ATS-10-637

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-0467931

6 If Indian, Allotee or Tribe Name
N/A

1a. Type of work ☑ DRILL ☐ REENTER

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

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

8. Lease Name and Well No.
Electra Federal #56 302483

2 Name of Operator
COG Operating LLC 229137

9 API Well No.
30-015- 38181

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
Loco Hills; Glorieta Yeso 96718

4. Location of Well *(Report location clearly and in accordance with any State requirements *)*
At surface **SHL: 2290' FNL & 825' FEL, Unit H**
At proposed prod. zone **BHL: 2310' FNL & 330' FEL, Unit H**

RECEIVED
SEP 07 2010
NMOCD ARTESIA

11. Sec., T R M. or Blk and Survey or Area
Sec 10, T17S, R30E

14 Distance in miles and direction from nearest town or post office*
2 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)
825'

16 No. of acres in lease
640

17 Spacing Unit dedicated to this well
40

18 Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft
1060'

19 Proposed Depth
TVD 6150'
MD 6174'

20 BLM/BIA Bond No. on file
NMB000215

21 Elevations (Show whether DF, KDB, RT, GL, etc)
3730' GL

22. Approximate date work will start*
10/30/2010

23. Estimated duration
10 days

24. Attachments

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

1 Well plat certified by a registered surveyor.
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)*: **Robyn M. Odom** — Date: **07/19/2010**

Title: **Regulatory Analyst**

Approved by *(Signature)* — Name *(Printed/Typed)* — Date: AUG 31 2010

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)*

KZ 09/17/10

Roswell Controlled Water Basin

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

APPROVAL SUBJECT TO
GENERAL REQUIREMENTS
AND SPECIAL STIPULATIONS
ATTACHED

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 and Natural Resources Department

OIL CONSERVATION DIVISION
11885 SOUTH ST. FRANCIS DR.
Santa Fe, New Mexico 87505

Form C-102
Revised October 12, 2005
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number	Pool Code	Pool Name
30-015- 38181	96718	LOCO HILLS; GLORIETA-YESO

Property Code	Property Name	Well Number
302483	ELECTRA FEDERAL	56

OGRID No.	Operator Name	Elevation
229137	COG OPERATING, LLC	3730'

Surface Location

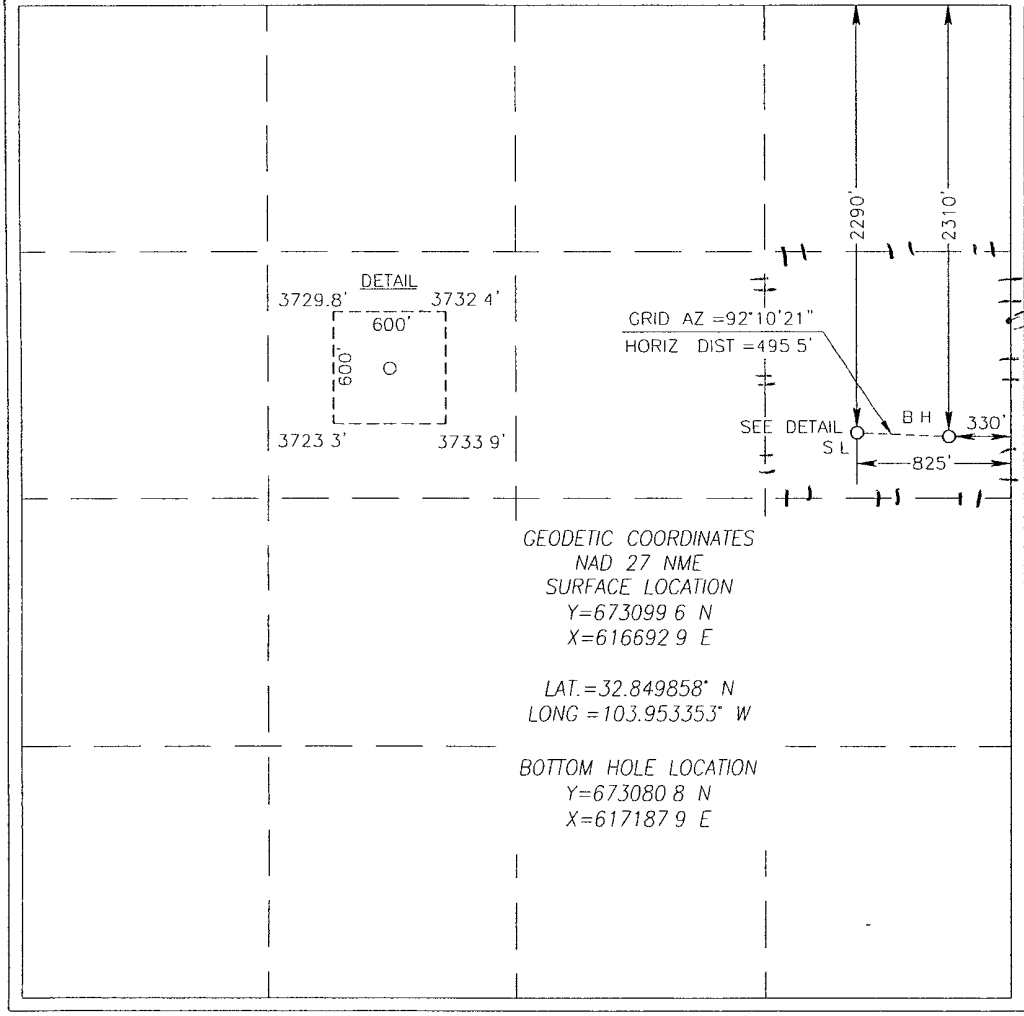
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
H	10	17-S	30-E		2290	NORTH	825	EAST	EDDY

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
H	10	17-S	30-E		2310	NORTH	330	EAST	EDDY

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
40			

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



GEODETIC COORDINATES
NAD 27 NME
SURFACE LOCATION
Y=673099.6 N
X=616692.9 E

LAT.=32.849858° N
LONG=103.953353° W

BOTTOM HOLE LOCATION
Y=673080.8 N
X=617187.9 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 7/14/2010

Robyn Odom
Printed Name

SURVEYOR CERTIFICATION

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

RONALD J. EIDSON
JULY 16, 2010
NEW MEXICO
3239
LA

Date Surveyed

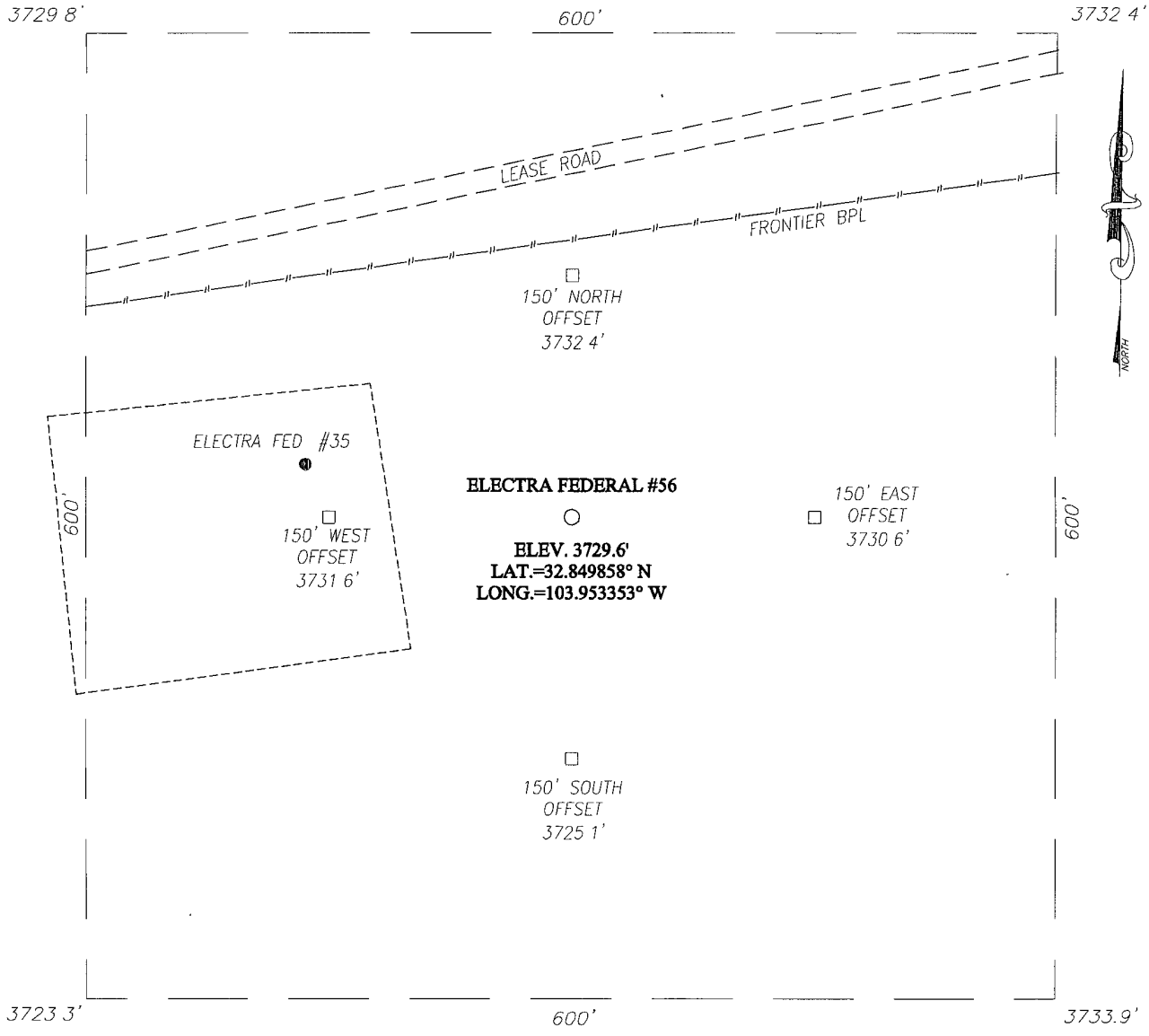
Signature & Seal of Professional Surveyor

