow out preventer and all fittings must be in good condition, 2000 psi WP minimum.
4. All fittings to be flanged.
5. Safety valve must be available on rig floor at all times with proper connections, valve to be full 2000 psi WP minimum.
6. All choke and fill lines to be securely anchored especially ends of choke lines.
7. Equipment through which bit must pass shall be at least as large as the diameter of the casing being drilled through.
8. Kelly cock on Kelly.
9. Extension wrenches and hands wheels to be properly installed.
10. Blow out preventer control to be located as close to driller's position as feasible.
11. Blow out preventer closing equipment to include minimum 40-gallon accumulator, two independent sources of pump power on each closing unit installation all API specifications.

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.**

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 H_2S

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

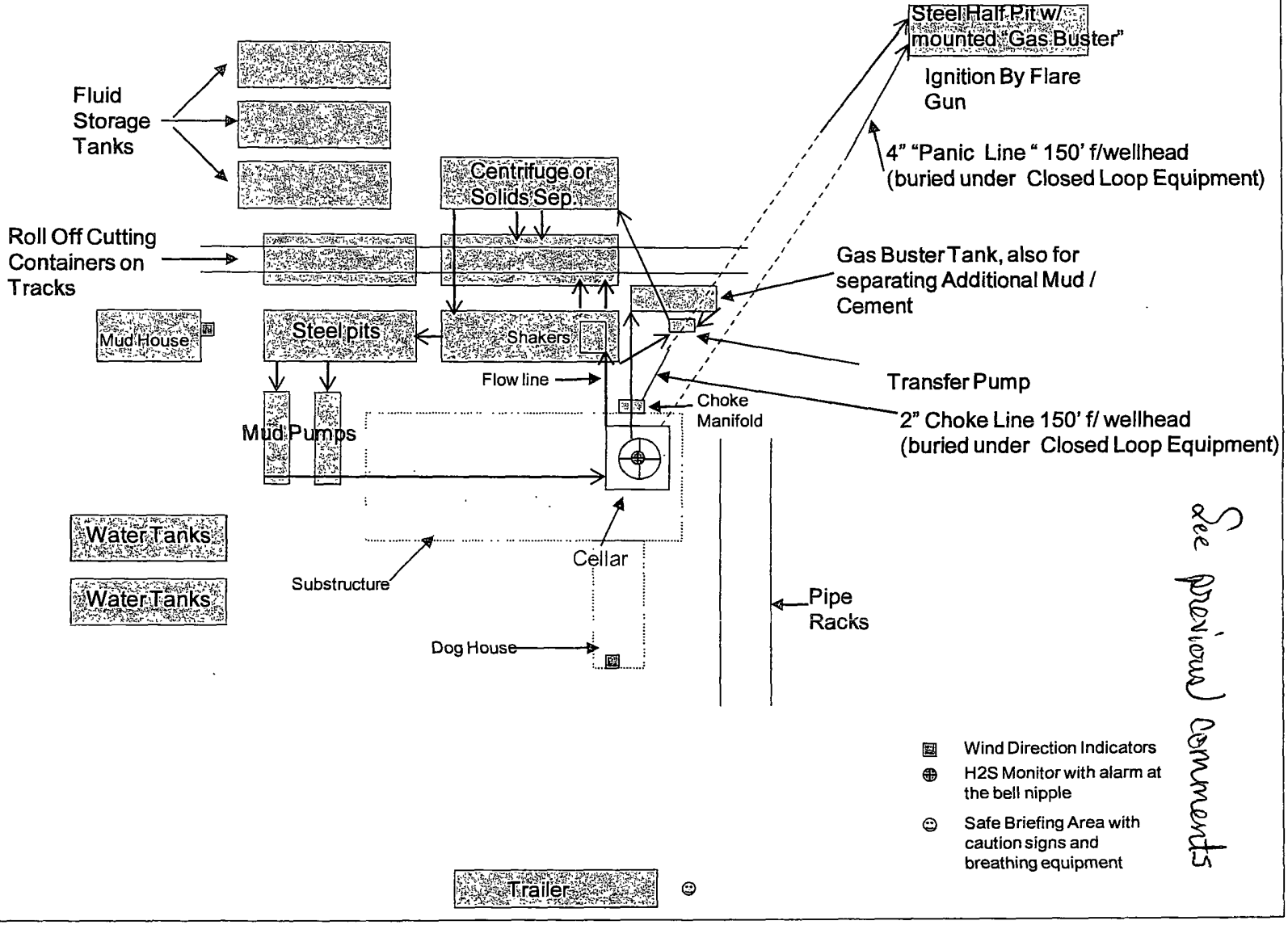
1-575-746-2010

EDDY COUNTY EMERGENCY NUMBERS	*LEA COUNTY EMERGENCY NUMBERS*
ARTESIA FIRE DEPT. 575-746-5050	HOBBS FIRE DEPT. 575-397-9308
ARTESIA POLICE DEPT. 575-746-5000	HOBBS POLICE DEPT. 575-397-9285
EDDY CO. SHERIFF DEPT. 575-746-9888	LEA CO. SHERIFF DEPT. 575-396-1196

