13-563

Form 3160-3
(March 2012)

RECEIVED
JUL 09 2013
NMOCD ARTESIA
OCD Artesia

FORM APPROVED
OMB No. 1004-0137
Expires October 31, 2014

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.: NMNM111412

6. If Indian, Allotee or Tribe Name:

1a. Type of Work: [✓] DRILL [ ] REENTER

7. If Unit or CA Agreement, Name and No.:

1b. Type of Well: [✓] Oil Well [ ] Gas Well [ ] Other [✓] Single Zone [ ] Multiple Zone

8. Lease Name and Well No. <40004>
Quien Sabe 25 Federal #1H

2. Name of Operator
COG Operating LLC. <229137>

9. API Well No.
30-015-41528

3a. Address
2208 West Main Street
Artesia, NM 88210

3b. Phone No. *(include area code)*
575-748-6940

10. Field and Pool, or Exploratory <96415>
Willow Lake; Bone Spring, West

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*
At surface: 190' FNL & 600' FEL Unit Letter A (NENE) SHL Sec 25-T24S-R27E
At proposed prod. Zone: 330' FSL & 380' FEL Unit Letter P (SESE) BHL Sec 25-T24S-R27E

11. Sec., T.R.M. or Blk and Survey or Area
Sec. 25 - T24S - R27E

14. Distance in miles and direction from nearest town or post office*
Approximately 4 miles from Malaga

12. County or Parish: Eddy County

13. State: NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. Unit line, if any): 190'

16. No. of acres in lease: 320

17. Spacing Unit dedicated to this well: 160

18. Distance from location* to nearest well, drilling, completed, applied for, on this lease, ft.: SHL: 4400' BHL: 1029'

19. Proposed Depth: TVD: 7925' MD: 12447' PH: 9300'

20. BLM/BIA Bond No. on file: NMB000740 &NMB00215

21. Elevations (Show whether DF, KDB, RT, GL, etc.): 3107.5 GL

22. Approximate date work will start*: 5/15/2013

23. Estimated duration: 30 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: Mayte Reyes
Name *(Printed/Typed)*: Mayte Reyes
Date: 3/8/2013
Title: Regulatory Analyst

Approved by *(Signature)*: /s/George MacDonell
Name *(Printed/Typed)*:
Date: JUL - 5 2013
Title: FIELD MANAGER
Office: CARLSBAD FIELD OFFICE

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

APPROVAL FOR TWO YEARS

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

(Continued on page 2)

*(Instructions on page 2)

Carlsbad Controlled Water Basin

Approval Subject to General Requirements & Special Stipulations Attached

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

DISTRICT I
1625 N. FRENCH DR., HOBBS, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720

DISTRICT II
1301 W. GRAND AVENUE, ARTESIA, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720

DISTRICT III
1000 RIO BRAZOS RD., AZTEC, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170

DISTRICT IV
1625 S. ST. FRANCIS DR., SANTA FE, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
11885 SOUTH ST. FRANCIS DR.
Santa Fe, New Mexico 87505

Form C-102
Revised August 1, 2011
Submit one copy to apprpriate

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
30-015- 41528	96415	Willow Lake; Bone Spring, West

Property Code	Property Name	Well Number
40004	QUIEN SABE 25 FEDERAL	1H

OGRID No.	Operator Name	Elevation
229137	COG OPERATING, LLC	3107.5

Surface Location

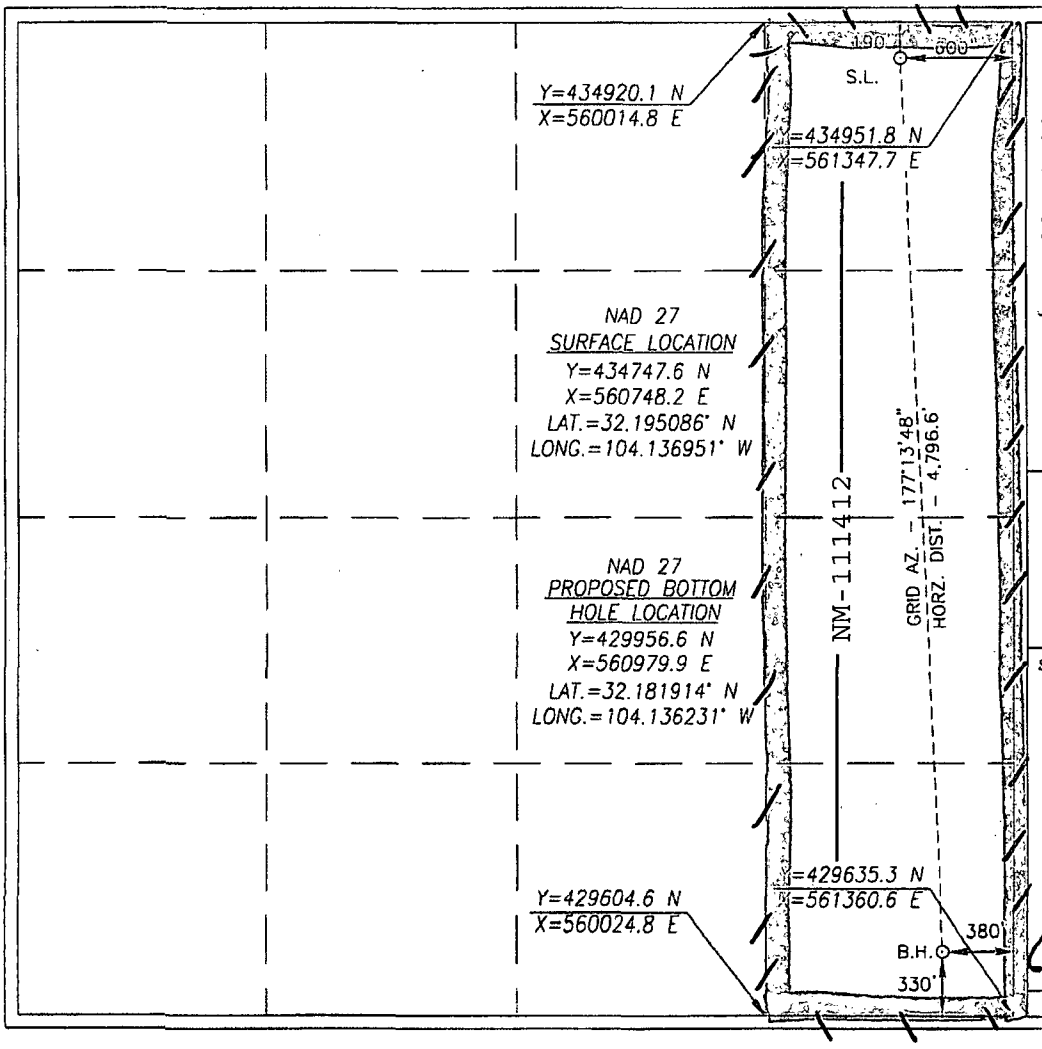
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	25	24-S	27-E		190	NORTH	600	EAST	EDDY

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
P	25	24-S	27-E		330	SOUTH	380	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.

Melanie Parker 3/8/13
Signature Date

Melanie J. Parker
Printed Name

mparker@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.

FEBRUARY 13, 2013
Date of Survey

Signature & Seal of Professional Surveyor

CHAD L. HARCROW
NEW MEXICO
17777
LICENSED PROFESSIONAL SURVEYOR

Chad Harcrow 2/19/13
Certificate No. CHAD HARCROW 17777

W.O. # 12-158 DRAWN BY: VD

14. Lessee's and Operator's Representative:

The COG Operating LLC representative responsible for assuring compliance with the surface use plan is as follows:

Sheryl Baker
Drilling Superintendent
COG Operating LLC
2208 West Main Street
Artesia, NM 88210
Phone (575) 748-6940 (office)
(432) 934-1873 (cell)

Ray Peterson
Drilling Manager
COG Operating LLC
One Concho Center
600 W Illinois Ave
Midland, TX 79701
Phone (432) 685-4304 (office)
(432) 818-2254 (business)

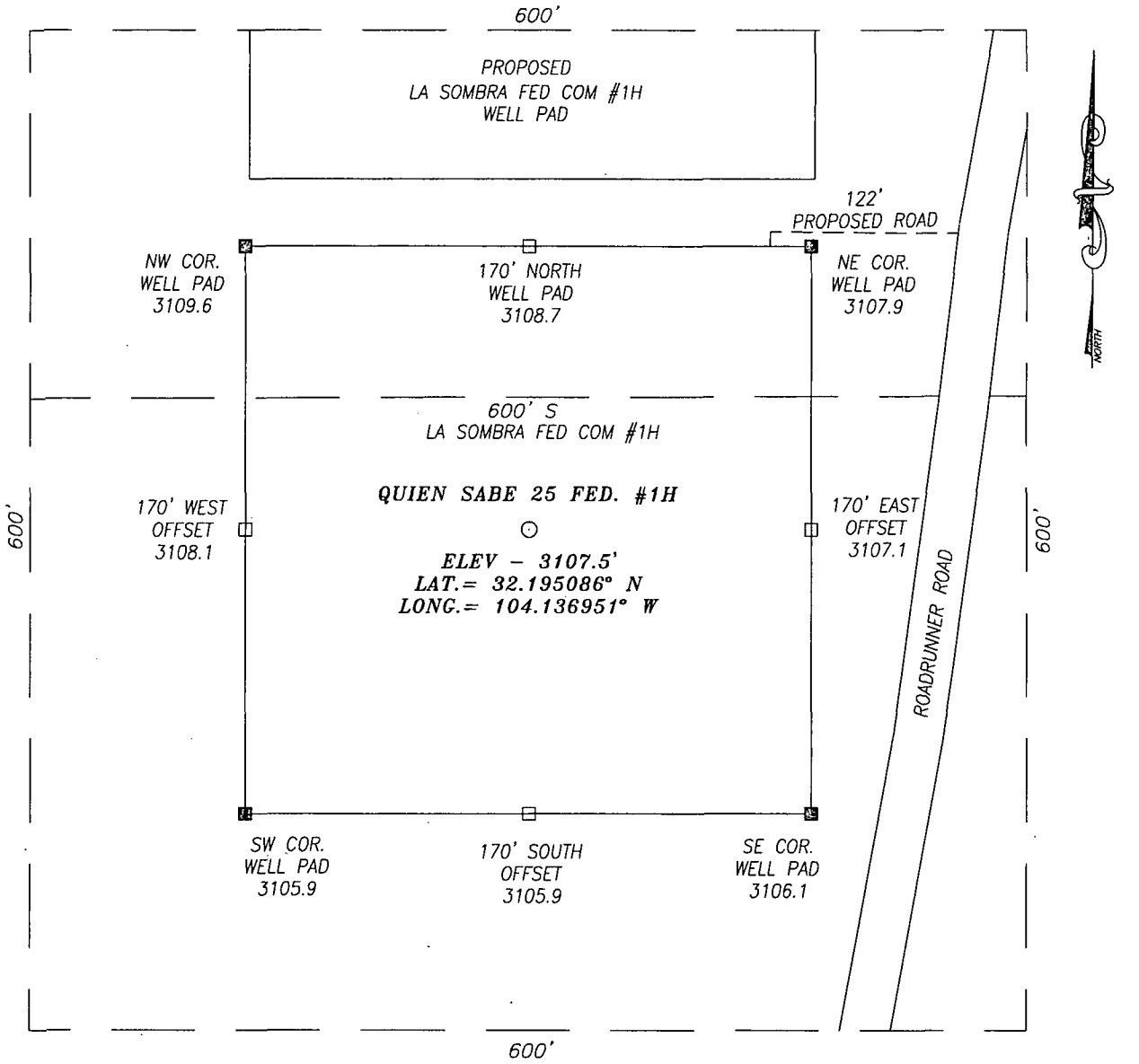
I hereby certify that I, or persons under my direct supervision, have inspected the drill site and access road proposed herein; that I am familiar with the conditions that presently exist; that I have full knowledge of State and Federal laws applicable to this operation; that the statements made in this 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 8th day of March, 2013.

Signed: Melanie Parker

Printed Name: Melanie J. Parker
Position: Regulatory Coordinator
Address: 2208 W. Main Street, Artesia, NM 88210
Telephone: (575) 748-6940
Field Representative (if not above signatory): Rand French
E-mail: mparker@concho.com

SECTION 25, TOWNSHIP 24 SOUTH, RANGE 27 EAST, N.M.P.M.,

EDDY COUNTY NEW MEXICO



DIRECTIONS TO LOCATION

FROM THE INTERSECTION OF HWY 285 AND CR #720 (BLACK RIVER VILLAGE RD) GO WEST ALONG CR #720 APPROX. 3.4 MILES. TURN LEFT (SOUTHWEST) ONTO A CALICHE ROAD, CR #774 (ROADRUNNER RD). GO APPROX. 2.4 MILES AND PROPOSED WELL IS APPROX. 300 FEET WEST.