Ronald J. Eidson 07/13/2010

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

SECTION 10, TOWNSHIP 17 SOUTH, RANGE 30 EAST, N.M.P.M.,

EDDY COUNTY, NEW MEXICO



DIRECTIONS TO LOCATION

FROM THE INTERSECTION OF U S HWY #82 AND CO RD #219 (GOAT ROPERS RD), GO NORTH ON CO RD #219 APPROX. 2 0 MILES TURN RIGHT AND GO EAST APPROX 0 9 MILES. TURN LEFT AND GO NORTH APPROX 0 5 MILES TURN RIGHT AND GO EAST APPROX 0.5 MILES TURN RIGHT AND GO EAST APPROX 0 5 MILES TO THE ELECTRA FED #35 WELL PAD THE LOCATION STAKE IS APPROX 155 FEET EAST OF EXIST WELL

100 0 100 200 Feet

Scale: 1"=100'

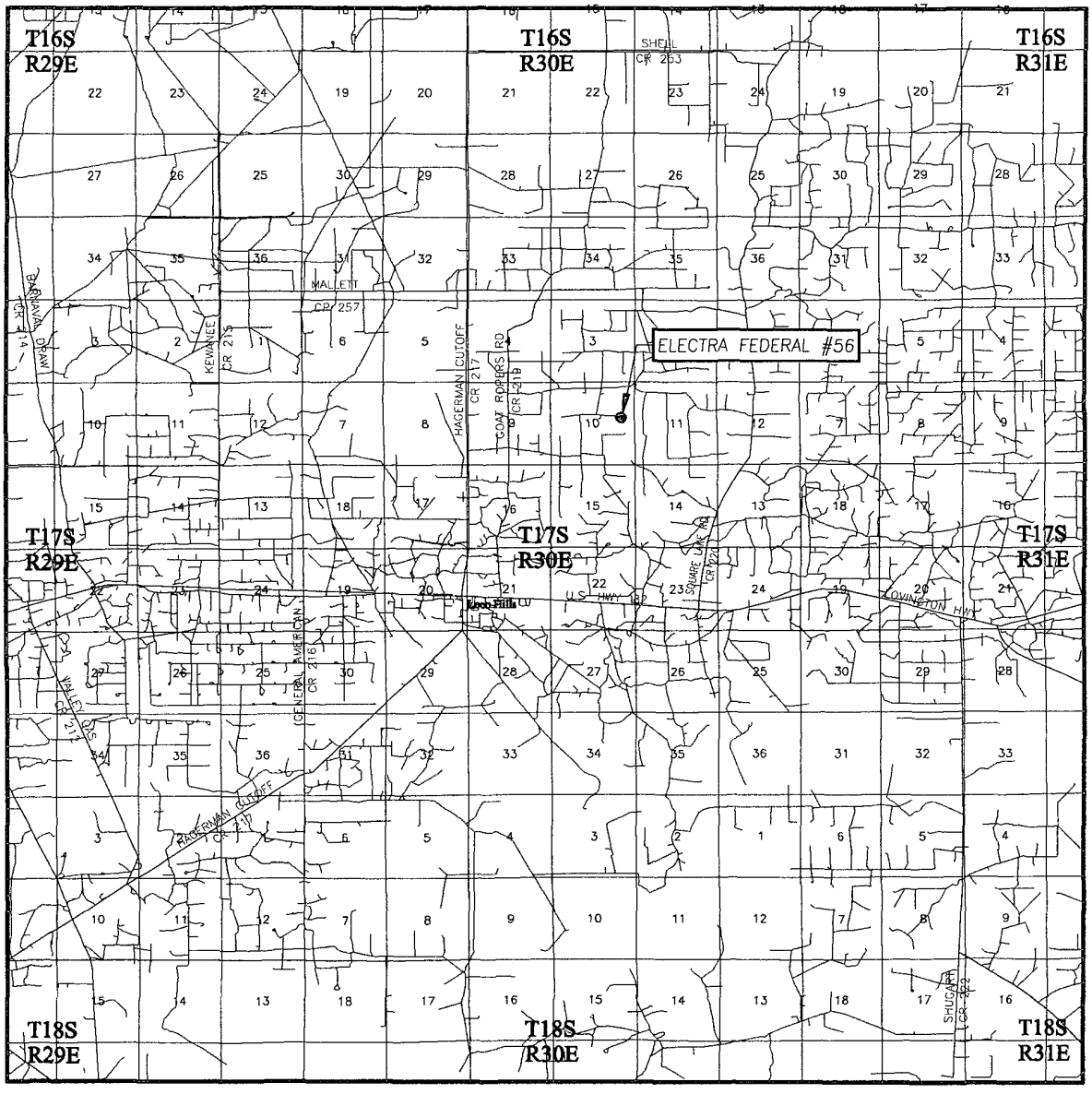
PROVIDING SURVEYING SERVICES
SINCE 1946
JOHN WEST SURVEYING COMPANY
412 N DAL PASO
HOBBS, N M 88240
(575) 393-3117

COG OPERATING, LLC

ELECTRA FEDERAL #56 WELL
LOCATED 2290 FEET FROM THE NORTH LINE
AND 825 FEET FROM THE EAST LINE OF SECTION 10,
TOWNSHIP 17 SOUTH, RANGE 30 EAST, N M P M ,
EDDY COUNTY, NEW MEXICO

Survey Date 7/7/10		Sheet 1 of 1 Sheets	
W O Number 10 11 0898	Dr By LA		Rev 1 N/A
Date 7/9/10		10110898	Scale 1"=100'

VICINITY MAP



SCALE. 1" = 2 MILES

SEC. 10 TWP 17-S RGE. 30-E

SURVEY N.M P.M

COUNTY EDDY STATE NEW MEXICO

DESCRIPTION 2290' FNL & 825' FEL

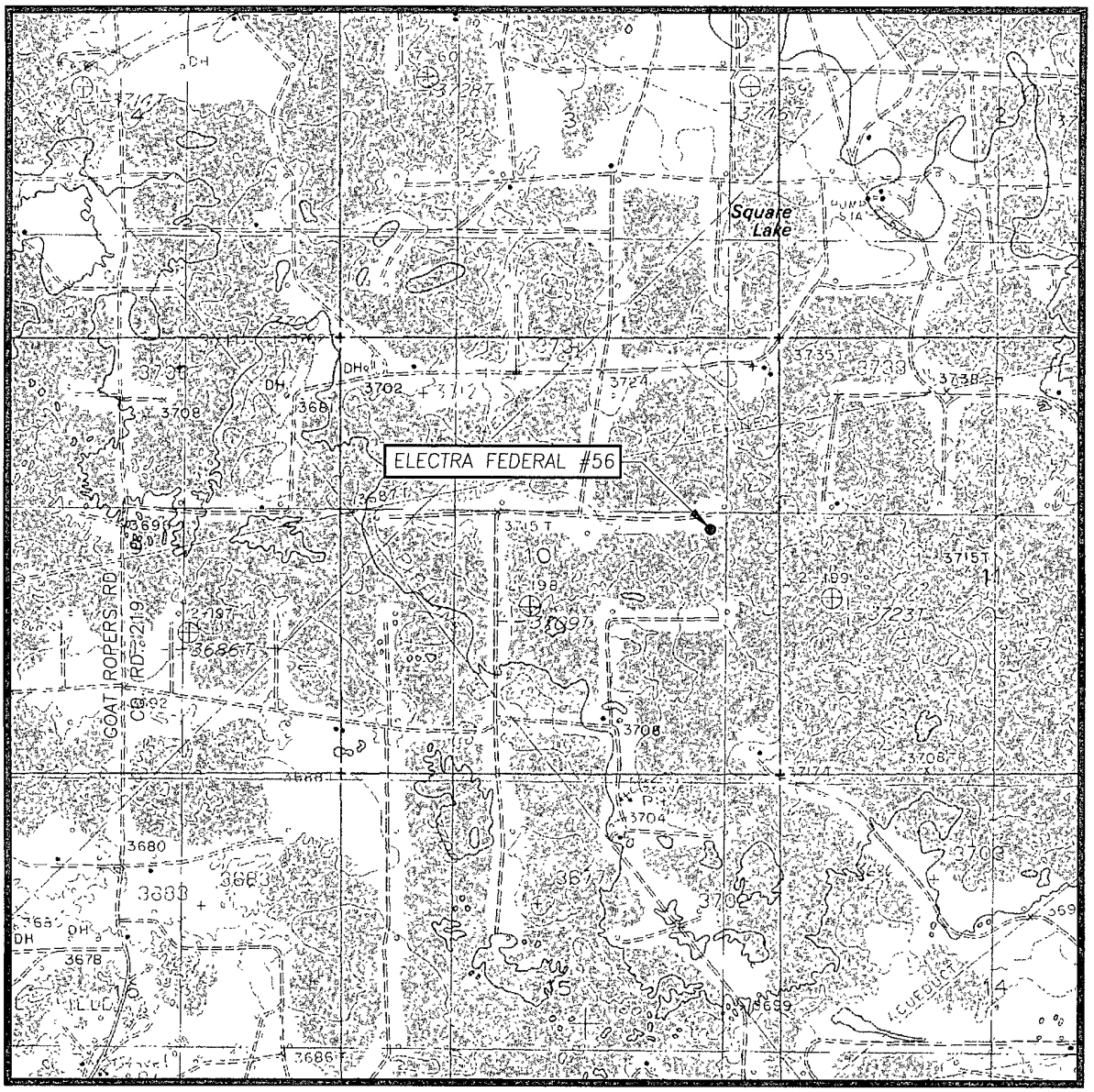
ELEVATION 3730'