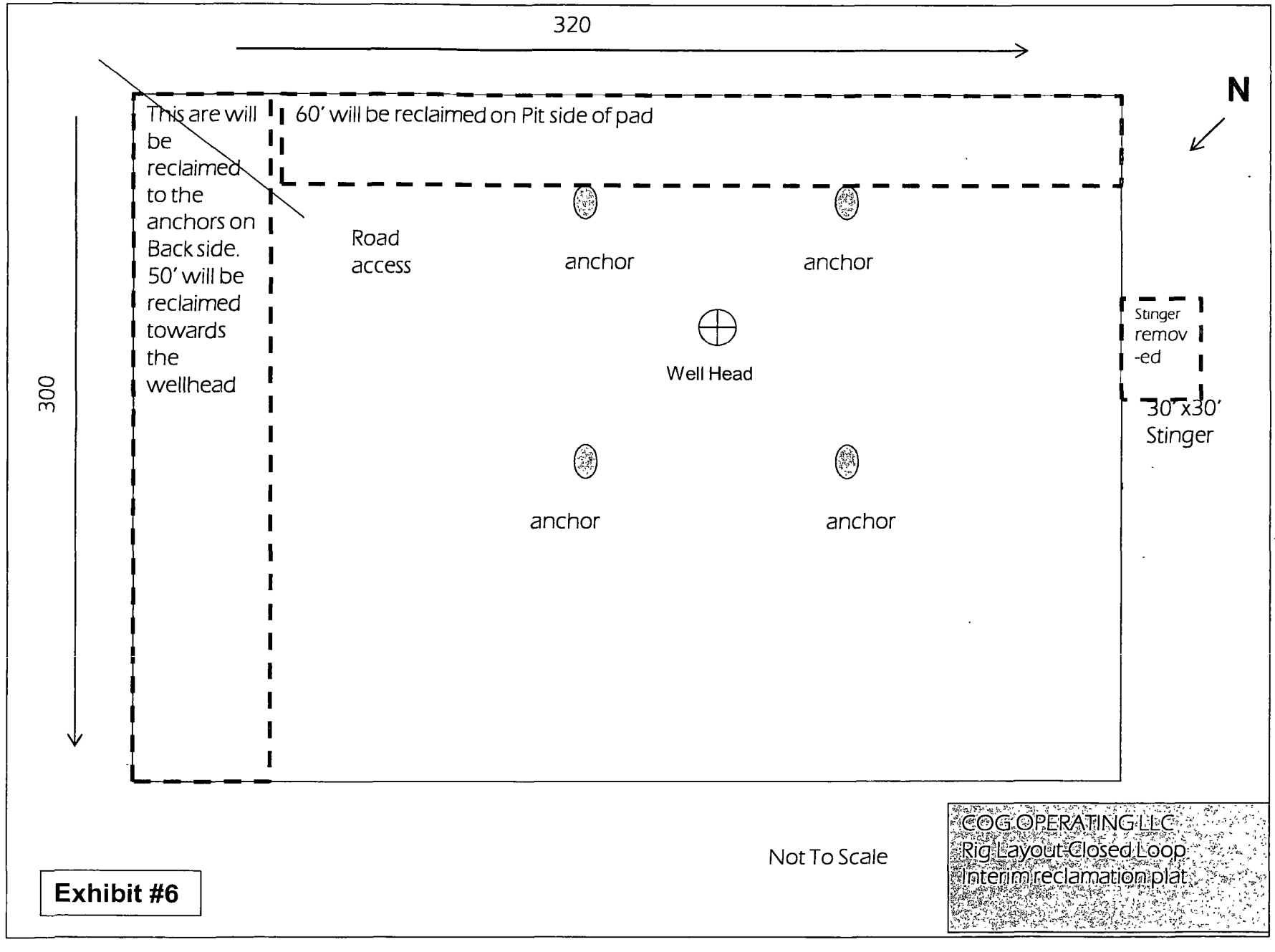
COG Operating LLC

EXHIBIT 8

Drilling Location - H2S Safety Equipment Diagram



See previous comments


320
N
This are will be reclaimed to the anchors on Back side. 50' will be reclaimed towards the wellhead
60' will be reclaimed on Pit side of pad
Road access
anchor
anchor
Well Head
Stinger remov -ed
30' x30' Stinger
300
anchor
anchor
Not To Scale
COG OPERATING LLC
Rig Layout Closed Loop
Interim reclamation plat
Exhibit #6