100 0 100 200 Feet

Scale: 1"=100'

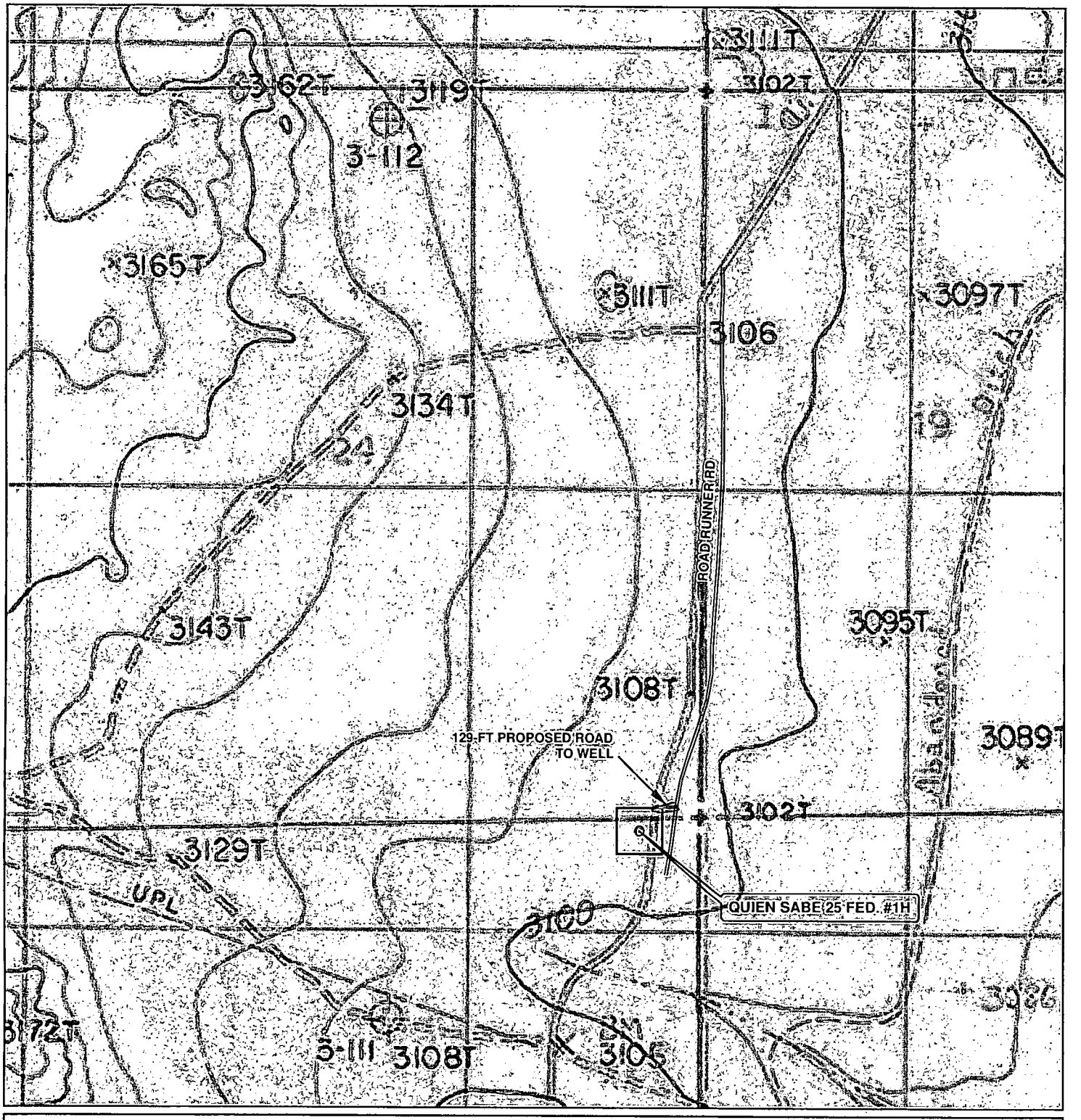
HARCROW SURVEYING, LLC
1107 WATSON, ARTESIA, N.M. 88210
PH: (575) 513-2570 FAX: (575) 746-2158
chad_harcrow77@yahoo.com

COG OPERATING, LLC

QUIEN SABE FED. #1H WELL
LOCATED 190 FEET FROM THE NORTH LINE
AND 600 FEET FROM THE EAST LINE OF SECTION 25,
TOWNSHIP 24 SOUTH, RANGE 27 EAST, N.M.P.M.,
EDDY COUNTY, NEW MEXICO

SURVEY DATE: 02/13/2013	PAGE: 1 OF 1	
DRAFTING DATE: 02/15/2013		
APPROVED BY: CH	DRAWN BY: VD	FILE: 12-158

LOCATION VERIFICATION MAP



SEC. 25, TWP. 24S, RGE. 27E
SURVEY: N.M.P.M
COUNTY: EDDY STATE: NEW MEXICO
DESCRIPTION: QUIEN SABE 25 FED. #1H
190' FNL, 600' FEL

ELEVATION: 3107.5'
OPERATOR: COG OPERATING
LEASE: QUIEN SABE 25

W.O. # 12-158

WELL
WELL PAD
PROPOSED ROAD
EXISTING ROAD

1 IN = 1,000 FT

N

0 1,000 2,000 FEET

0 0.1 0.2 0.3 0.4 MILES

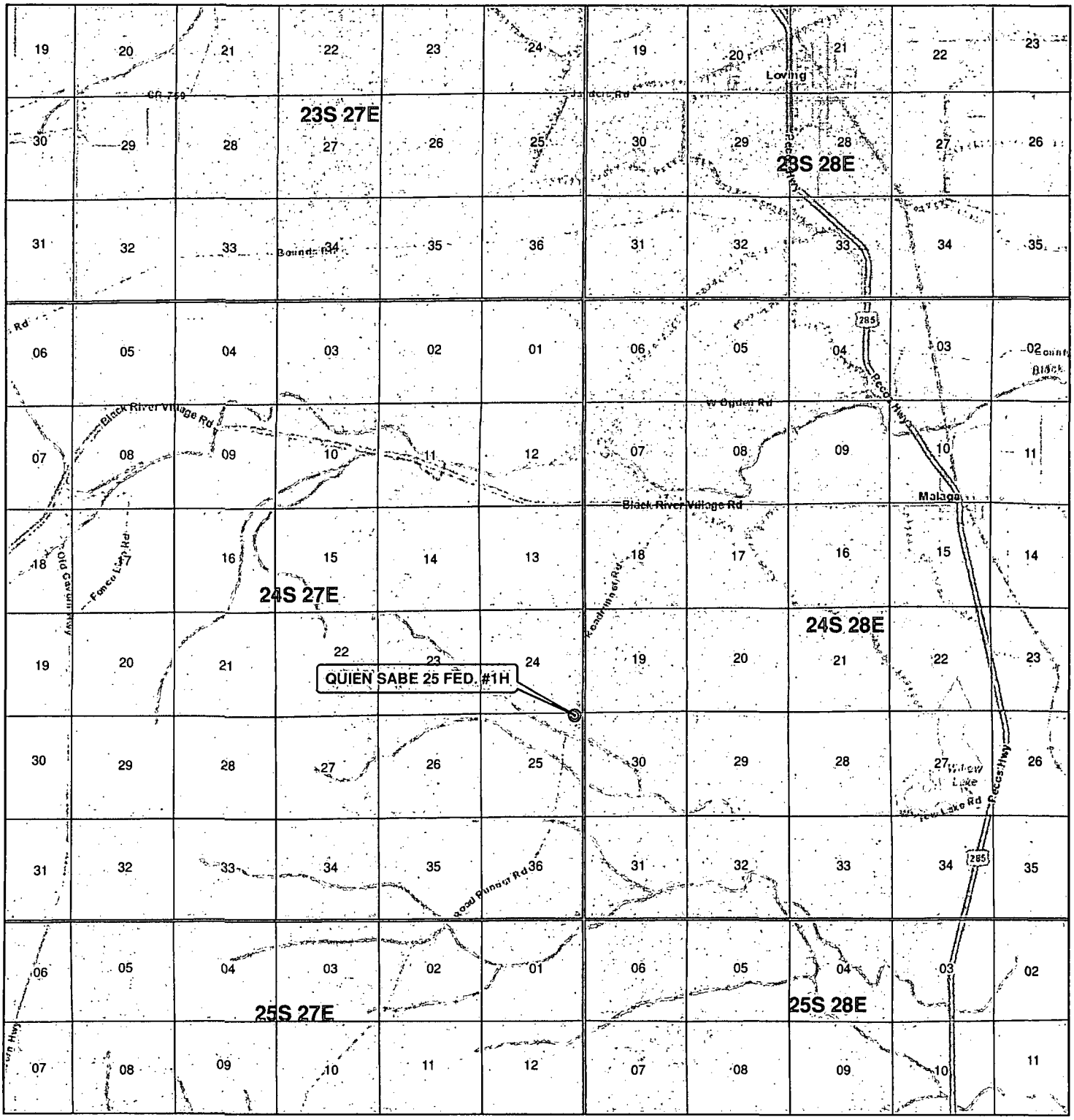
EXHIBIT 2

HARCROW SURVEYING, LLC
1107 WATSON, ARTESIA N.M. 88210
PH: (575) 513-2570 FAX: (575) 746-2158
chad_harcrow77@yahoo.com

MAP DATE: 2/18/2013

map produced by *GeoWhit*

VICINITY MAP



SEC. 25, TWP. 24S, RGE. 27E
SURVEY: N.M.P.M
COUNTY: EDDY STATE: NEW MEXICO
DESCRIPTION: QUIEN SABE 25 FED. #1H
190' FNL, 600' FEL