OPERATOR COG OPERATING, LLC

EDDYSE ELECTRA FEDERAL

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

LOCATION VERIFICATION MAP



SCALE: 1" = 2000'

CONTOUR INTERVAL:
LOCO HILLS, N.M. – 10'

SEC. 10 TWP 17-S RGE 30-E

SURVEY N.M.P.M

COUNTY EDDY STATE NEW MEXICO

DESCRIPTION 2290' FNL & 825' FEL

ELEVATION 3730'

OPERATOR COG OPERATING, LLC

EDDYSE ELECTRA FEDERAL

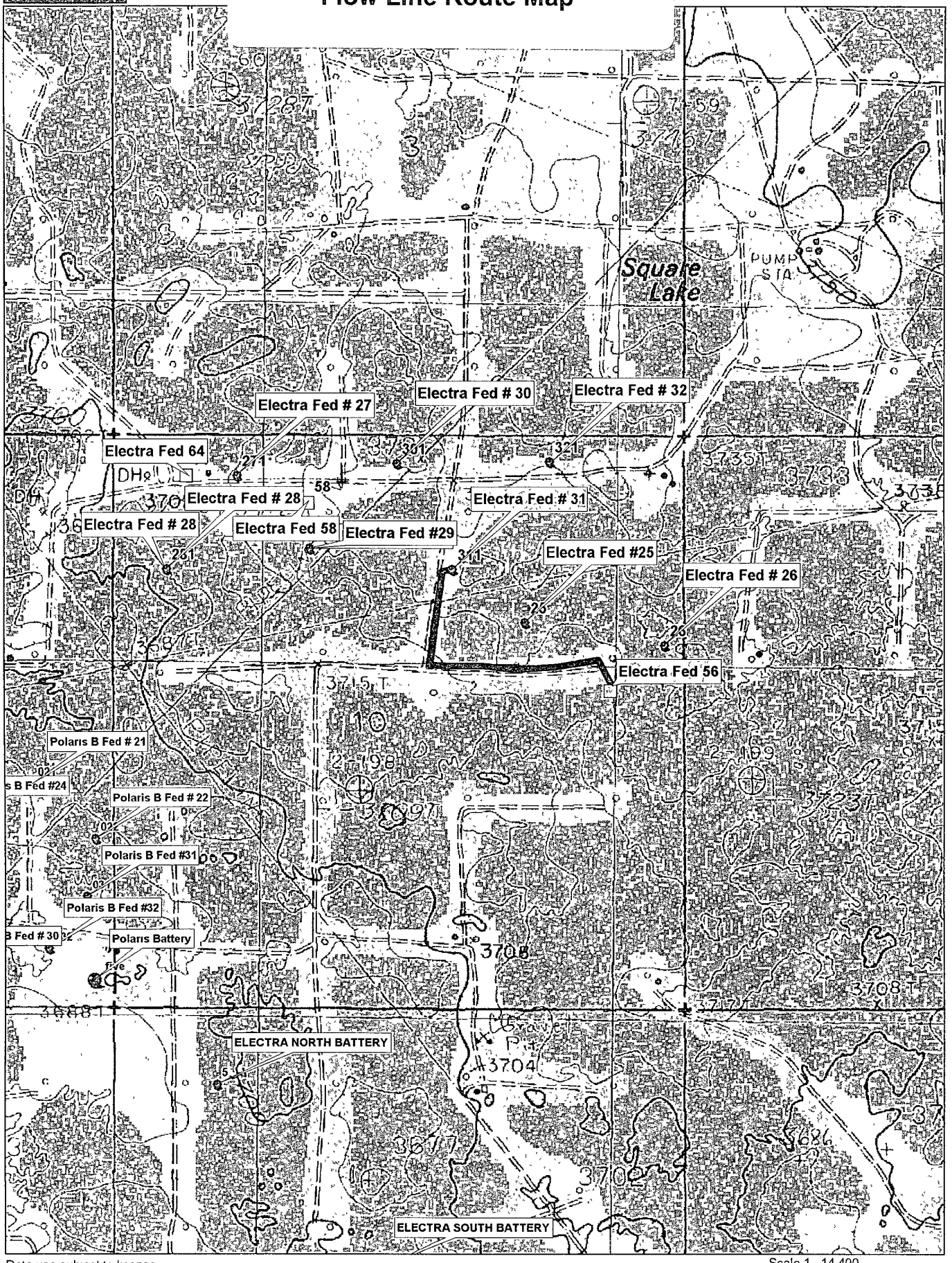
U.S.G.S TOPOGRAPHIC MAP
LOCO HILLS, N.M.

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

DeLORME

Flow Line Route Map

XMap® 7



Data use subject to license

© DeLorme XMap® 7

www delorme com

TN

MN (7 9°E)

Scale 1 14,400

0 400 800 1200 1600 2000 ft

0 120 240 360 480 600 m

1" = 1,200 0 ft

Data Zoom 13-7

MASTER DRILLING PROGRAM

1. Geologic Name of Surface Formation

Quaternary

2. Estimated Tops of Important Geologic Markers:

Quaternary	Surface
Top of Salt	500'
Base of Salt	1000'
Yates	1180'
Seven Rivers	1470'
Queen	2070'
Grayburg	2480'
San Andres	2780'
Glorietta	4220'
Yeso Group	4300'

3. Estimated Depths of Anticipated Fresh Water, Oil and Gas

Water Sand	150'	Fresh Water
Grayburg	2480'	Oil/Gas
San Andres	2780'	Oil/Gas
Glorietta	4220'	Oil/Gas
Yeso Group	4300'	Oil/Gas

No other formations are expected to give up oil, gas or fresh water in measurable quantities. Setting 13 3/8" casing to 425' and circulating cement back to the surface will protect the surface fresh water sand. The Salt Section will be protected by setting 8 5/8" casing to 1300' 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, 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 the environment.

See COA

See COA

See COA

4. Casing Program

Hole Size	Interval	OD Casing	Weight	Grade	Jt., Condition	Jt.	brst/clps/ten
17 ½"	0-425	13 3/8"	48#	H-40orJ-55	ST&C/New	ST&C	9.22/3.943/15.8
11"or	0-1300'	8 5/8"	24or32#	J-55	ST&C/New	ST&C	3.03/2.029/7.82
7 7/8"	0-TD	5 1/2"	15.5or17#	J-55orL-80	LT&C/New	LT&C	1.88/1.731/2 42

See COA

5. Cement Program

13 3/8" Surface Casing: Class C, 450 sx, yield 1.32, back to surface

8 5/8" Intermediate Casing:

11" Hole:

Single Stage: 50:50:10, 300 sx lead, yield-2.45 + Class C, 200 sx tail, yield-1.32, back to surface.

Multi-Stage: Stage 1: Class C, 300 sx, yield-1.32 Stage 2: Class C, 200 sx, yield-2.45, back to surface. Multi stage tool to be set at approximately, depending on hole conditions, 425'

See COA

5 1/2" Production Casing:

Single Stage: 35:65:6, 500 sx Lead, yield-2.05 + 50:50:2, 400 sx Tail, yield-1.37, to 200' minimum tie back to intermediate casing.

Multi-Stage: Stage 1: 50:50:2, 400 sx, yield-1.37 Stage 2: 35.65:6, 500 sx, yield-2.05, to 200' minimum tie back to intermediate casing. Multi stage tool to be set at approximately, depending on hole conditions, 2000'.

See COA

Operator to provide 100' range.

6. Minimum Specifications for Pressure Control

The blowout preventer equipment (BOP) shown in Exhibit #9 will consist of a double ram-type (2000 psi WP) preventer. 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. The BOP will be nippled up on the 13 3/8" surface casing with BOP equipment and tested ~~together to 1000 psi by rig pump in one test.~~ The BOP will then be nippled up on the 8 5/8" intermediate casing and tested by a third party to 2000 psi and used continuously until total depth is reached. All BOP's and accessory equipment will be tested to 2000 psi before drilling out of the intermediate casing. 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.

See COA

7. Types and Characteristics of the Proposed Mud System

The well will be drilled to TD with a combination of brine, cut brine and polymer mud system. The applicable depths and properties of this system are as follows:

DEPTH	TYPE	WEIGHT	VISCOSITY	WATERLOSS
0-425'	Fresh Water	8.5	28	N.C.
425-1300'	Brine	10	30	N.C.
1300'-TD	Cut Brine	8.7-9.1	29	N.C.

See COA

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

8. 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.

9. Logging, Testing and Coring Program See COA

A. The electric logging program will consist of GR-Dual Laterolog, Spectral Density, Dual Spaced Neutron, CSNG Log and will be run from TD to 8 5/8" casing shoe. See COA

B. Drill Stem test is not anticipated.

C. No conventional coring is anticipated.

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

10. Abnormal Conditions, Pressure, Temperatures and Potential Hazards

No abnormal pressures or temperatures are anticipated. The estimated bottom hole at TD is 110 degrees and the estimated maximum bottom hold pressure is 2300 psig. Measurable gas volumes or Hydrogen Sulfide levels have not been encountered during drilling operations in this area, although a Hydrogen Sulfide Drilling Operation Plan is attached to this program. No major loss of circulation zones has been reported in offsetting wells.