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	COG Operating LLC
LEASE NO.:	NM-83591
WELL NAME & NO.:	Gissler Federal #5
SURFACE HOLE FOOTAGE:	0330' FSL & 0330' FWL
BOTTOM HOLE FOOTAGE	0330' FSL & 0330' FEL
LOCATION:	Section 5, T. 17 S., R. 30 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)

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.

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 4 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.

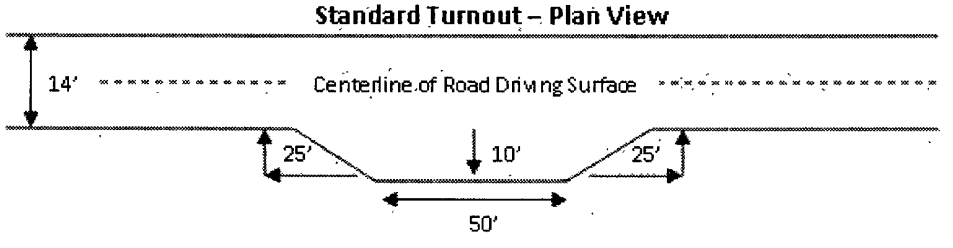
The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing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

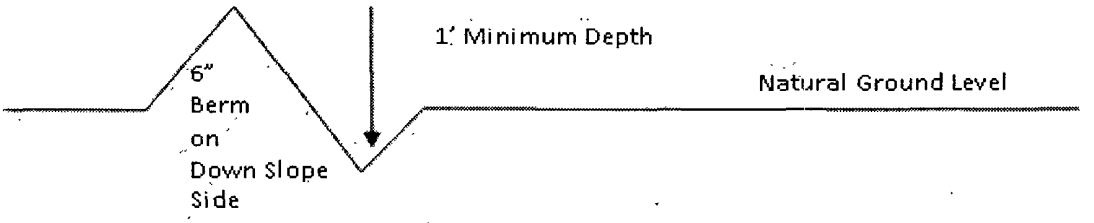
Turnouts
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall be constructed on all blind curves. Turnouts shall conform to the following diagram:



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

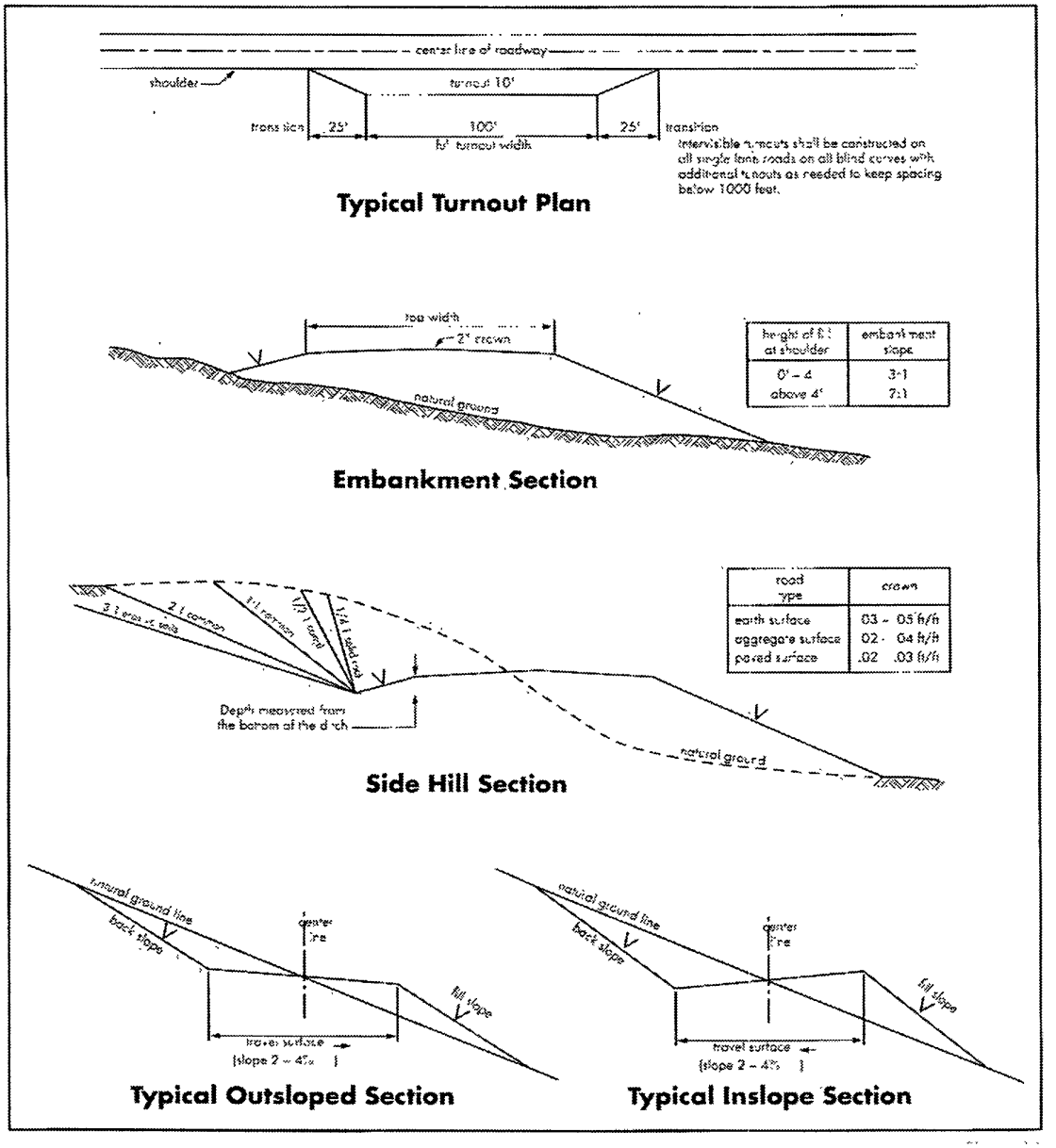
Where entry is required across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting.