ELEVATION: 3107.5'
OPERATOR: COG OPERATING
LEASE: QUIEN SABE 25

W.O. # 12-158

N

1 IN = 7,000 FT

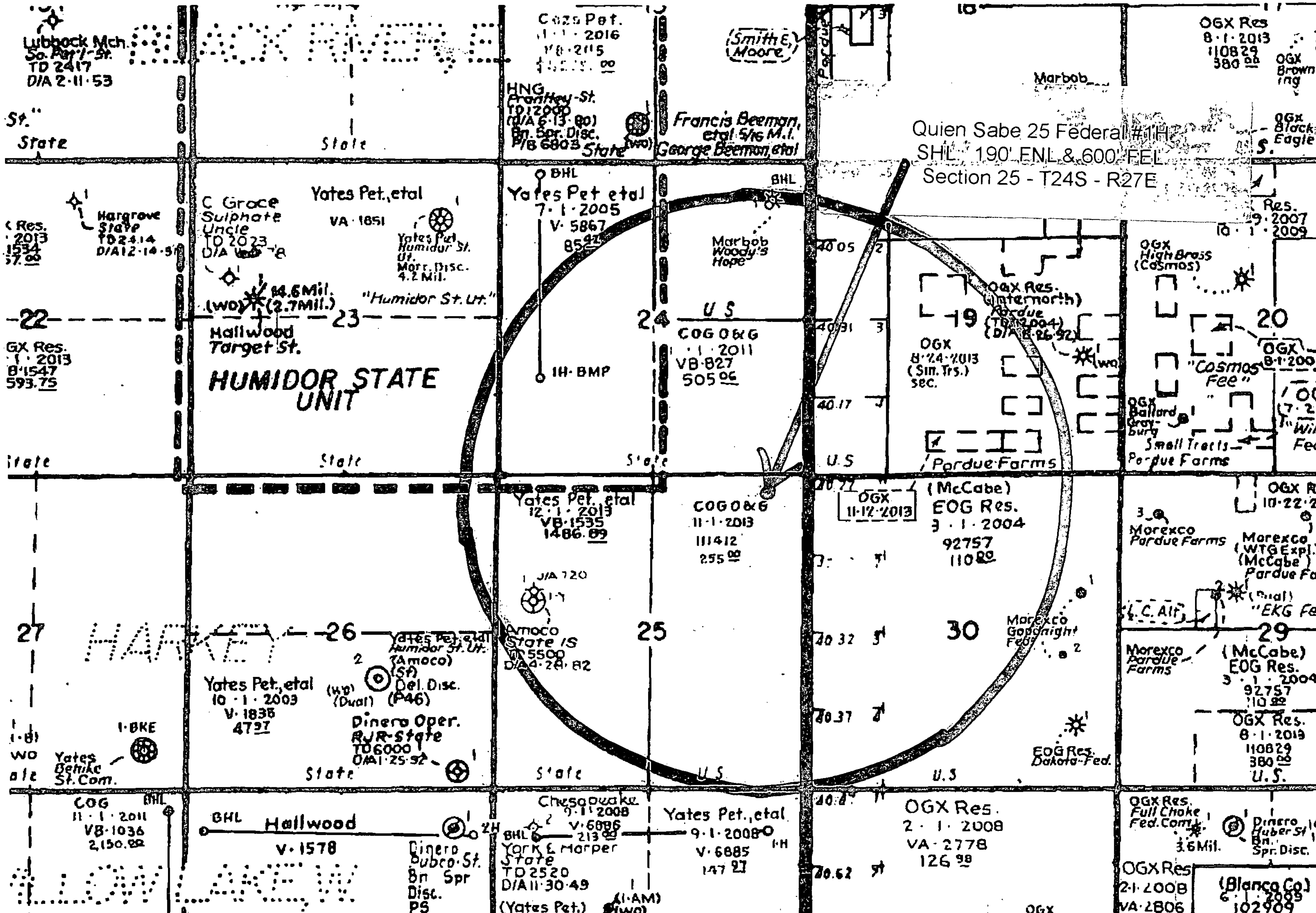
WELL
TOWNSHIP
SECTION

0 0.5 1 1.5 2 2.5 MILES

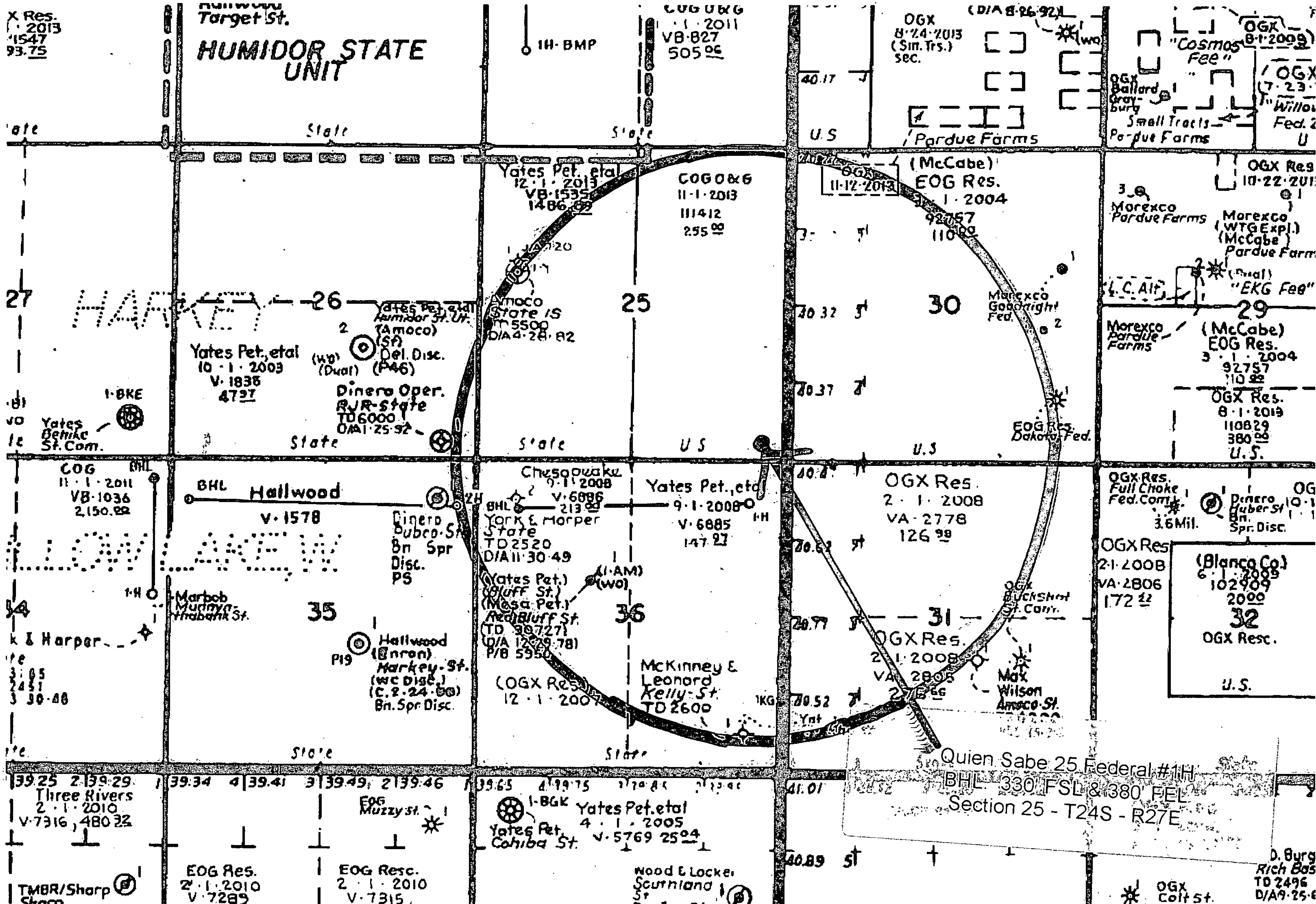
HARCROW SURVEYING, LLC
1107 WATSON, ARTESIA N.M. 88210
PH: (575) 513-2570 FAX: (575) 746-2158
chad_harcrow77@yahoo.com

MAP DATE: 2/18/2013

map produced by *GeoWhit*



Quien Sabe 25 Federal #1H
SHL 190' FNL & 600' FEL
Section 25 - T24S - R27E
Lubbock Mch.
TD 2417
D/A 2-11-53
State
Hargrove State
TD 2414
C Grace Sulphate Uncle
TD 2023
Yates Pet., etal
VA-1851
Yates Pet. Humidor St. Ut.
"Humidor St. Ut."
Hallwood Target St.
HUMIDOR STATE UNIT
22
23
24
19
20
27
26
25
30
29
HNG Frantley-St.
TD 12000
Francis Beeman, etal 5/16 M.I.
George Beeman, etal
Yates Pet etal
7-1-2005
V-5867
1H-BMP
BHL
Marbob Woody's Hope
U.S
COG O&G
VB-827
OGX Res.
OGX High Brass (Cosmos)
"Cosmos Fee"
Pardue Farms
Small Tracts
Yates Pet. etal
12-1-2013
VB-1535
1486.89
COG O&G
11-1-2013
111412
255.00
OGX
11-12-2013
(McCabe)
EOG Res.
3-1-2004
92757
110.00
Morexco Pardue Farms
Morexco Goodnight Fed.
Amoco State IS
TD 5500
D/A 4-28-82
Yates Pet., etal
10-1-2003
V-1838
47.37
Dinero Oper.
RJR-State
TD 6000
Yates Behike St. Com.
EOG Res. Dakota-Fed.
OGX Res.
8-1-2013
110829
380.00
COG
11-1-2011
VB-1036
2,150.00
Hallwood
V-1578
Dinero Subco St.
Chesapeake
9-1-2008
V-6886
York & Harper State
TD 2520
D/A 11-30-49
Yates Pet., etal
9-1-2008
V-6885
OGX Res.
2-1-2008
VA-2778
126.98
OGX Res. Full Choke Fed. Com.
OGX Res
2-1-2008
VA-2806
(Blanco Co.)
6-1-2009
102909


HUMIDOR STATE UNIT
Target St.
1H-BMP
COG O&G
VB-827
Yates Pet. etal
12-1-2013
VB-1535
COG O&G
11-1-2013
111412
OGX
8-24-2013
Cosmos Fee
Small Tracts
Pardue Farms
(McCabe)
EOG Res.
3-1-2004
92757
Morexco
Pardue Farms
Morexco Goodnight Fed.
"EKG Fee"
27
26
25
30
29
Yates Pet. etal
10-1-2003
V-1838
Yates Pet. etal
Humidor St. Un.
Amoco State IS
Dinero Oper.
RJR-State
TD 6000
1-BKE
Yates Behike St. Com.
State
U.S.
EOG Res.
Dakota Fed.
OGX Res.
8-1-2019
COG
11-1-2011
VB-1036
Hallwood
V-1578
Chesapeake
York & Harper State
TD 2520
Yates Pet. etal
9-1-2008
V-6885
OGX Res.
2-1-2008
VA-2778
OGX Res.
Full Choke Fed. Com.
(Blanco Co.)
32
OGX Resc.
35
36
31
Marbob
Hallwood (Enron)
Harkey-St.
(OGX Res.)
12-1-2007
McKinney & Leonard
Kelly-St.
TD 2600
OGX Res.
2-1-2008
Max Wilson
Amoco-St.
Quien Sabe 25 Federal #1H
BHL: 330 FSL & 380 FEL
Section 25 - T24S - R27E
Three Rivers
2-1-2010
V-7316
EOG Muzzy St.
1-BGK
Yates Pet. Cohiba St.
Yates Pet. etal
4-1-2005
V-5769
TMBR/Sharp
EOG Res.
2-1-2010
V-7289
EOG Resc.
2-1-2010
V-7315
Wood & Locker
Scurnland St.
Bn. Spr. Disc.
OGX Colt St.

COG Production LLC
DRILLING AND OPERATIONS PROGRAM
Quien Sabe 25 Federal 1H
SHL: 190' FNL & 600' FEL
BHL: 330' FSL & 380' FEL
Section 25 T24S R27E
Eddy County, New Mexico

In conjunction with Form 3160-3, Application for Permit to Drill subject well, COG Operating LLC submits the following eleven items of pertinent information in accordance with BLM requirements.

1. Geological surface formation: Permian
2. The estimated tops of geologic markers & estimated depths at which anticipated water, oil or gas formations are expected to be encountered are as follows:

	Fresh Water	~ 70'	
	~~Rustler~~	~~761'~~	
	Top of Salt	~~925'~~	Surface
Castile	~~Base of Salt~~	~~2311'~~	777
	Delaware	2514'	Oil
	Bone Spring	6009'	Oil
	Wolfcamp	9249'	
	PHTD	9300'	
	TD TVD	7925'	
	TD MD	12,447'	

No other formations are expected to give up oil, gas or fresh water in measurable quantities. The surface fresh water sands will be protected by setting 13-3/8" casing at 180' and circulating cement back to surface. All intervals will be isolated by setting 5 ½" casing to total depth and tying back cement to a minimum of 500' into 9-5/8" csg shoe.

3. **Proposed Casing Program: All casing is new and API approved**

Hole Size	Depths	Section	OD Casing	New/ Used	Wt	Collar	Grade	Collapse Design Factor	Burst Design Factor	Tension Design Factor
17 ½"	0' - 180'	Surface	13 3/8"	New	48#	STC	H-40	1.125	1.125	1.6
12 ¼"	0' – 2450'	Intrmd	9 5/8"	New	36#	LTC	J-55	1.125	1.125	1.6
7-7/8"	2450' – 9300'	Pilot Hole								
7 7/8"	0' – 12,447'	Production Curve & Lateral	5 ½"	New	17#	LTC	P-110	1.125	1.125	1.6

- While running all casing strings, the pipe will be kept a minimum of 1/3 full at all times to avoid approaching the collapse pressure of casing.

4. Proposed Cement Program

a. 13-3/8" Surface — Cmt: 200 sx Class C + 2% $CaCl_2$ (14.8 ppg / 1.35 cuft/sx) **Calculated w/50% excess on OH volumes

b. 9 5/8" Intermediate: Lead: 450 sx Class C + 4% Gel (13.5 ppg /1.75 cuft/sx) Tail: 250 sx Class C (14.8 ppg / 1.35 cuft/sx) **Calculated w/35% excess on OH volumes

d. 5 ½" Production — Lead: 750 sx 50:50:10 H +Salt+Gilsonite+CFR-3+ HR601 (11.9 ppg / 2.5 cuft/sx) Tail: 950 sx 50:50:2 H +Salt+GasStop +HR601 +CFR-3 (14.4 ppg /1.25 cuft/sx) **Calculated w/35% excess on OH volumes

- The above cement volumes could be revised pending the caliper measurements.
- The 9-5/8" intermediate cement is designed to circulate to surface.
- The production TOC will tie back a minimum 500' into previous shoe
- Pilot will be plugged back with the following:
  - 500' PHTD Plug: 8800' – PHTD w/200 sx Class H 17.2 ppg / 0.98 ft3/sx
  - 700' KO Plug: 7300' – 8000' w/250 sx Class H 17.2 ppg / 0.98 ft3/sx

5. Minimum Specifications for Pressure Control:

Nipple up on 13 3/8 with annular preventer tested to 50% of rating working pressure by independent tester and the rest of the 2M system tested to 2000 psi.
Nipple up on 9 5/8 with 5M system tested 5000 psi to by independent tester.
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. A 2" kill line and a minimum 3" choke line will be included in the drilling spool located below the ram-type BOP. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold with 5000 psi WP rating.

6. Estimated BHP & BHT:

PHTD = 4352 psi
PHTD = 144°F
Lateral TD = 3460 psi
Lateral TD = 132°F

7. Mud Program:

The applicable depths and properties of this system are as follows:

Depth	Type System	Mud Weight	Viscosity (sec)	Waterloss (cc)
0' – 180'	Fresh Water	8.4	29	N.C.
180' – 2450'	Brine	10	29	N.C.
2450' – 9300' (PH)	Cut Brine	9.2 – 9.6	29	N.C.
2450' – 12,447' (Lateral)	Cut Brine	8.9 – 9.2	29	N.C.

- The necessary mud products for weight addition and fluid loss control will be on location at all times.
- A visual and electronic mud monitoring system will be rigged up prior to spud to detect changes in the volume of mud system. The electronic system consists of a pit volume totalizer, stroke counter and flow sensor at flow line.
- If weight and/or viscosity are introduced to the mud system a daily mud check will be performed by mud contractor, along with tourly check by rig personnel.
- After setting intermediate casing, a third party gas unit detection system will be installed at the flow line.

8. Auxiliary Well Control and Monitoring Equipment:

a. A Kelly cock will be in the drill string at all times.
b. A full opening drill pipe stabbing valve having the appropriate connections will be on the rig floor at all times.
c. Hydrogen Sulfide detection equipment will be in operation after drilling out the 13 3/8" casing shoe until the 5 ½" casing is cemented. Breathing equipment will be on location upon drilling the 13 3/8" shoe until total depth is reached.