11. Anticipated Starting Date and Duration of Operations

Road and location work will not begin until approval has been received from the BLM. As this is a Master Drilling plan, please refer to the Form 3160-3 for the anticipated start date. Once commenced, drilling operations should be finished in approximately 12 days. If the well is productive, an additional 30 days will be required for completion and testing before a decision is made to install permanent facilities.

CONCHO

COG Operating LLC

Eddy County, NM (NAN27 NME)
Electra Federal #56
Electra Federal #56

OH

Plan: Plan #1 7-7/8" Hole
SHL = 2290' FNL & 825' FEL
BHL = 2260' FNL & 380' FEL
Paddock Top = 24' North of Loc & 345' East of Loc @ 4400' TVD

Standard Planning Report

21 July, 2010

Scientific Drilling
Directional Drilling Operations

Database:	EDM-Julio	**Local Co-ordinate Reference:**	Site Electra Federal #56
Company:	COG Operating LLC	**TVD Reference:**	GL Elev @ 3730 00usft
Project:	Eddy County, NM (NAN27 NME)	**MD Reference:**	GL Elev @ 3730 00usft
Site:	Electra Federal #56	**North Reference:**	Grid
Well:	Electra Federal #56	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1 7-7/8" 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 Electra Federal #56

Site Position.		**Northing:**	673,099 60 usft	**Latitude**	32° 50' 59 490 N
From	Map	**Easting:**	616,692 90 usft	**Longitude:**	103° 57' 12 070 W
Position Uncertainty.	0 00 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0 21 °

Well Electra Federal #56

Well Position	**+N/-S**	0 00 usft	**Northing.**	673,099 60 usft	**Latitude**	32° 50' 59 490 N
	+E/-W	0 00 usft	**Easting:**	616,692 90 usft	**Longitude**	103° 57' 12 070 W
Position Uncertainty		0 00 usft	**Wellhead Elevation**		**Ground Level**	3,730 00 usft

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	2010/07/21	7 91	60 74	49,072

Design Plan #1 7-7/8" 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	85 99

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	
1,450 00	0 00	0 00	1,450 00	0 00	0 00	0 00	0 00	0 00	0 00	
1,813 51	7 27	85 99	1,812 53	1 61	22 98	2 00	2 00	0 00	85 99	
4,221 24	7 27	85 99	4,200 91	22 92	326 92	0 00	0 00	0 00	0 00	
4,421 22	3 27	85 99	4,400 00	24 21	345 24	2 00	-2 00	0 00	-180 00	TG1-EF #56
6,174 07	3 27	85 99	6,150 00	31 20	445 00	0 00	0 00	0 00	0 00	PBHL-EF #56

Database:	EDM-Julio	**Local Co-ordinate Reference:**	Site Electra Federal #56
Company:	COG Operating LLC	**TVD Reference:**	GL Elev @ 3730 00usft
Project:	Eddy County, NM (NAN27 NME)	**MD Reference:**	GL Elev @ 3730 00usft
Site:	Electra Federal #56	**North Reference:**	Grid
Well:	Electra Federal #56	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1 7-7/8" 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
East HL-EF #56 - North HL-EF #56									
1,450 00	0 00	0 00	1,450 00	0 00	0 00	0 00	0 00	0 00	0 00
KOP Start Build 2.00°/100'									
1,500 00	1 00	85 99	1,500 00	0 03	0 44	0 44	2 00	2 00	0 00
1,600 00	3 00	85 99	1,599 93	0 27	3 92	3 93	2 00	2 00	0 00
1,700 00	5 00	85 99	1,699 68	0 76	10 87	10 90	2 00	2 00	0 00
1,800 00	7 00	85 99	1,799 13	1 49	21 30	21 35	2 00	2 00	0 00
1,813 51	7 27	85 99	1,812 53	1 61	22 98	23 03	2 00	2 00	0 00
EOC hold 7 27°									
1,900 00	7 27	85 99	1,898 33	2 38	33 89	33 98	0 00	0 00	0 00
2,000 00	7 27	85 99	1,997 53	3 26	46 52	46 63	0 00	0 00	0 00
2,100 00	7 27	85 99	2,096 72	4 15	59 14	59 29	0 00	0 00	0 00
2,200 00	7 27	85 99	2,195 92	5 03	71 77	71 94	0 00	0 00	0 00
2,300 00	7 27	85 99	2,295 11	5 92	84 39	84 60	0 00	0 00	0 00
2,400 00	7 27	85 99	2,394 31	6 80	97 01	97 25	0 00	0 00	0 00
2,500 00	7 27	85 99	2,493 51	7 69	109 64	109 91	0 00	0 00	0 00
2,600 00	7 27	85 99	2,592 70	8 57	122 26	122 56	0 00	0 00	0 00
2,700 00	7 27	85 99	2,691 90	9 46	134 88	135 22	0 00	0 00	0 00
2,800 00	7 27	85 99	2,791 09	10 34	147 51	147 87	0 00	0 00	0 00
2,900 00	7 27	85 99	2,890 29	11 23	160 13	160 52	0 00	0 00	0 00
3,000 00	7 27	85 99	2,989 49	12 11	172 76	173 18	0 00	0 00	0 00
3,100 00	7 27	85 99	3,088 68	13 00	185 38	185 83	0 00	0 00	0 00
3,200 00	7 27	85 99	3,187 88	13 88	198 00	198 49	0 00	0 00	0 00
3,300 00	7 27	85 99	3,287 07	14 77	210 63	211 14	0 00	0 00	0 00
3,400 00	7 27	85 99	3,386 27	15 65	223 25	223 80	0 00	0 00	0 00
3,500 00	7 27	85 99	3,485 47	16 54	235 87	236 45	0 00	0 00	0 00
3,600 00	7 27	85 99	3,584 66	17 42	248 50	249 11	0 00	0 00	0 00
3,700 00	7 27	85 99	3,683 86	18 31	261 12	261 76	0 00	0 00	0 00
3,800 00	7 27	85 99	3,783 06	19 19	273 75	274 42	0 00	0 00	0 00
3,900 00	7 27	85 99	3,882 25	20 08	286 37	287 07	0 00	0 00	0 00
4,000 00	7 27	85 99	3,981 45	20 96	298 99	299 73	0 00	0 00	0 00
4,100 00	7 27	85 99	4,080 64	21 85	311 62	312 38	0 00	0 00	0 00
4,200 00	7 27	85 99	4,179 84	22 73	324 24	325 04	0 00	0 00	0 00
4,221 24	7 27	85 99	4,200 91	22 92	326 92	327 72	0 00	0 00	0 00
Start DLS 2.00°/100'									
4,300 00	5 69	85 99	4,279 16	23 54	335 79	336 62	2 00	-2 00	0 00
4,400 00	3 69	85 99	4,378 82	24 12	343 96	344 80	2 00	-2 00	0 00
4,421 22	3 27	85 99	4,400 00	24 21	345 24	346 09	2 00	-2 00	0 00
EOC hold 3 27° - TG1-EF #56									
4,500 00	3 27	85 99	4,478 65	24 52	349 73	350 58	0 00	0 00	0 00
4,600 00	3 27	85 99	4,578 49	24 92	355 42	356 29	0 00	0 00	0 00
4,700 00	3 27	85 99	4,678 33	25 32	361 11	361 99	0 00	0 00	0 00
4,800 00	3 27	85 99	4,778 17	25 72	366 80	367 70	0 00	0 00	0 00
4,900 00	3 27	85 99	4,878 00	26 12	372 49	373 41	0 00	0 00	0 00
5,000 00	3 27	85 99	4,977 84	26 52	378 18	379 11	0 00	0 00	0 00
5,100 00	3 27	85 99	5,077 68	26 91	383 87	384 82	0 00	0 00	0 00
5,200 00	3 27	85 99	5,177 51	27 31	389 56	390 52	0 00	0 00	0 00
5,300 00	3 27	85 99	5,277 35	27 71	395 26	396 23	0 00	0 00	0 00
5,400 00	3 27	85 99	5,377 19	28 11	400 95	401 93	0 00	0 00	0 00
5,500 00	3 27	85 99	5,477 03	28 51	406 64	407 64	0 00	0 00	0 00
5,600 00	3 27	85 99	5,576 86	28 91	412 33	413 34	0 00	0 00	0 00
5,700 00	3 27	85 99	5,676 70	29 31	418 02	419 05	0 00	0 00	0 00
5,800 00	3 27	85 99	5,776 54	29 71	423 71	424 75	0 00	0 00	0 00

Database:	EDM-Julio	Local Co-ordinate Reference:	Site Electra Federal #56
Company:	COG Operating LLC	TVD Reference:	GL Elev @ 3730 00usft
Project:	Eddy County, NM (NAN27 NME)	MD Reference:	GL Elev @ 3730 00usft
Site:	Electra Federal #56	North Reference:	Grid
Well:	Electra Federal #56	Survey Calculation Method:	Minimum Curvature
Wellbore:	OH		
Design:	Plan #1 7-7/8" 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)
5,900 00	3 27	85 99	5,876 37	30 11	429 40	430 46	0 00	0 00	0 00
6,000 00	3 27	85 99	5,976 21	30 51	435 09	436 16	0 00	0 00	0 00
6,100 00	3 27	85 99	6,076 05	30 90	440 78	441 87	0 00	0 00	0 00
6,174 07	3 27	85 99	6,150 00	31 20	445 00	446 09	0 00	0 00	0 00
PBHL-EF #56									