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. A Hydrogen Sulfide (H2S) Drilling Plan should be activated 500 feet prior to drilling into the **Grayburg** formation. **As a result, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values 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. **The record of the drilling rate along with the GR/N well log run from TD to surface will be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. 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 and cement program require submitting a sundry and receiving approval prior to work. Failure to obtain approval prior to work will result in an Incident of Non-Compliance being issued.

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

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

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

Possible water and brine flows in the Salado and Artesia Group.
Possible lost circulation in the Grayburg and San Andres formations.

1. The **13-3/8** inch surface casing shall be set at **approximately 355 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:

    ☒ As proposed. If cement does not circulate see B.1.a, c-d above.

Operator has proposed DV tool at depth of 500', but will adjust cement proportionately if moved. DV tool SHALL be set a minimum of 50' below previous shoe and a minimum of 200' above current shoe. Operator shall submit sundry if DV tool depth cannot be set in this range. If an ECP is used, it is to be set a minimum of 50' below the shoe to provide cement across the shoe. If it cannot be set below the shoe, a CBL shall be run to verify cement coverage.

a. First stage to DV tool:

☒ Cement to circulate. If cement does not circulate, contact the appropriate BLM office before proceeding with second stage cement job. Operator should have plans as to how they will achieve circulation on the next stage. **Additional cement may be required – excess calculates to -17%.**

b. Second stage above DV tool:

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

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

☒ As proposed. Operator shall provide method of verification.

Operator has proposed DV tool at depth of 2900', but will adjust cement proportionately if moved. DV tool shall be set a minimum of 50' below previous shoe and a minimum of 200' above current shoe. Operator shall submit sundry if DV tool depth cannot be set in this range.

a. First stage to DV tool:

☒ Cement to circulate. If cement does not circulate, contact the appropriate BLM office before proceeding with second stage cement job. Operator should have plans as to how they will achieve tie-back on the next stage.

b. Second stage above DV tool:

☒ Cement as proposed. Operator shall provide method of verification. **Additional cement may be required – excess calculates to 6%.**

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. Proposed blowout preventer (BOP) and related equipment (BOPE) meets minimum requirement.

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 or where the float does not hold, the minimum wait time before cut-off is eight hours after bumping the plug or when the cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. BOP/BOPE testing can begin after the above conditions are satisfied.

   b. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer**. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (18 hours) or potash (24 hours) 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 020712

VIII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

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

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

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

B. PIPELINES

STANDARD STIPULATIONS FOR SURFACE INSTALLED PIPELINES

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

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

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

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

3. The holder agrees to indemnify the United States against any liability arising from the

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

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

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

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

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

c. Acts of God.

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

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

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

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