9. Testing, Logging and Coring Program:

a. Drill stem tests will be based on geological sample shows.
b. If open hole electrical logging is preformed, the program will be:
   i. Total Depth to Intermediate Casing: Dual Laterolog-Micro Laterolog and Gamma Ray. Compensated Neutron – Z Density log with Gamma Ray and Caliper.
   ii. Total Depth to Surface: Compensated Neutron with Gamma Ray
   iii. No coring program is planned
   iv. Additional testing will be initiated subsequent to setting the 5 ½" production casing. Specific intervals will be targeted based on log evaluation, geological sample shows and drill stem tests.

See COA

10. Potential Hazards:

a. No abnormal pressures or temperatures are expected. There is no known presence of H2S in this area. If H2S is encountered the operator will comply with the provisions of Onshore Oil and Gas Order No. 6. All personnel will be familiar with all aspects of safe operation of equipment being used to drill this well. No H2S is anticipated to be encountered.

See COA

11. Anticipated starting date and Duration of Operations:

a. Road and location construction will begin after the BLM has approved the APD. Anticipated spud date will be as possible after BLM approval and as soon as a rig will be available. Move in operations and drilling is expected to take 30 days.

6/28/18

Plan Proposal

FOR

COG Operating, LLC
Quien Sabe 25 Federal #1H
Eddy Co., NM

Design #1

Presented By:

Patrick Quain
Account Manager

Bret Wolford
Well Planner

SHL
190' FNL & 600' FEL
Penetration Point
330' FNL & 594' FEL
PBHL
330' FSL & 380' FEL

Project: Eddy County(NM27E)
Site: Sec.25-T24S-R27E
Well: Quien Sabe 25 Federal #1H
Wellbore: Wellbore #1
Design: Design #1
Lat: 32° 11' 42.309 N
Long: 104° 8' 13.025 W
GL: 3107.50
KB: WELL @ 3124.50usft (Patriot #2)

CONCHO

Archer

SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
7377.60	0.00	0.00	7377.60	0.00	0.00	0.00	0.00	0.00	KOP / Start Build 12.00°
8119.87	89.07	177.23	7855.00	-469.19	22.69	12.00	177.23	469.74	EOC / Start 4327.42' hold at 8119.87 MD
12447.30	89.07	177.23	7925.00	-4791.00	231.70	0.00	0.00	4796.60	TD at 12447.30

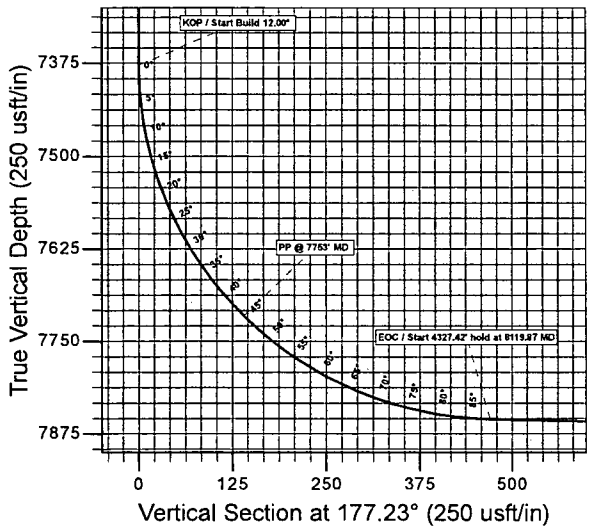
WELL DETAILS: Quien Sabe 25 Federal #1H

Ground Level: 3107.50

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	434747.600	560748.200	32° 11' 42.309 N	104° 8' 13.025 W	

WELLBORE TARGET DETAILS (LAT/LONG)

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
Quien Sabe 25 Fed #1H PBHL	7925.00	-4791.00	231.70	32° 10' 54.891 N	104° 8' 10.430 W	Point



PROJECT DETAILS: Eddy County(NM27E)

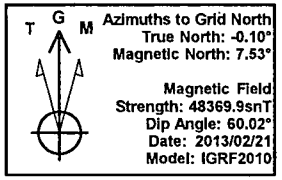
Geodetic System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone: New Mexico East 3001

System Datum: Mean Sea Level

SITE DETAILS: Sec.25-T24S-R27E

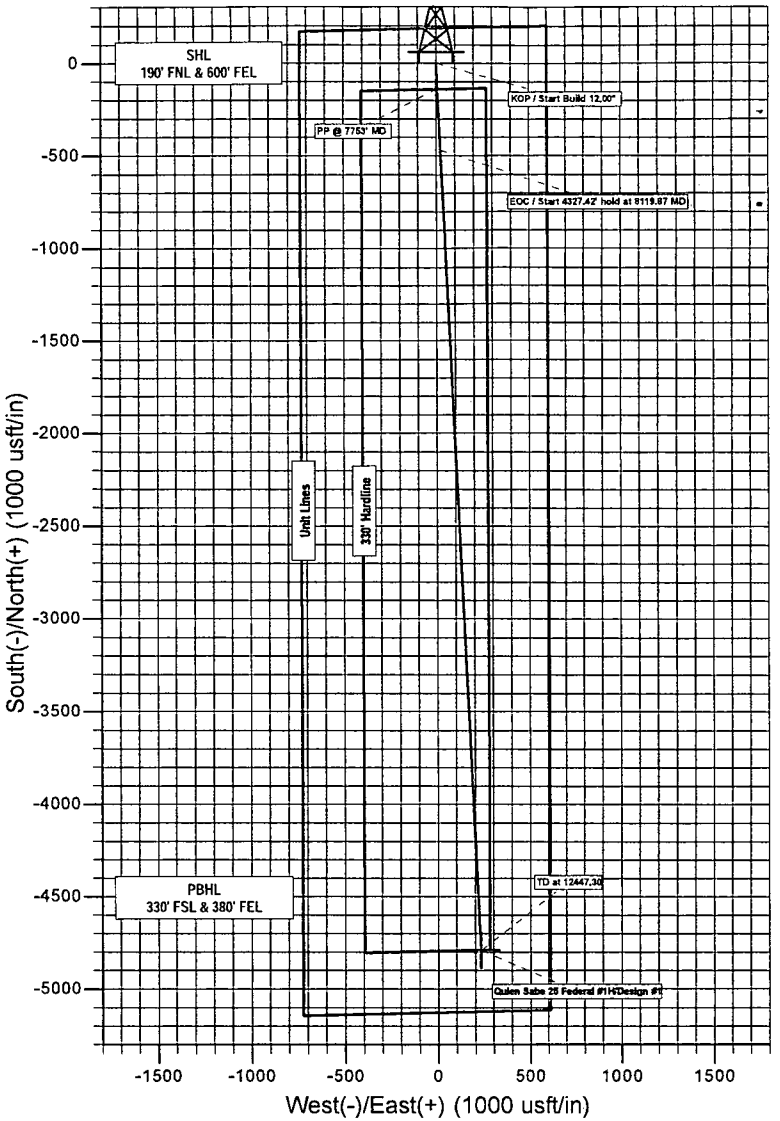
Site Centre Latitude: 32° 11' 42.309 N
Longitude: 104° 8' 13.025 W

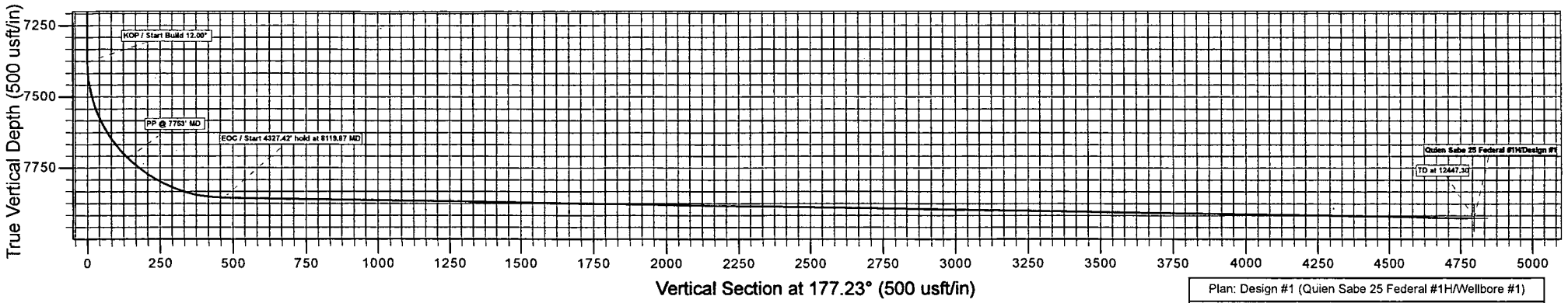
Positional Uncertainty: 0.00
Convergence: 0.10
Local North: Grid



Azimuths to Grid North
True North: -0.10°
Magnetic North: 7.53°

Magnetic Field
Strength: 48369.9snT
Dip Angle: 60.02°
Date: 2013/02/21
Model: IGRF2010





Plan: Design #1 (Quien Sabe 25 Federal #1H/Wellbore #1)
Created By: Bret Wolford Date: 15:15, February 21 2013

CONCHO

COG Operating, LLC

Eddy County(NM27E)
Sec.25-T24S-R27E
Quien Sabe 25 Federal #1H

Wellbore #1

Plan: Design #1

Standard Planning Report

21 February, 2013

Archer

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Quien Sabe 25 Federal #1H
Company:	COG Operating, LLC	**TVD Reference:**	WELL @ 3124.50usft (Patriot #2)
Project:	Eddy County(NM27E)	**MD Reference:**	WELL @ 3124.50usft (Patriot #2)
Site:	Sec.25-T24S-R27E	**North Reference:**	Grid
Well:	Quien Sabe 25 Federal #1H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Project Eddy County(NM27E)

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 Sec.25-T24S-R27E

Site Position:		**Northing:**	434,747.600 usft	**Latitude:**	32° 11' 42.309 N
From:	Map	**Easting:**	560,748.200 usft	**Longitude:**	104° 8' 13.025 W
Position Uncertainty:	0.00 usft	**Slot Radius:**	13-3/16"	**Grid Convergence:**	0.10 °

Well Quien Sabe 25 Federal #1H

Well Position	**+N/-S**	0.00 usft	**Northing:**	434,747.600 usft	**Latitude:**	32° 11' 42.309 N
	+E/-W	0.00 usft	**Easting:**	560,748.200 usft	**Longitude:**	104° 8' 13.025 W
Position Uncertainty		0.00 usft	**Wellhead Elevation:**	usft	**Ground Level:**	3,107.50 usft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	02/21/13	7.64	60.02	48,370

Design Design #1

Audit Notes:

Version:		**Phase:**	PLAN	**Tie On Depth:**	0.00

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	7,925.00	0.00	0.00	177.23

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	
7,377.60	0.00	0.00	7,377.60	0.00	0.00	0.00	0.00	0.00	0.00	
8,119.87	89.07	177.23	7,855.00	-469.19	22.69	12.00	12.00	0.00	177.23	Quien Sabe 25 Fed #
12,447.30	89.07	177.23	7,925.00	-4,791.00	231.70	0.00	0.00	0.00	0.00	Quien Sabe 25 Fed #

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Quien Sabe 25 Federal #1H
Company:	COG Operating, LLC	**TVD Reference:**	WELL @ 3124.50usft (Patriot #2)
Project:	Eddy County(NM27E)	**MD Reference:**	WELL @ 3124.50usft (Patriot #2)
Site:	Sec.25-T24S-R27E	**North Reference:**	Grid
Well:	Quien Sabe 25 Federal #1H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

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
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.00
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,800.00	0.00	0.00	0.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,900.00	0.00	0.00	0.00	0.00	0.00	0.00
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,100.00	0.00	0.00	0.00	0.00	0.00	0.00
5,200.00	0.00	0.00	5,200.00	0.00	0.00	0.00	0.00	0.00	0.00
5,300.00	0.00	0.00	5,300.00	0.00	0.00	0.00	0.00	0.00	0.00

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Quien Sabe 25 Federal #1H
Company:	COG Operating, LLC	**TVD Reference:**	WELL @ 3124.50usft (Patriot #2)
Project:	Eddy County(NM27E)	**MD Reference:**	WELL @ 3124.50usft (Patriot #2)
Site:	Sec.25-T24S-R27E	**North Reference:**	Grid
Well:	Quien Sabe 25 Federal #1H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