Design Targets

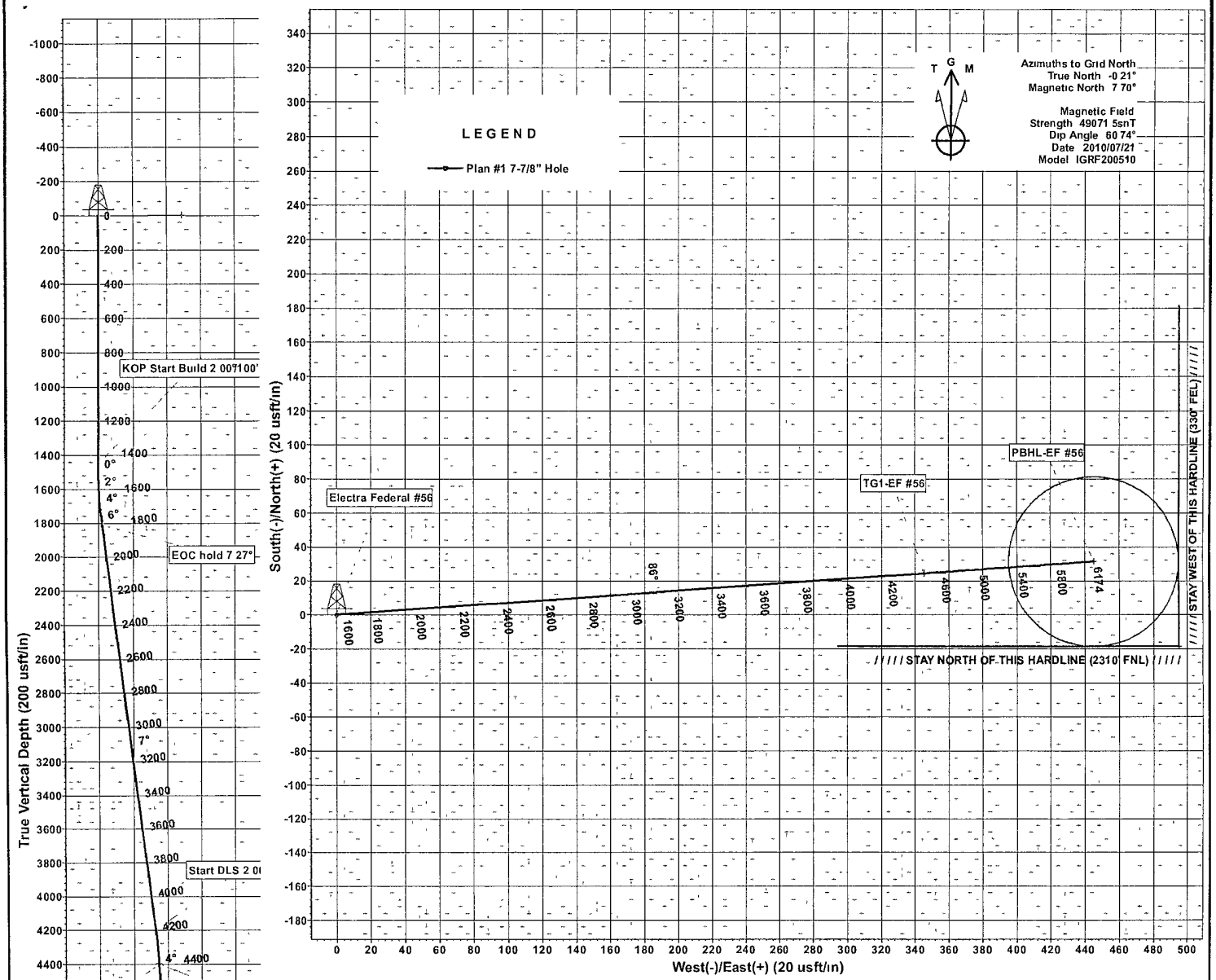
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
East HL-EF #56	0 00	0 00	0 00	-18 80	495 00	673,080 80	617,187 90	32° 50' 59 286 N	103° 57' 6 269 W
- plan misses target center by 495 36usft at 0 00usft MD (0 00 TVD, 0 00 N, 0 00 E)									
- Rectangle (sides W0 00 H200 00 D0 00)									
North HL-EF #56	0 00	0 00	0 00	-18 80	495 00	673,080 80	617,187 90	32° 50' 59 286 N	103° 57' 6 269 W
- plan misses target center by 495 36usft at 0 00usft MD (0 00 TVD, 0 00 N, 0 00 E)									
- Rectangle (sides W200 00 H0 00 D0 00)									
TG1-EF #56	0 00	0 00	4,400 00	24 21	345 24	673,123 80	617,038 15	32° 50' 59 717 N	103° 57' 8 022 W
- plan hits target center									
- Point									
PBHL-EF #56	3 27	265 99	6,150 00	31 20	445 00	673,130 80	617,137 90	32° 50' 59 783 N	103° 57' 6 853 W
- plan hits target center									
- Circle (radius 50 00)									

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
1,450 00	1,450 00	0 00	0 00	KOP Start Build 2 00°/100'
1,813 51	1,812 53	1 61	22 98	EOC hold 7 27°
4,221 24	4,200 91	22 92	326 92	Start DLS 2 00°/100'
4,421 22	4,400 00	24 21	345 24	EOC hold 3 27°

Scientific Drilling for COG Operating LLC
Site: Eddy County, NM (NAN27 NME)
Well: Electra Federal #56
Wellbore: OH
Design. Plan #1 7-7/8" Hole

Scientific Drilling
Directional Drilling Operations



WELLBORE TARGET DETAILS (MAP CO-ORDINATES)

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
East HL-EF #56	0 00	-18 80	495 00	673080 80	617187 90	32° 50' 59 286 N	103°57' 6 269 W	Rectangle (Sides L200 00 W0 00)
North HL-EF #56	0 00	-18 80	495 00	673080 80	617187 90	32°50' 59 286 N	103°57' 6 269 W	Rectangle (Sides L0 00 W200 00)
TG1-EF #56	4400 00	24 21	345 24	673123 81	617038 14	32°5 0' 59 717 N	103°57' 8 022 W	Point
PBHL-EF #56	6150 00	31 20	445 00	673130 80	617137 90	32° 50' 59 783 N	103°57' 6 853 W	Circle (Radius 50 00)

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	1450 00	0 00	0 00	1450 00	0 00	0 00	0 00	0 00	0 00	
3	1813 51	7 27	85 99	1812 53	1 61	22 98	2 00	85 99	23 03	
4	4221 24	7 27	85 99	4200 91	22 92	326 92	0 00	0 00	327 72	
5	4421 22	3 27	85 99	4400 00	24 21	345 24	2 00	-180 00	346 09	TG1-EF #56
6	6174 07	3 27	85 99	6150 00	31 20	445 00	0 00	0 00	446 09	PBHL-EF #56

WELL DETAILS Electra Federal #56

Ground Level 3730 00

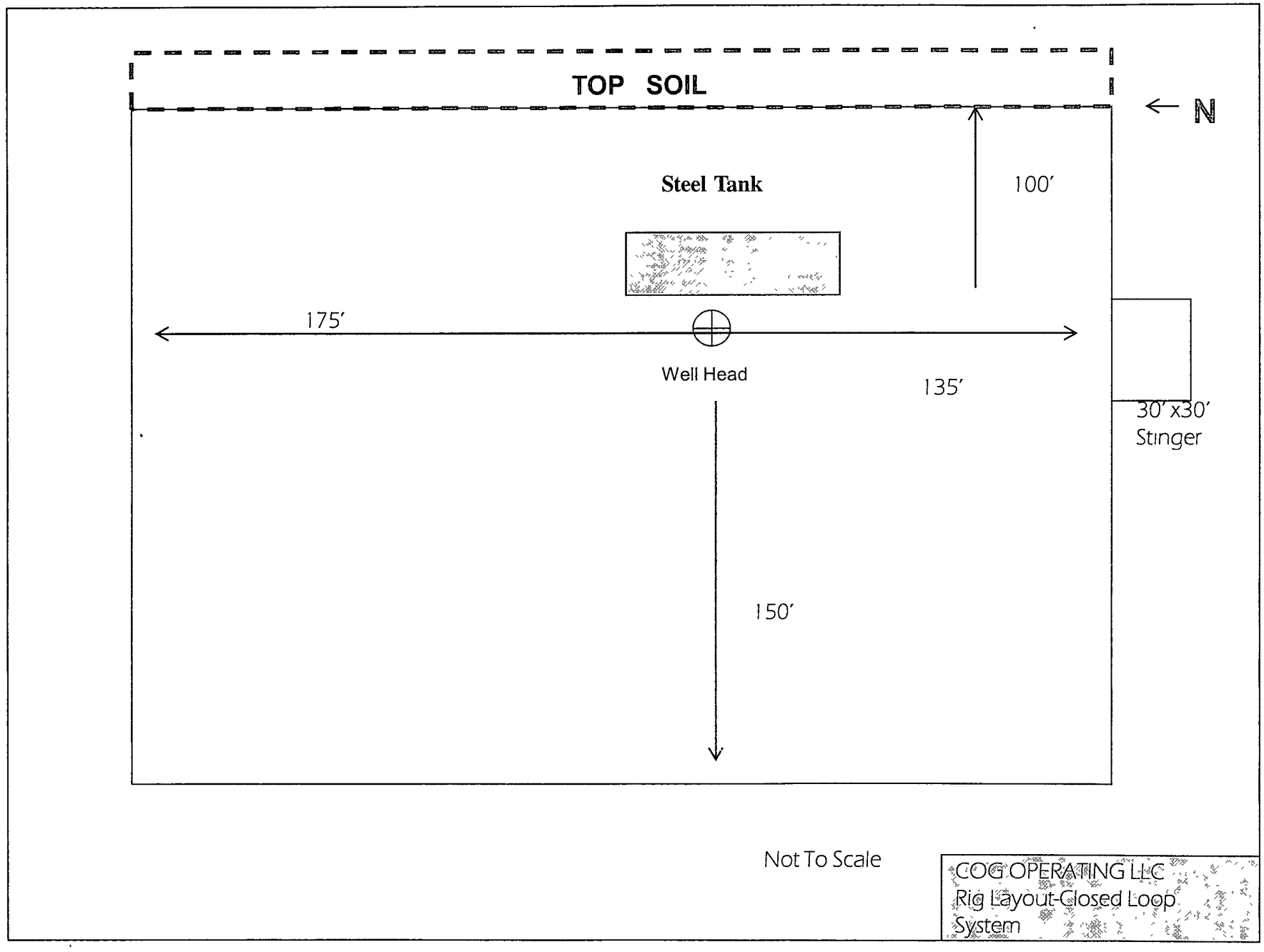
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0 00	0 00	673099 60	616692 90	32°50' 59 490 N	103°57' 12 070 W	