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)
5,400.00	0.00	0.00	5,400.00	0.00	0.00	0.00	0.00	0.00	0.00
5,500.00	0.00	0.00	5,500.00	0.00	0.00	0.00	0.00	0.00	0.00
5,600.00	0.00	0.00	5,600.00	0.00	0.00	0.00	0.00	0.00	0.00
5,700.00	0.00	0.00	5,700.00	0.00	0.00	0.00	0.00	0.00	0.00
5,800.00	0.00	0.00	5,800.00	0.00	0.00	0.00	0.00	0.00	0.00
5,900.00	0.00	0.00	5,900.00	0.00	0.00	0.00	0.00	0.00	0.00
6,000.00	0.00	0.00	6,000.00	0.00	0.00	0.00	0.00	0.00	0.00
6,100.00	0.00	0.00	6,100.00	0.00	0.00	0.00	0.00	0.00	0.00
6,200.00	0.00	0.00	6,200.00	0.00	0.00	0.00	0.00	0.00	0.00
6,300.00	0.00	0.00	6,300.00	0.00	0.00	0.00	0.00	0.00	0.00
6,400.00	0.00	0.00	6,400.00	0.00	0.00	0.00	0.00	0.00	0.00
6,500.00	0.00	0.00	6,500.00	0.00	0.00	0.00	0.00	0.00	0.00
6,600.00	0.00	0.00	6,600.00	0.00	0.00	0.00	0.00	0.00	0.00
6,700.00	0.00	0.00	6,700.00	0.00	0.00	0.00	0.00	0.00	0.00
6,800.00	0.00	0.00	6,800.00	0.00	0.00	0.00	0.00	0.00	0.00
6,900.00	0.00	0.00	6,900.00	0.00	0.00	0.00	0.00	0.00	0.00
7,000.00	0.00	0.00	7,000.00	0.00	0.00	0.00	0.00	0.00	0.00
7,100.00	0.00	0.00	7,100.00	0.00	0.00	0.00	0.00	0.00	0.00
7,200.00	0.00	0.00	7,200.00	0.00	0.00	0.00	0.00	0.00	0.00
7,300.00	0.00	0.00	7,300.00	0.00	0.00	0.00	0.00	0.00	0.00
KOP / Start Build 12.00°									
7,377.60	0.00	0.00	7,377.60	0.00	0.00	0.00	0.00	0.00	0.00
7,400.00	2.69	177.23	7,399.99	-0.52	0.03	0.53	12.00	12.00	0.00
7,425.00	5.69	177.23	7,424.92	-2.35	0.11	2.35	12.00	12.00	0.00
7,450.00	8.69	177.23	7,449.72	-5.47	0.26	5.48	12.00	12.00	0.00
7,475.00	11.69	177.23	7,474.33	-9.89	0.48	9.90	12.00	12.00	0.00
7,500.00	14.69	177.23	7,498.66	-15.59	0.75	15.60	12.00	12.00	0.00
7,525.00	17.69	177.23	7,522.67	-22.55	1.09	22.57	12.00	12.00	0.00
7,550.00	20.69	177.23	7,546.28	-30.75	1.49	30.79	12.00	12.00	0.00
7,575.00	23.69	177.23	7,569.42	-40.18	1.94	40.23	12.00	12.00	0.00
7,600.00	26.69	177.23	7,592.04	-50.81	2.46	50.87	12.00	12.00	0.00
7,625.00	29.69	177.23	7,614.08	-62.60	3.03	62.68	12.00	12.00	0.00
7,650.00	32.69	177.23	7,635.46	-75.53	3.65	75.62	12.00	12.00	0.00
7,675.00	35.69	177.23	7,656.14	-89.56	4.33	89.67	12.00	12.00	0.00
7,700.00	38.69	177.23	7,676.05	-104.65	5.06	104.78	12.00	12.00	0.00
7,725.00	41.69	177.23	7,695.15	-120.77	5.84	120.91	12.00	12.00	0.00
7,750.00	44.69	177.23	7,713.37	-137.85	6.67	138.01	12.00	12.00	0.00
PP @ 7753' MD									
7,753.00	45.05	177.23	7,715.50	-139.97	6.77	140.13	12.00	12.00	0.00
7,775.00	47.69	177.23	7,730.68	-155.87	7.54	156.05	12.00	12.00	0.00
7,800.00	50.69	177.23	7,747.02	-174.77	8.45	174.97	12.00	12.00	0.00
7,825.00	53.69	177.23	7,762.34	-194.49	9.41	194.72	12.00	12.00	0.00
7,850.00	56.69	177.23	7,776.61	-214.99	10.40	215.24	12.00	12.00	0.00
7,875.00	59.69	177.23	7,789.79	-236.21	11.42	236.49	12.00	12.00	0.00
7,900.00	62.69	177.23	7,801.84	-258.09	12.48	258.39	12.00	12.00	0.00
7,925.00	65.69	177.23	7,812.72	-280.56	13.57	280.89	12.00	12.00	0.00
7,950.00	68.69	177.23	7,822.41	-303.58	14.68	303.93	12.00	12.00	0.00
7,975.00	71.69	177.23	7,830.88	-327.07	15.82	327.45	12.00	12.00	0.00
8,000.00	74.69	177.23	7,838.11	-350.97	16.97	351.38	12.00	12.00	0.00
8,025.00	77.69	177.23	7,844.08	-375.22	18.15	375.65	12.00	12.00	0.00
8,050.00	80.69	177.23	7,848.77	-399.74	19.33	400.21	12.00	12.00	0.00
8,075.00	83.69	177.23	7,852.17	-424.48	20.53	424.97	12.00	12.00	0.00
8,100.00	86.69	177.23	7,854.27	-449.36	21.73	449.88	12.00	12.00	0.00

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Quien Sabe 25 Federal #1H
Company:	COG Operating, LLC	**TVD Reference:**	WELL @ 3124.50usft (Patriot #2)
Project:	Eddy County(NM27E)	**MD Reference:**	WELL @ 3124.50usft (Patriot #2)
Site:	Sec.25-T24S-R27E	**North Reference:**	Grid
Well:	Quien Sabe 25 Federal #1H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

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)
EOC / Start 4327.42' hold at 8119.87 MD									
8,119.87	89.07	177.23	7,855.00	-469.19	22.69	469.74	12.00	12.00	0.00
8,200.00	89.07	177.23	7,856.30	-549.22	26.56	549.86	0.00	0.00	0.00
8,300.00	89.07	177.23	7,857.91	-649.09	31.39	649.84	0.00	0.00	0.00
8,400.00	89.07	177.23	7,859.53	-748.96	36.22	749.83	0.00	0.00	0.00
8,500.00	89.07	177.23	7,861.15	-848.83	41.05	849.82	0.00	0.00	0.00
8,600.00	89.07	177.23	7,862.77	-948.70	45.88	949.80	0.00	0.00	0.00
8,700.00	89.07	177.23	7,864.38	-1,048.57	50.71	1,049.79	0.00	0.00	0.00
8,800.00	89.07	177.23	7,866.00	-1,148.44	55.54	1,149.78	0.00	0.00	0.00
8,900.00	89.07	177.23	7,867.62	-1,248.31	60.37	1,249.77	0.00	0.00	0.00
9,000.00	89.07	177.23	7,869.24	-1,348.18	65.20	1,349.75	0.00	0.00	0.00
9,100.00	89.07	177.23	7,870.85	-1,448.05	70.03	1,449.74	0.00	0.00	0.00
9,200.00	89.07	177.23	7,872.47	-1,547.92	74.86	1,549.73	0.00	0.00	0.00
9,300.00	89.07	177.23	7,874.09	-1,647.79	79.69	1,649.71	0.00	0.00	0.00
9,400.00	89.07	177.23	7,875.71	-1,747.66	84.52	1,749.70	0.00	0.00	0.00
9,500.00	89.07	177.23	7,877.32	-1,847.53	89.35	1,849.69	0.00	0.00	0.00
9,600.00	89.07	177.23	7,878.94	-1,947.40	94.18	1,949.67	0.00	0.00	0.00
9,700.00	89.07	177.23	7,880.56	-2,047.27	99.01	2,049.66	0.00	0.00	0.00
9,800.00	89.07	177.23	7,882.18	-2,147.14	103.84	2,149.65	0.00	0.00	0.00
9,900.00	89.07	177.23	7,883.80	-2,247.01	108.67	2,249.63	0.00	0.00	0.00
10,000.00	89.07	177.23	7,885.41	-2,346.88	113.50	2,349.62	0.00	0.00	0.00
10,100.00	89.07	177.23	7,887.03	-2,446.75	118.33	2,449.61	0.00	0.00	0.00
10,200.00	89.07	177.23	7,888.65	-2,546.62	123.16	2,549.60	0.00	0.00	0.00
10,300.00	89.07	177.23	7,890.27	-2,646.49	127.99	2,649.58	0.00	0.00	0.00
10,400.00	89.07	177.23	7,891.88	-2,746.36	132.82	2,749.57	0.00	0.00	0.00
10,500.00	89.07	177.23	7,893.50	-2,846.23	137.65	2,849.56	0.00	0.00	0.00
10,600.00	89.07	177.23	7,895.12	-2,946.10	142.48	2,949.54	0.00	0.00	0.00
10,700.00	89.07	177.23	7,896.74	-3,045.97	147.31	3,049.53	0.00	0.00	0.00
10,800.00	89.07	177.23	7,898.35	-3,145.84	152.14	3,149.52	0.00	0.00	0.00
10,900.00	89.07	177.23	7,899.97	-3,245.71	156.97	3,249.50	0.00	0.00	0.00
11,000.00	89.07	177.23	7,901.59	-3,345.58	161.80	3,349.49	0.00	0.00	0.00
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11,900.00	89.07	177.23	7,916.15	-4,244.41	205.27	4,249.37	0.00	0.00	0.00
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12,400.00	89.07	177.23	7,924.23	-4,743.76	229.42	4,749.31	0.00	0.00	0.00
TD at 12447.30 - Quien Sabe 25 Fed #1H PBHL									
12,447.30	89.07	177.23	7,925.00	-4,791.00	231.70	4,796.60	0.00	0.00	0.00

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Quien Sabe 25 Federal #1H
Company:	COG Operating, LLC	**TVD Reference:**	WELL @ 3124.50usft (Patriot #2)
Project:	Eddy County(NM27E)	**MD Reference:**	WELL @ 3124.50usft (Patriot #2)
Site:	Sec.25-T24S-R27E	**North Reference:**	Grid
Well:	Quien Sabe 25 Federal #1H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

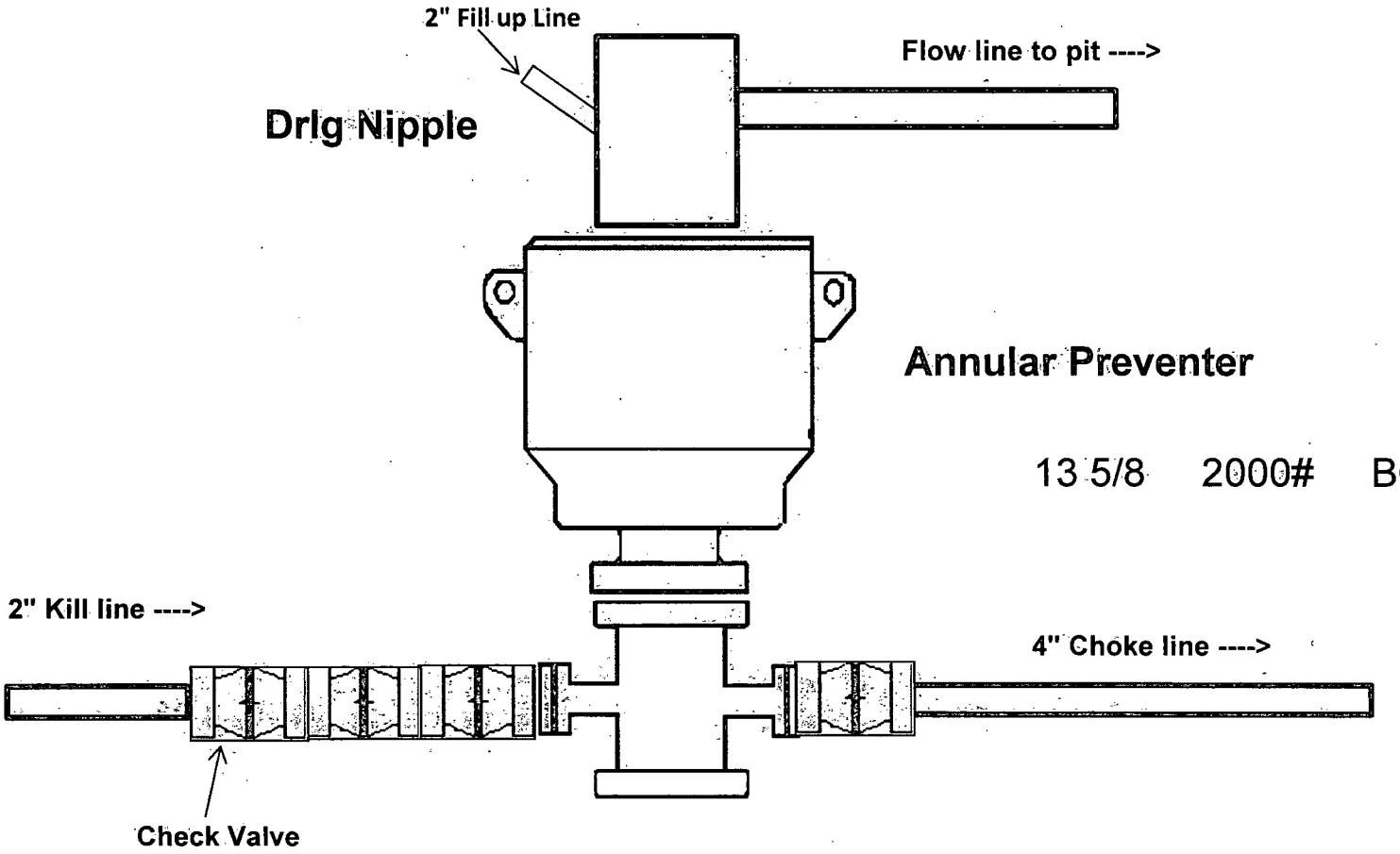
Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
Quien Sabe 25 Fed #1H - plan hits target center - Point	0.00	0.00	7,925.00	-4,791.00	231.70	429,956.600	560,979.900	32° 10' 54.891 N	104° 8' 10.430 W

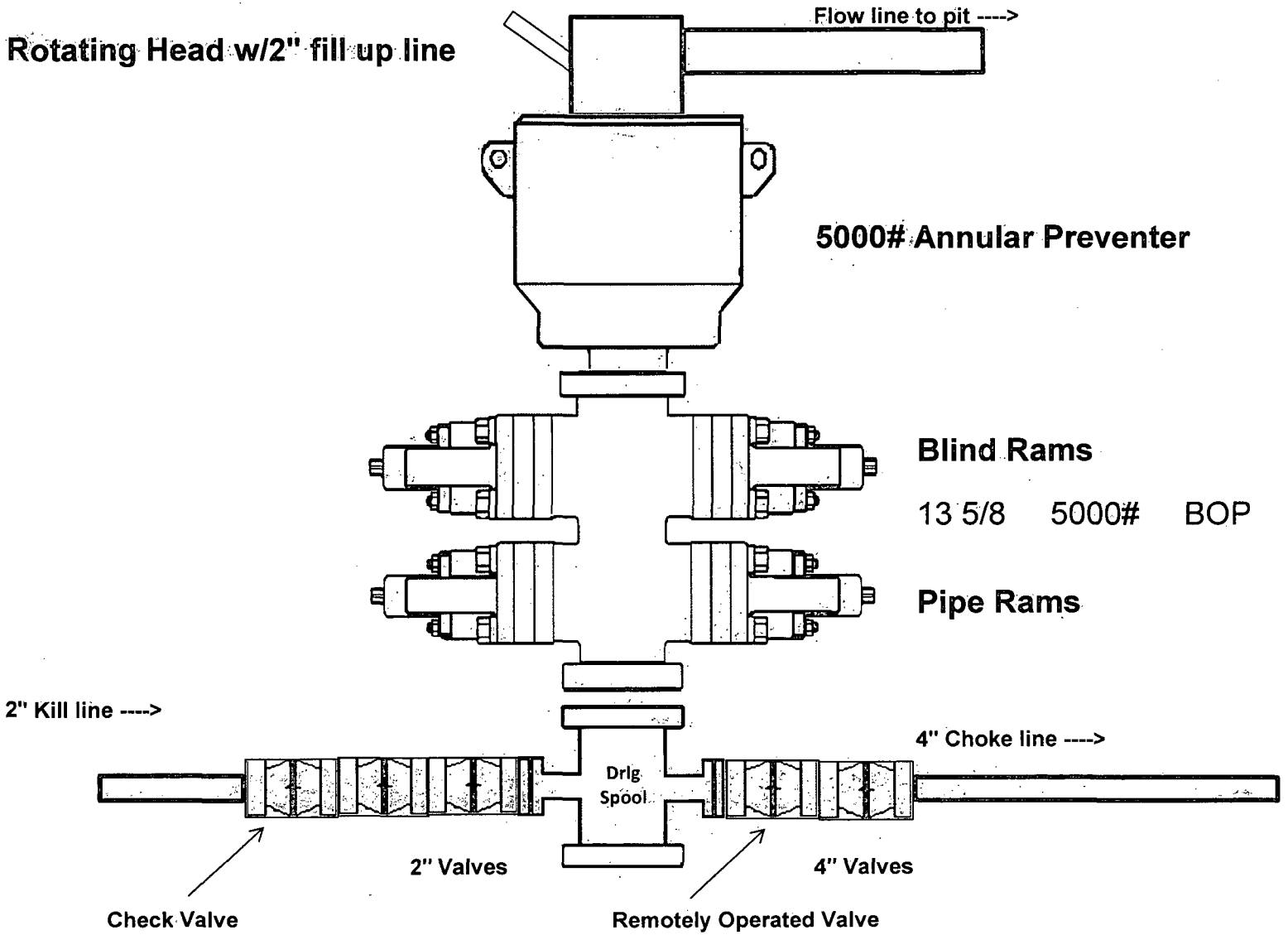
Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
7,377.60	7,377.60	0.00	0.00	KOP / Start Build 12.00°
7,753.00	7,715.50	-139.97	6.77	PP @ 7753' MD
8,119.87	7,855.00	-469.19	22.69	EOC / Start 4327.42' hold at 8119.87 MD
12,447.30	7,925.00	-4,791.00	231.70	TD at 12447.30