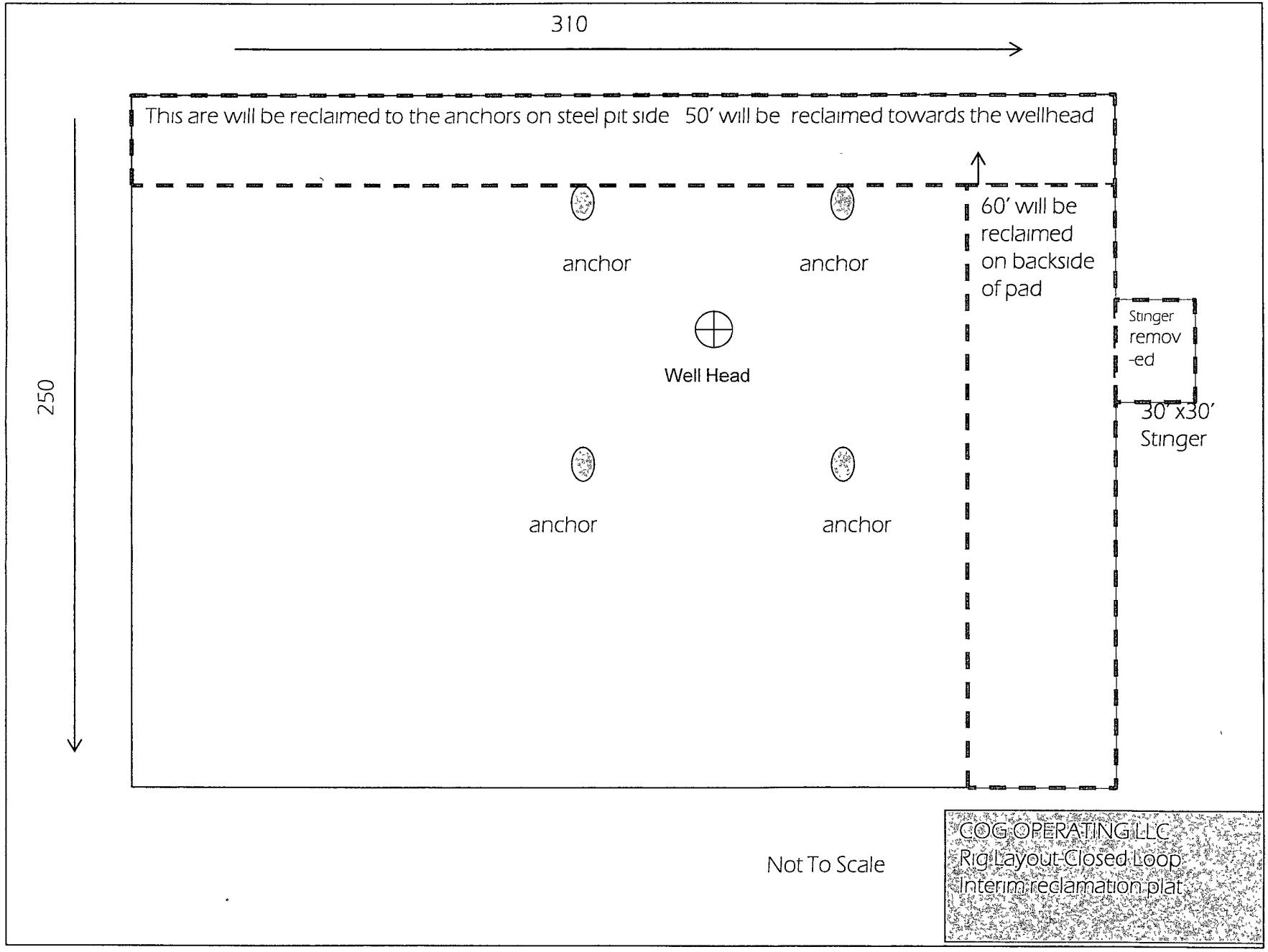
PROJECT DETAILS Eddy County, NM (NAN27 NME)

Plan Plan #1 7-7/8" Hole (Electra Federal #56/OH)

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

Created By Julio Pina Date 21-Jul-10
Checked _____ Date _____
Reviewed _____ Date _____
Approved _____ Date _____

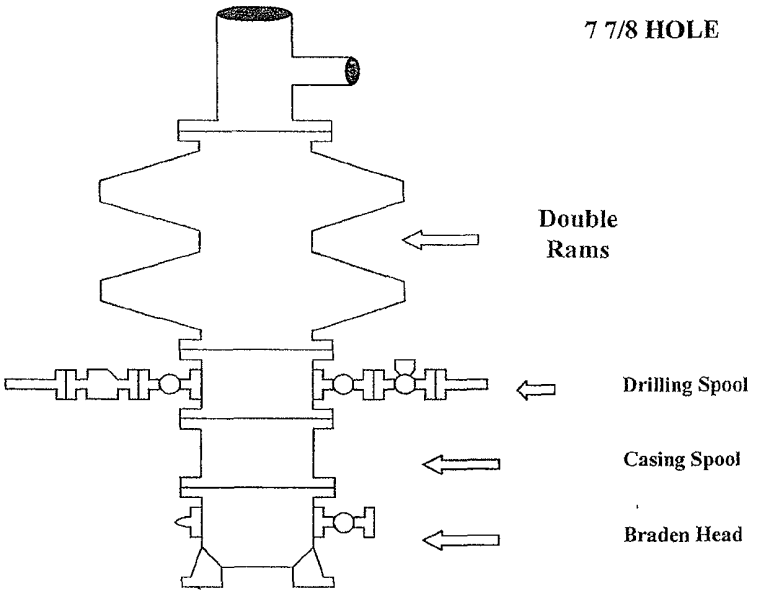

TOP SOIL
N
Steel Tank
100'
175'
Well Head
135'
30' x30'
Stinger
150'
Not To Scale
COG OPERATING LLC
Rig Layout-Closed Loop
System


310
This are will be reclaimed to the anchors on steel pit side 50' will be reclaimed towards the wellhead
60' will be reclaimed on backside of pad
anchor
anchor
Well Head
Stinger removed
30' x30' Stinger
anchor
anchor
250
Not To Scale
COG OPERATING LLC
Rig Layout-Closed Loop
Interim reclamation plat

COG Operating LLC

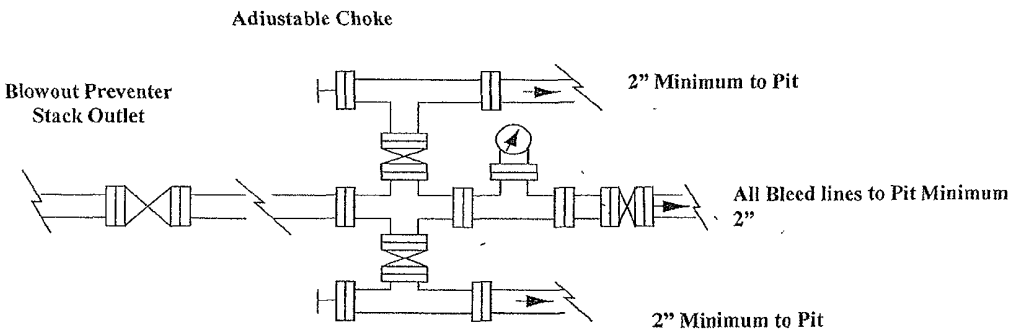
Exhibit #9

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.**

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

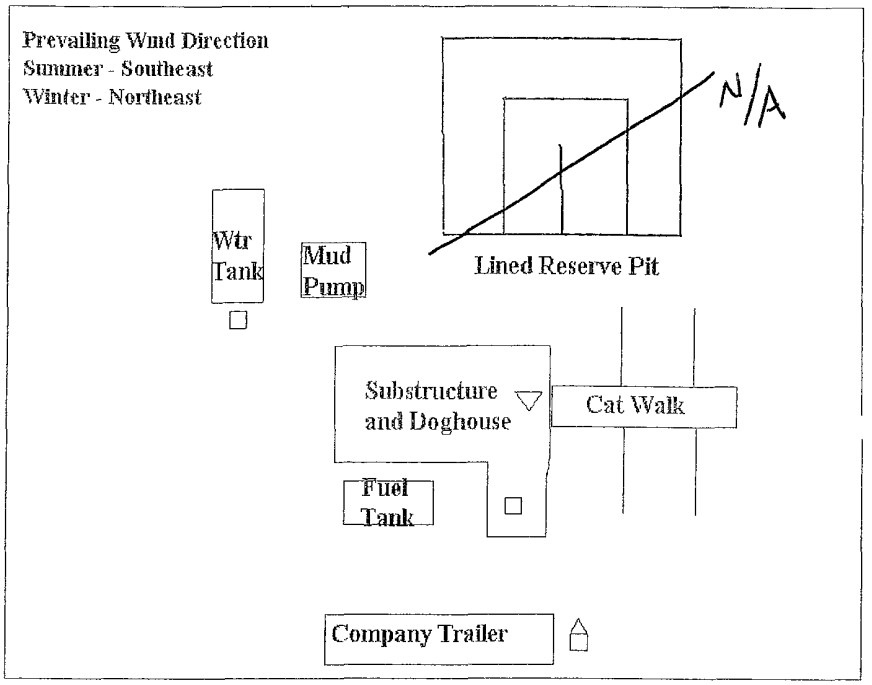
1-432-683-7443

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

DRILLING LOCATION
H2S SAFETY EQUIPMENT
Exhibit # 8



▽ H2S Monitors with alarms at the bell nipple

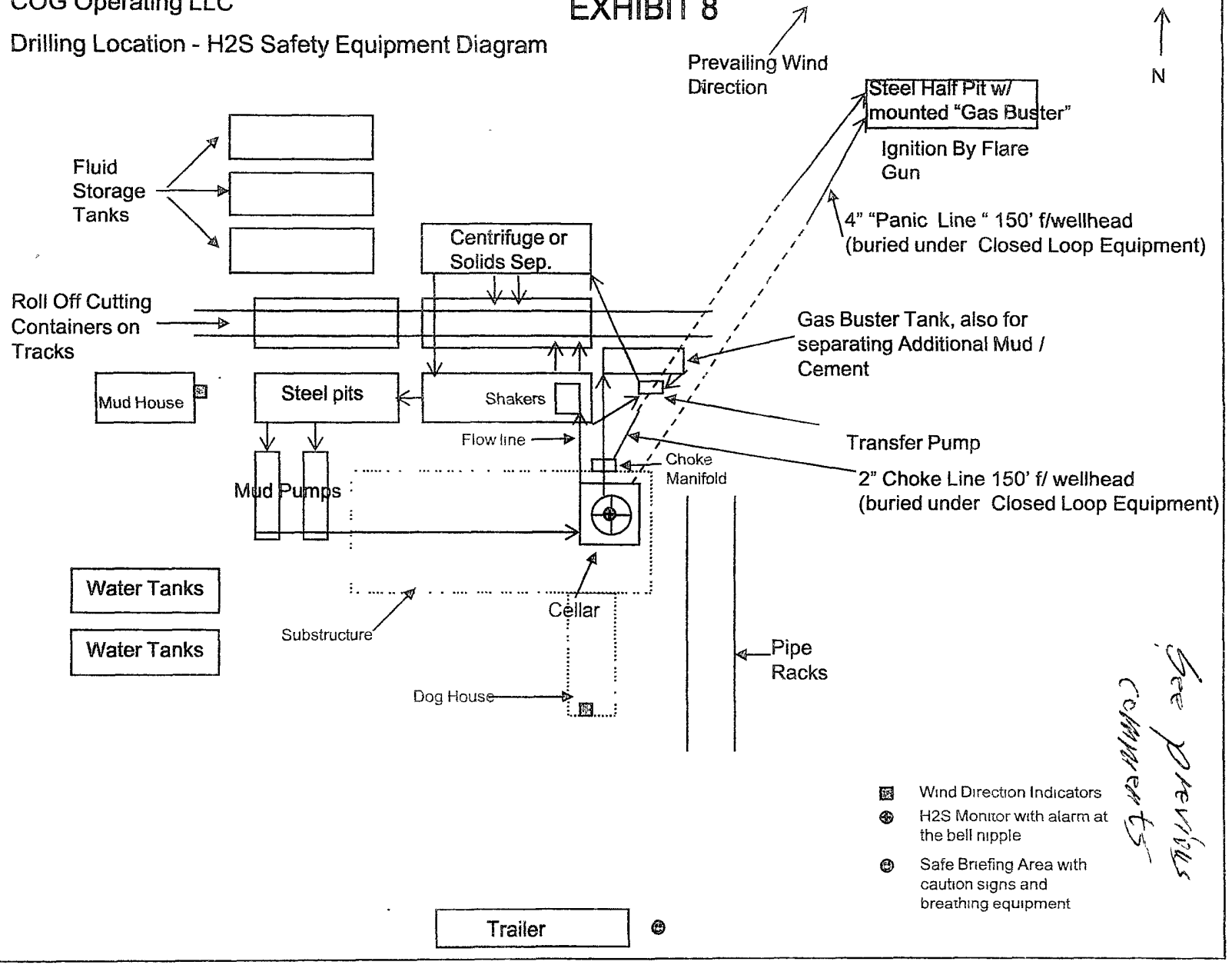
□ Wind Direction Indicators

△ Safe Briefing areas with caution signs and breathing equipment min 150 feet from

COG Operating LLC

EXHIBIT 8

Drilling Location - H2S Safety Equipment Diagram



See previous comments

SURFACE USE AND OPERATING PLAN

1. Existing & Proposed Access Roads

A. The well site survey and elevation plat for the proposed well is shown in Exhibit #1. It was staked by John West Engineering, Hobbs, NM.

B. All roads to the location are shown in the topographic map Exhibit #2. The existing lease roads are illustrated and are adequate for travel during drilling and production operations. Upgrading existing roads prior to drilling the well will be done where necessary.

C. Directions to Location: From the intersection US Highway 82 and Co. Rd. 219 (Goat Ropers Road), Go North on County Road 219 apprx 2.0 miles. Turn Right and go East apprx 0.9 mile. Turn Left and to North apprx 0.5 mile. Turn Right & Go east apprx 0.5 mile to the Electra Fed 35 well pad. T he location stake is apprx 155 feet East of existing well. See Vicinity Map, Exhibit #3.

D. Routine grading and maintenance of existing roads will be conducted as necessary to maintain their condition as long as any operations continue on this lease. Roads will be maintained according to specifications in section 2A of this Surface Use and Operating Plan.

2. Proposed Access Road:

Exhibit #4 shows that 0' of new access road will be required for this location. If any road is required it will be constructed as follows:

A. The maximum width of the running surface will be 14'. The road will be crowned, ditched and constructed of 6" rolled and compacted caliche. Ditches will be at 3:1 slope and 4 feet wide. Water will be diverted where necessary to avoid ponding, prevent erosion, maintain good drainage, and to be consistent with local drainage patterns.

B. The average grade will be less than 1%.

C. No turnouts are planned.

D. No culverts, cattleguard, gates, low water crossings or fence cuts are necessary.

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

3. Location of Existing Well:

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

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

4. Location of Existing and/or Proposed Facilities:

A. COG Operating LLC does operate a production facility on this lease.

B. If the well is productive, contemplated facilities will be as follows:

1) Production will be sent to the Electra Federal tank battery located at the Electra Federal #31 well location at 1170 FNL & 2310 FEL, Section 10, T17S, R30E, UL B. The facility location is shown in Exhibit #5.

2) The tank battery and facilities including all flow lines and piping will be installed according to API specifications.

3) Any additional caliche will be obtained from the actual well site. If caliche does not exist or is not plentiful from the well site, the caliche will be hauled from a BLM approved caliche pit. Any additional construction materials will be purchased from contractors.

4) Proposed flow lines, will follow an archaeologically approved route to the the Electra Federal tank battery located at the Electra Federal #31 well location at 1170 FNL & 2310 FEL, Section 10, T17S, R30E, UL B. The flowline will be SDR 7 3" poly line laid on the surface and will be approximately 2880' in length with max pressure 100 psi. Flowlines will be no more than 11' from the paralleling road.

5) It will be necessary to run electric power if this well is productive. Power will be provided by CVE and they will submit a separate plan and ROW for service to the well location.

6) If the well is productive, rehabilitation plans will include the following:

a) The original topsoil from the well site will be returned to the location, and the site will be re-contoured as close as possible to the original site.

5. Location and Type of Water Supply:

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

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

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

A. The top 6 inches of topsoil is pushed off and stockpiled along the side of the location.

B. An approximate 120' X 120' area is used within the proposed well site to remove caliche.

C. Subsoil is removed and piled along side the 120' by 120' area within the pad site.

D. When caliche is found, material will be stock piled within the pad site to build the location and road.

E. Then subsoil is pushed back in the hole and caliche is spread accordingly across entire location and road.

F. Once well is drilled, the stock piled top soil will be used for interim reclamation and spread along areas where caliche is picked up and the location size is reduced. Neither caliche or subsoil will be stock piled outside of the well pad. Topsoil will be stockpiled along the edge of the pad as depicted in attached plat.

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

7. Methods of Handling Water Disposal:

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

B. Drilling fluids will be contained in steel mud pits.

C. Water produced from the well during completion will be held temporarily in steel tanks and then taken to an NMOCD approved commercial disposal facility.

D. Garbage and trash produced during drilling or completion operations will be collected in a trash bin and hauled to an approved landfill. No toxic waste or hazardous chemicals will be produced by this operation.

E. After the rig is moved out and the well is either completed or abandoned, all waste materials will be cleaned up within 30 days. In the event of a dry hole only a dry hole marker will remain.

8. Ancillary Facilities:

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

9. Well Site Layout:

A. The drill pad layout, with elevations staked by John West Engineering, is shown in Exhibit #4. Dimensions of the pad and pits are shown on Exhibit #6. Topsoil, if available, will be stockpiled per BLM specifications. Because the pad is almost level no major cuts will be required.

B. Exhibit #6 also shows the proposed orientation of closed loop system and access road. No permanent living facilities are planned, but a temporary foreman/toolpusher's trailer will be on location during the drilling operations.

10. Plans for Restoration of the Surface:

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

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

11.Surface Ownership:

A. The surface is owned by the U.S. Government and is administered by the Bureau of Land Management. The surface is multiple uses with the primary uses of the region for grazing of livestock and the production of oil and gas.