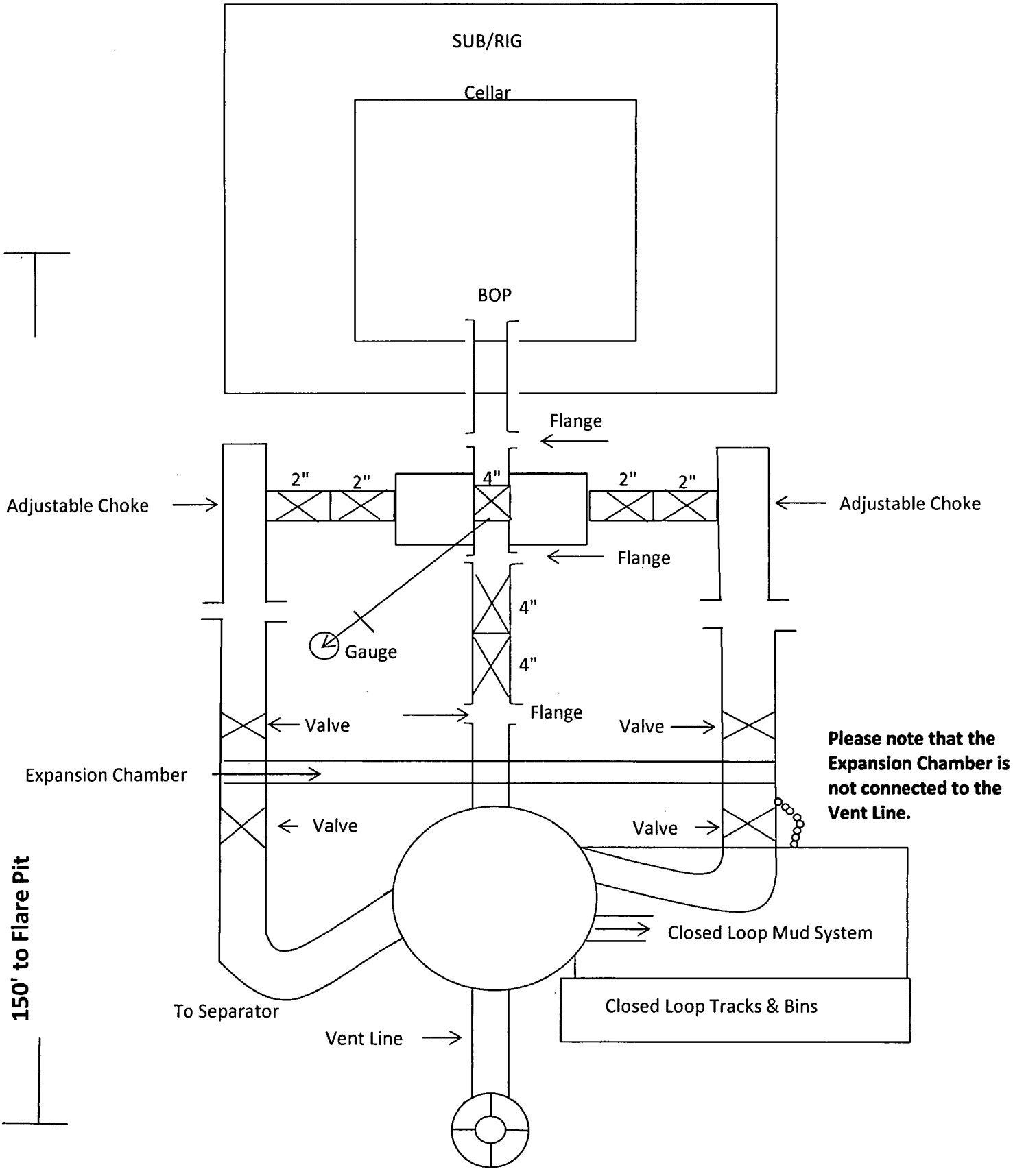
2,000 psi BOP Schematic



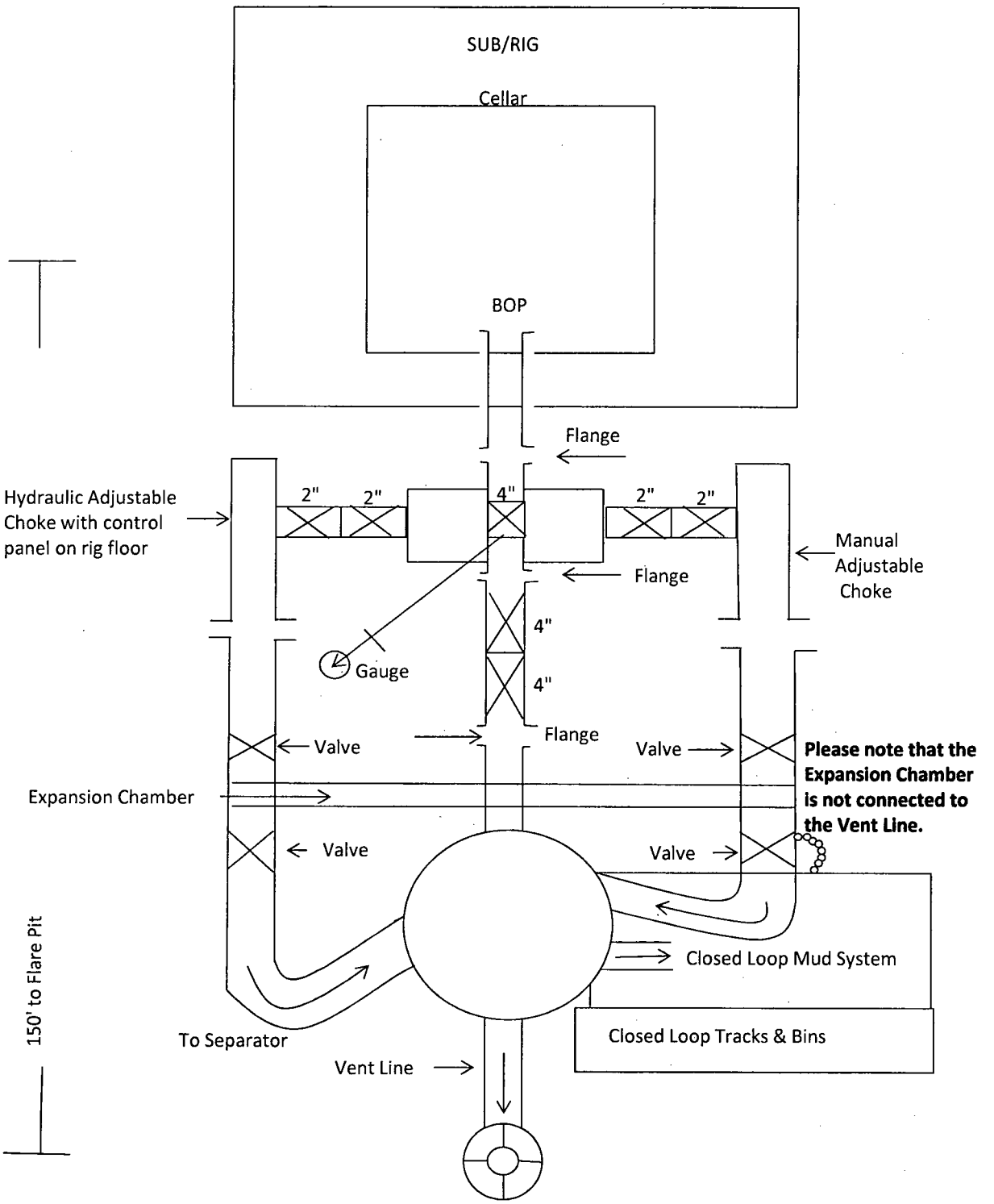
5,000 psi BOP Schematic



2M Choke Manifold Equipment



5M Choke Manifold Equipment



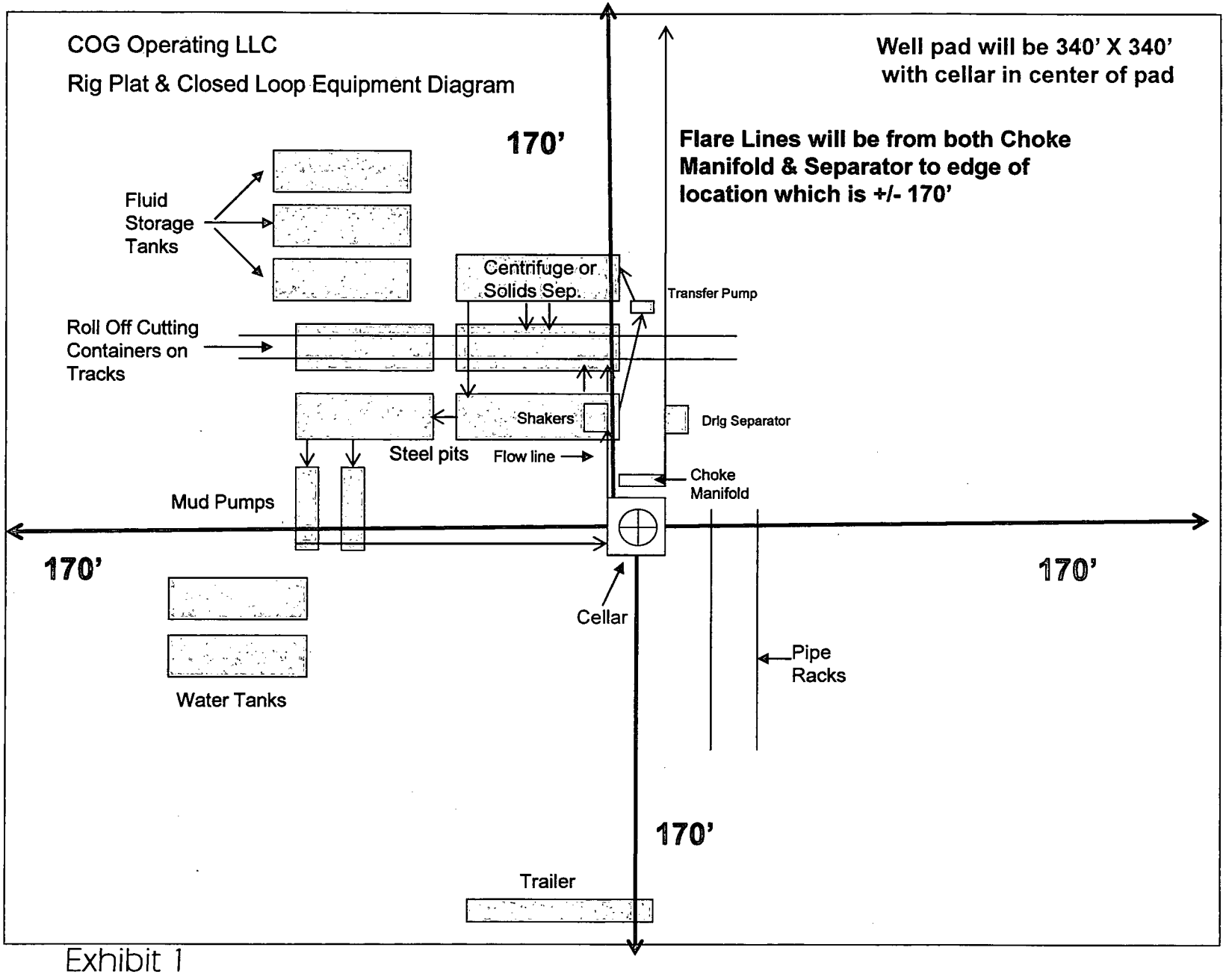

COG Operating LLC
Rig Plat & Closed Loop Equipment Diagram
Well pad will be 340' X 340' with cellar in center of pad
170'
Flare Lines will be from both Choke Manifold & Separator to edge of location which is +/- 170'
Fluid Storage Tanks
Centrifuge or Solids Sep.
Transfer Pump
Roll Off Cutting Containers on Tracks
Shakers
Drlg Separator
Steel pits
Flow line
Choke Manifold
Mud Pumps
170'
170'
Cellar
Pipe Racks
Water Tanks
170'
Trailer

Exhibit 1

Design Plan
Operating and Maintenance Plan
Closure Plan

Quien Sabe 25 Federal 1H
SHL: 190' FNL & 600' FEL
BHL: 330' FSL & 380' FEL
Section 25 T24S R27E
Eddy County, New Mexico

COG Operating LLC will be using all above ground steel pits for fluid and cuttings while drilling. If any tank develops a leak we will have immediate visual discovery, we would then transfer the fluid to another tank then remove any contaminated soil and dispose of it in the cuttings bins for transportation. All leaks should be kept to less than 5 barrels. Rig crews will monitor the tanks at all times.

Equipment List:
2- Mongoose Shale Shakers
1- 414 Centrifuge
1- 518 Centrifuge
2- Roll Off Bins w/ Tracks
2- 500 BBL Frac Tanks

During drilling operations all liquids, drilling fluids and cuttings will be hauled off via CRI (Controlled Recovery Inc.) Permit R-9166 or any other approved facility.

COG OPERATING LLC
HYDROGEN SULFIDE DRILLING OPERATIONS PLAN

1. 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:

a. The hazards and characteristics of hydrogen sulfide (H_2S).
b. The proper use and maintenance of personal protective equipment and life support systems.
c. The proper use of H2S detectors, alarms, warning systems, briefing areas, evacuation procedures, and prevailing winds.
d. The proper techniques for first aid and rescue procedures.

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

a. The effects of H2S on metal components. If high tensile tubulars are to be used, personnel will be trained in their special maintenance requirements.
b. Corrective action and shut-in procedures when drilling or reworking a well and blowout prevention and well control procedures.
c. The contents and requirements of the H2S Drilling Operations Plan and the 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. This plan shall be available at the well site. All personnel will be required to carry documentation that they have received the proper training.

2. H_2S SAFETY EQUIPMENT AND SYSTEMS

Note: All H_2S 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 reasonably expected to contain H2S.

a. Well Control Equipment:
Flare line.
Choke manifold with remote choke manifold. (remotely operated choke)
Blind rams and pipe rams to accommodate all pipe sizes with properly sized closing unit.
Auxiliary equipment to include: annular preventer, mud-gas separator, rotating head.

b. Protective equipment for essential personnel:
Mark II Surviveair 30-minute units located in the dog house and at briefing areas.

c. H2S detection and monitoring equipment:
2 - portable H2S monitor positioned on location for best coverage and response. These units have warning lights and audible sirens when H2S levels of 20 ppm are reached.

d. Visual warning systems:
Caution/Danger signs 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.

e. Mud Program:
The mud program has been designed to minimize the volume of H2S circulated to the surface.

f. Metallurgy:
All drill strings, casings, tubing, wellhead, blowout preventers, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H2S service.

g. Communication:
Company vehicles equipped with cellular telephone.

COG OPERATING LLC has conducted a review to determine if an H2S contingency plan is required for the above referenced well. We were able to conclude that any potential hazardous volume would be minimal. H2S concentrations of wells in this area from surface to TD are low enough; therefore, we do not believe that an H2S contingency plan is necessary.

WARNING

YOU ARE ENTERING AN H_2S AREA
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. ***CK WITH COG OPERATING LLC FOREMAN AT MAIN OFFICE***

COG OPERATING LLC

1-575-748-6940

EMERGENCY CALL LIST

	OFFICE	MOBILE
COG OPERATING LLC OFFICE	575-748-6940	
SHERYL BAKER	575-748-6940	432-934-1873
KENT GREENWAY	575-746-2010	432-557-1694
SETH WILD	575-748-6940	432-528-3633
WALTER ROYE	575-748-6940	432-934-1886

EMERGENCY RESPONSE NUMBERS

	OFFICE
STATE POLICE	575-748-9718
EDDY COUNTY SHERIFF	575-746-2701
EMERGENCY MEDICAL SERVICES (AMBULANCE)	911 or 575-746-2701
EDDY COUNTY EMERGENCY MANAGEMENT (HARRY BURGESS)	575-887-9511
STATE EMERGENCY RESPONSE CENTER (SERC)	575-476-9620
CARLSBAD POLICE DEPARTMENT	575-885-2111
CARLSBAD FIRE DEPARTMENT	575-885-3125
NEW MEXICO OIL CONSERVATION DIVISION	575-748-1283
INDIAN FIRE & SAFETY	800-530-8693
HALLIBURTON SERVICES	800-844-8451