B. The surface tenant for this site is Charles K. Martin, P O Box 706, Artesia, NM 88211.

C. The proposed road routes and surface location will be restored as directed by the BLM

12.Other Information:

A. The area around the well site is grassland and the topsoil is sandy. The vegetation is moderately sparse with native prairie grasses, some mesquite and shinnery oak. No wildlife was observed but it is likely that mule deer, rabbits, coyotes and rodents traverse the area.

B. There is no permanent or live water in the immediate area.

C. There are no dwellings within 2 miles of this location.

D. If needed, a Cultural Resources Examination is being prepared by Southern New Mexico Archaeological Services, Inc. P.O. Box 1, Bent New Mexico, 88314, phone # 505-671-4797 and the results will be forwarded to your office in the near future. Otherwise, **COG will be participating in the Permian Basin MOA Program.**

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	COG Operating
LEASE NO.:	NM0467931
WELL NAME & NO.:	Electra Federal 56
SURFACE HOLE FOOTAGE:	2290' FNL & 825' FEL
BOTTOM HOLE FOOTAGE	2310' FNL & 330' FEL
LOCATION:	Section 10, 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.

Salvage topsoil from reclaimed area located to the west of the center hole.

VI. CONSTRUCTION

A. NOTIFICATION

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

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

B. V-DOOR DIRECTION: south

C. TOPSOIL

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

D. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

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

E. FEDERAL MINERAL MATERIALS PIT

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

F. WELL PAD SURFACING

Surfacing of the well pad is not required.

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

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

G. ON LEASE ACCESS ROADS

Road Width

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

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

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

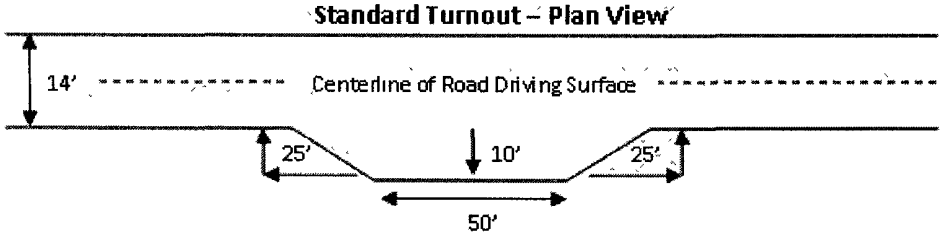
The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing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

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

Ditching

Ditching shall be required on both sides of the road.

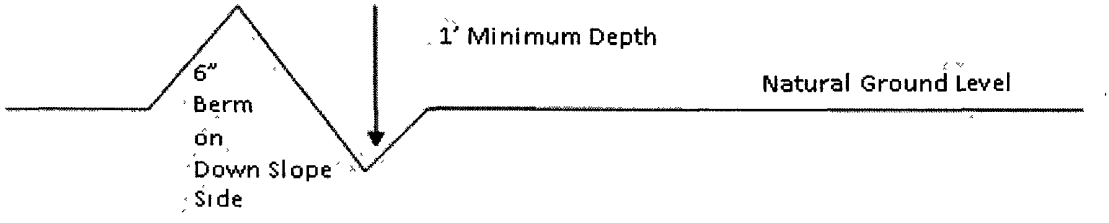
Turnouts
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall be constructed on all blind curves. Turnouts shall conform to the following diagram:



Drainage
Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill 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:

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

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

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

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

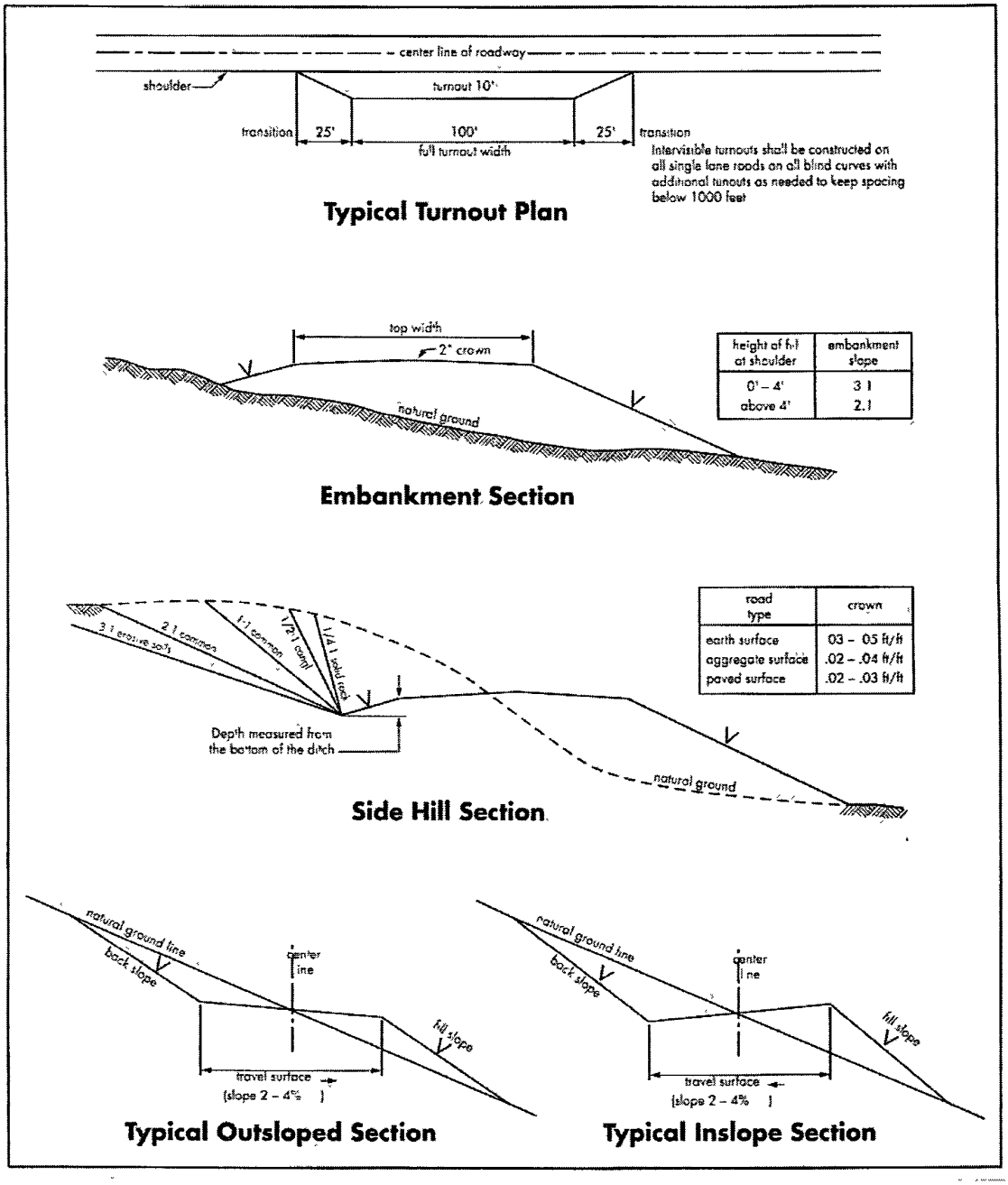
A gate shall be constructed and fastened securely to H-braces.

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

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

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

Figure 1 – Cross Sections and Plans For Typical Road Sections



VII. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

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

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

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

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

1. The **13-3/8** inch surface casing shall be set at approximately **325** feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface. **If the salt is encountered, the casing is to be set 25 feet above the salt.**

    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.

Drill intermediate well bore with brine mud.

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

    ☒ Cement to surface. If cement does not circulate see B.1.a, c-d above. **This casing is to be set in the Tansill formation.**

If used, DV tool is to be set 50 feet below previous casing shoe. Operator is to submit sundry if DV tool depth varies by more than 100' from approved depth.

a. First stage to DV tool, cement shall:

☒ Cement to circulate. If cement does not circulate, contact the appropriate BLM office before proceeding with second stage cement job.

b. Second stage above DV tool, cement shall:

☒ 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:

☒ Cement should tie-back at least 200 feet into previous casing string. Operator shall provide method of verification.

DV tool option: Operator is to submit sundry if DV tool depth varies by more than 100' from approved depth.

a. First stage to DV tool, cement shall:

☒ Cement to circulate. If cement does not circulate, contact the appropriate BLM office before proceeding with second stage cement job. **Additional cement may be required as the excess cement calculates to be -25%.**

b. Second stage above DV tool, cement shall:

☒ Cement should tie-back at least 200 feet into previous casing string. Operator shall provide method of verification.

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

C. PRESSURE CONTROL

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

2. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **2000 (2M)** psi.

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

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

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

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

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

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

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

    f. **Effective November 1, 2008, no variances will be granted on reduced pressure tests on the surface casing and BOP/BOPE. Onshore Order 2 requirements will be in effect.**

D. 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.

WWI 082910

VIII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

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

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

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

B. PIPELINES

STANDARD STIPULATIONS FOR SURFACE INSTALLED PIPELINES

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

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

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

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

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

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

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

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

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

c. Acts of God.

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

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

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

6. All construction and maintenance activity will be confined to the authorized right-of-way width of **25** feet.

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

8. The holder shall install the pipeline on the surface in such a manner that will minimize suspension of the pipeline across low areas in the terrain. In hummocky 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.

C. ELECTRIC LINES (not applied for in APD)

IX. INTERIM RECLAMATION

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

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

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

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

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

X. FINAL ABANDONMENT & RECLAMATION

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

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

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

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

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
**Four-winged Saltbush	5lbs/A

* This can be used around well pads and other areas where caliche cannot be removed.

*Pounds of pure live seed:

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