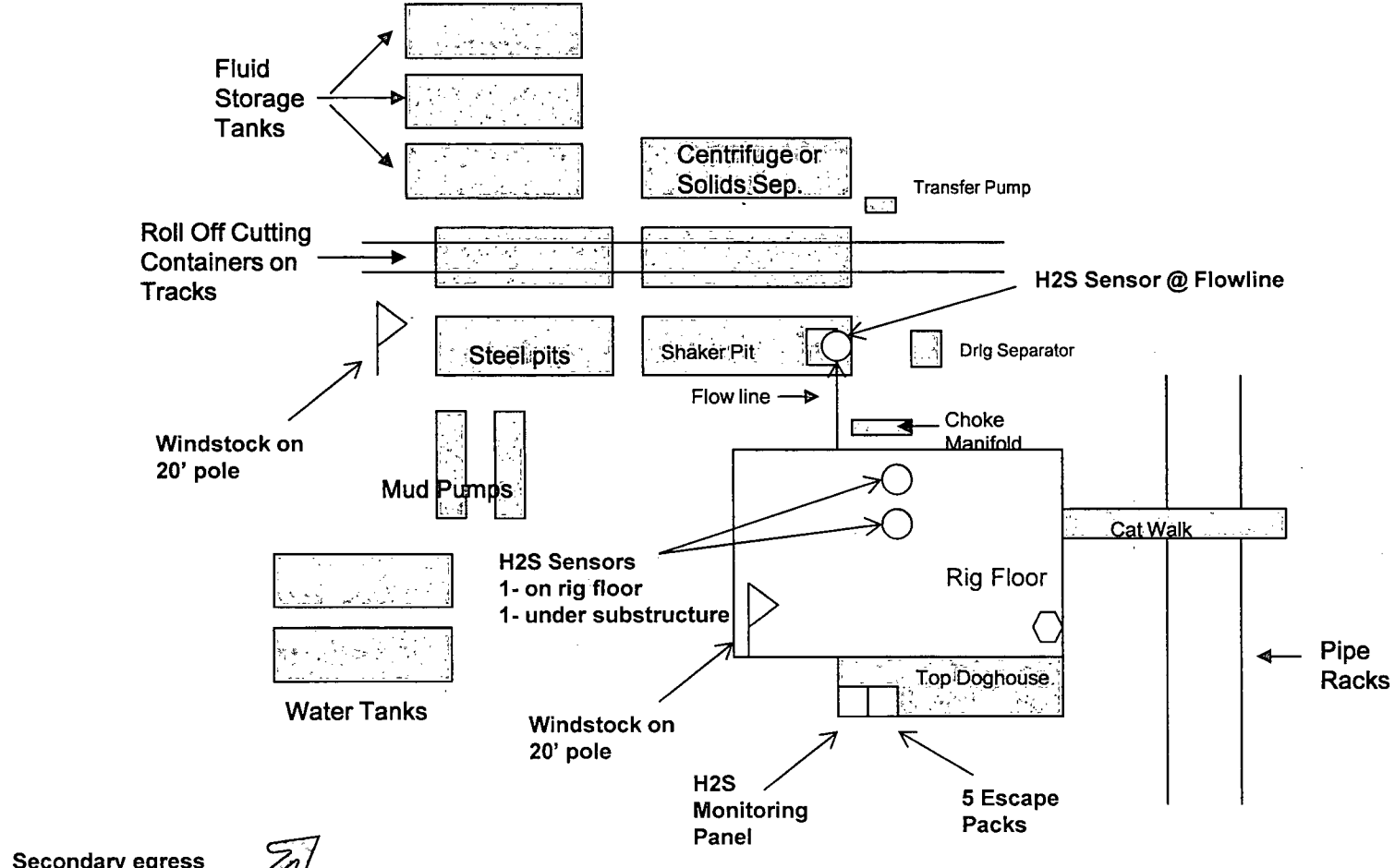
COG Operating LLC

H_2S Equipment Schematic

Well pad will be 340' X 340' with cellar in center of pad

Location Entry Condition Sign

N

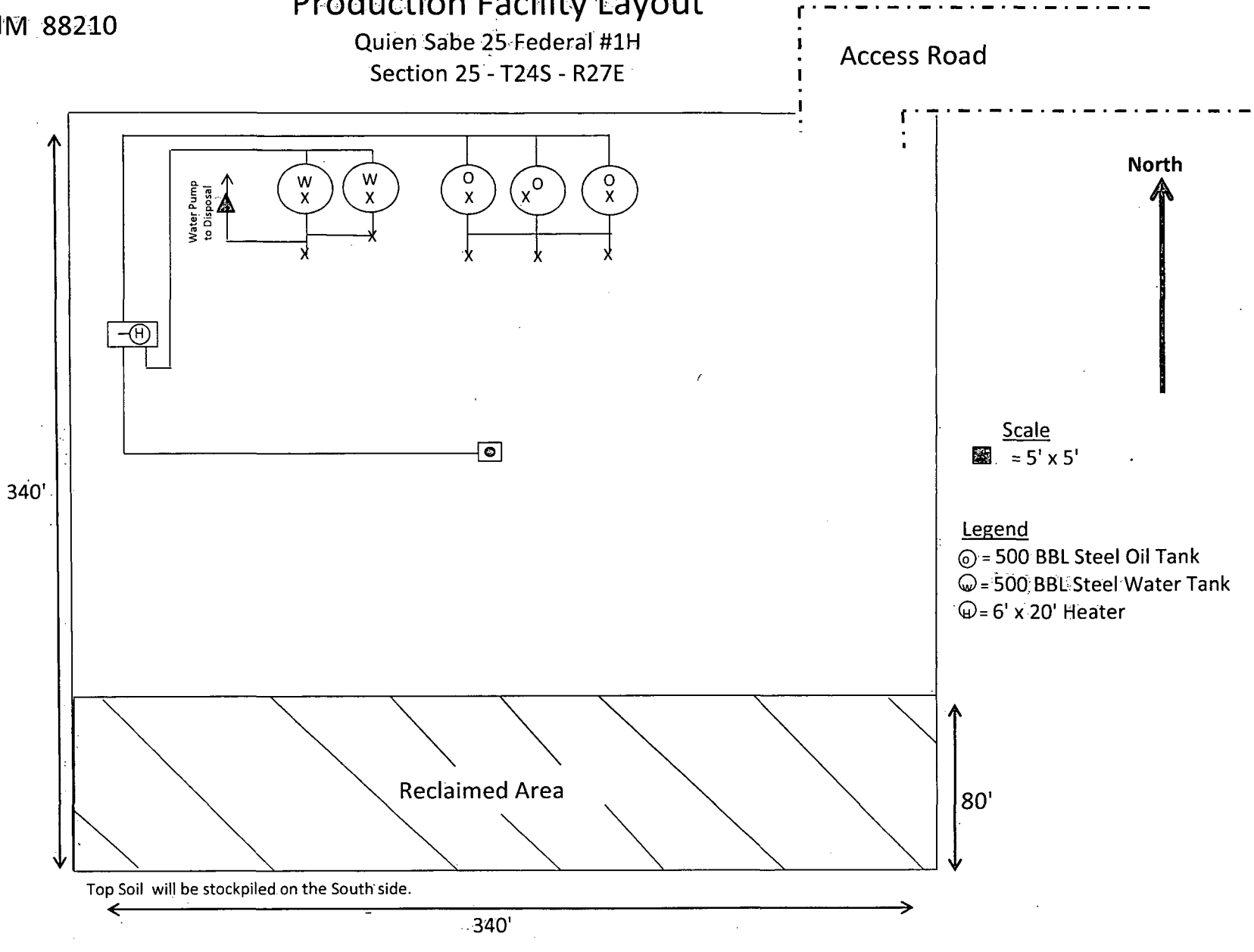


COG Operating LLC
2208 West Main
Artesia, NM 88210

Exhibit 3

Production Facility Layout

Quien Sabe 25 Federal #1H
Section 25 - T24S - R27E



Surface Use & Operating Plan

Quien Sabe 25 Federal #1H

- Surface Tenant: Hayhurst Rook Family Educational Fund
- New Road: approx. 122'
- Flow Line: on well pad
- Facilities: will be constructed on well pad – see Exhibit 3

Well Site Information

V Door: East

Topsoil: East

Interim Reclamation: South

Notes

Onsite: On-site still needed

SURFACE USE AND OPERATING PLAN

1. Existing & Proposed Access Roads

A. The well site survey and elevation plat for the proposed well is attached with this application. It was staked by Harcrow Surveying, Artesia, NM.

B. All roads to the location are shown in the Vicinity Map. 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. The road route to the well site is depicted in Exhibit #2. The road highlighted in Exhibit #2 will be used to access the well.

C. Directions to location: See Exhibit #2.

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:

The Elevation Plat shows that 122' 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 approved caliche pit.

3. Location of Existing Well:

The One-Mile Radius Map shows existing wells within a one-mile radius of surface hole location and the bottom hole location.

There are several vertical wells producing from the Morrow formation; and one vertical and two horizontal wells producing from the Bone Spring formation within the one-mile radius area.

4. Location of Existing and/or Proposed Facilities:

A. COG Operating LLC does not operate a production facility on this lease.

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

1) A tank battery and facilities will be constructed as shown on Exhibit 3.

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

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

- 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 #1. 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 160' X 160' area is used within the proposed well site to remove caliche.

C. Subsoil is removed and stockpiled along the entire length of one side of a 340' x 340' pad.

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 nor 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 or other source.

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. Human waste and grey water will need to be properly contained and disposed of. Proper disposal and elimination of waste and grey water may include but are not limited to portable septic systems and/or portable waste gathering systems (i.e. portable toilets).

F. 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 Harcrow Surveying, is shown in the Elevation Plat. Dimensions of the pad and pits are shown on the Rig Layout. V door direction is East. Topsoil, if available, will be stockpiled per BLM specifications. Because the pad is almost level no major cuts will be required.

B. The Rig Layout Closed-Loop exhibit 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 re-contoured 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 re-vegetated 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 is Hayhurst Rook Family Educational Fund, 518 E. Orchard Lane, Carlsbad, NM 88220.

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.**

13. Bond Coverage:

Bond Coverage is Statewide Bonds # NMB000215 and NMB000740

PECOS DISTRICT
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	**COG Operating LLC.**
LEASE NO.:	**NMNM-111412**
WELL NAME & NO.:	**Quien Sabe 25 Federal 1H**
SURFACE HOLE FOOTAGE:	**0190' FNL & 0600' FEL**
BOTTOM HOLE FOOTAGE	**0330' FSL & 0380' FEL**
LOCATION:	**Section 25, T. 24 S., R 27 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)

Berm Well Pad:

The entire perimeter of the well pad will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad.

- The berm shall be constructed at a minimum of 12 inches high with impermeable mineral material (e.g. caliche).
- No water flow from the uphill side(s) of the pad shall be allowed to enter the well pad.
- The topsoil stockpile shall be located outside the bermed well pad.
- Topsoil, either from the well pad or surrounding area, shall not be used to construct the berm.
- No storm drains, tubing or openings shall be placed in the berm.
- If fluid collects within the bermed area, the fluid must be vacuumed into a safe container and disposed of properly at a state approved facility.
- The integrity of the berm shall be maintained around the surfaced pad throughout the life of the well and after interim reclamation has been completed.
- Any access road entering the well pad shall be constructed so that the integrity of the berm height surrounding the well pad is not compromised. (Any access road crossing the berm cannot be lower than the berm height.)

Erosion Control

Any water erosion that may occur due to the construction of the well pad during the life of the well will be quickly corrected and proper measures will be taken to prevent future erosion.

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) 234-5909 at least 3 working days prior to commencing construction of the access road and/or well pad.

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

B. TOPSOIL

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

C. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

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

D. FEDERAL MINERAL MATERIALS PIT

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

E. WELL PAD SURFACING

Surfacing of the well pad is not required.

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

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

F. ON LEASE ACCESS ROADS

Road Width
The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed twenty-five (25) 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.

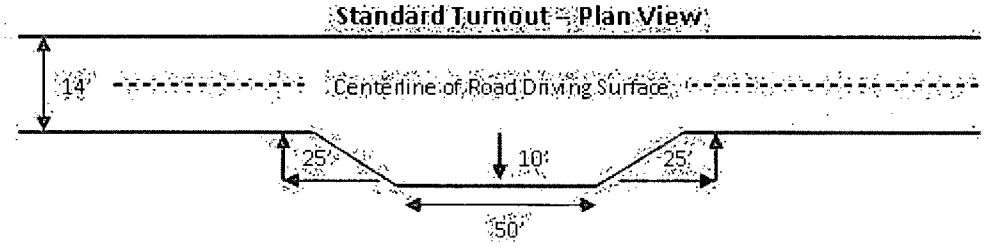
Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

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.

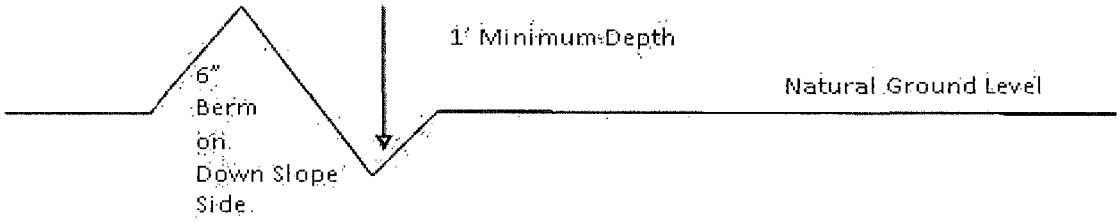
Turnouts
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall be constructed on all blind curves. Turnouts shall conform to the following diagram:



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

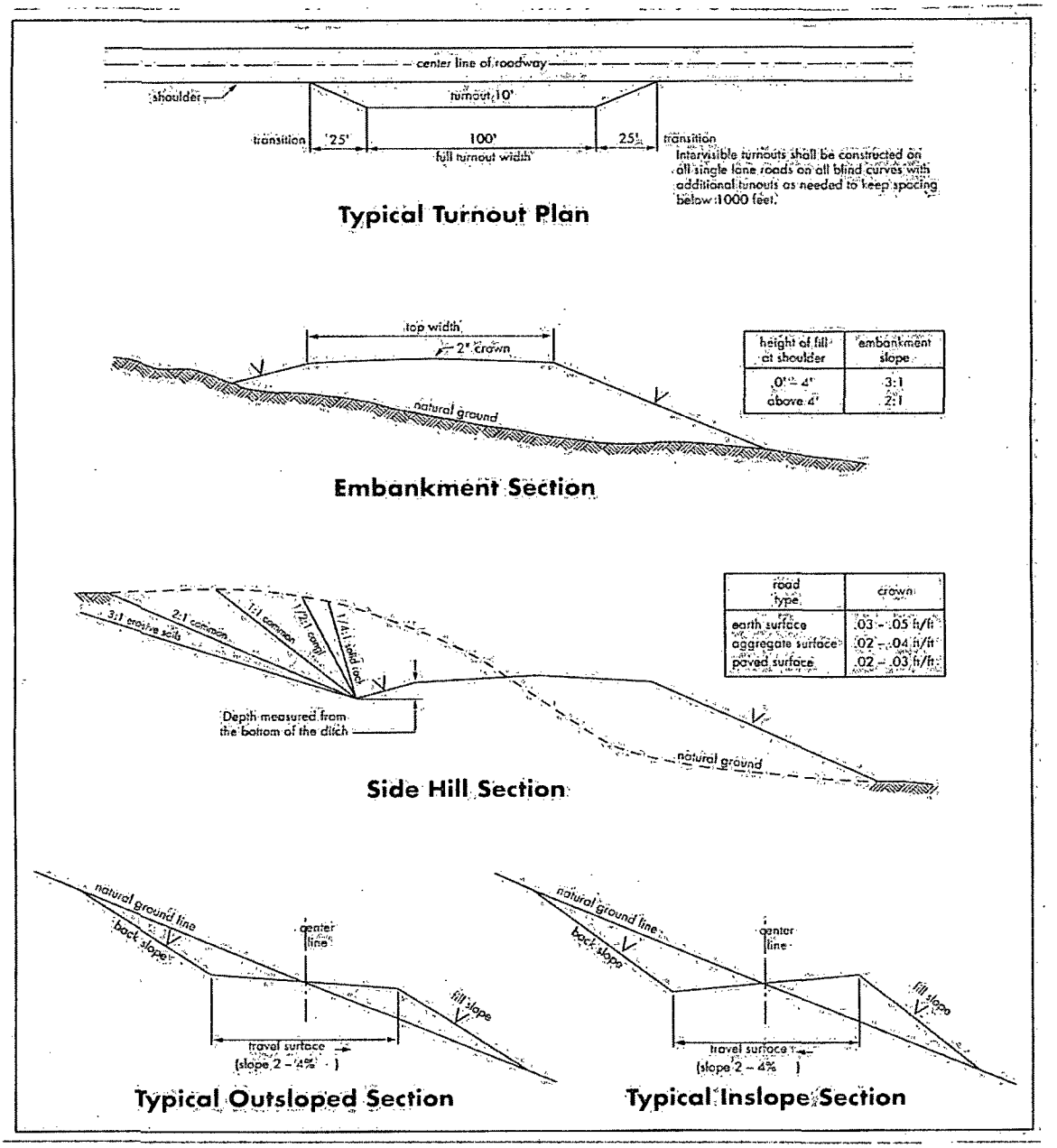
Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

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

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



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. IF OPERATOR DOES NOT HAVE THE WELL SPECIFIC CEMENT DETAILS ONSITE PRIOR TO PUMPING THE CEMENT FOR EACH CASING STRING, THE WOC WILL BE 30 HOURS. 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.

Medium Cave/Karst
Possibility of water flows in the Delaware and Salado.
Possibility of lost circulation in the Salado, Rustler, Delaware, and Bone Spring.
Abnormal Pressures may be encountered in the Wolfcamp.

1. The **13-3/8** inch surface casing shall be set at approximately **180** feet and cemented to the surface. **If salt is encountered, set casing at least 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.

2. The minimum required fill of cement behind the **9-5/8** inch intermediate casing, which shall be set at approximately **2450** feet, is:

    ☒ Cement to surface. If cement does not circulate see B.1.a, c-d above. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst.**

If 75% or greater lost circulation occurs while drilling the intermediate casing hole, the cement on the production casing must come to surface.

Formation below the 9-5/8" shoe to be tested according to Onshore Order 2.III.B.1.i. Test to be done as a mud equivalency test using the mud weight necessary for the pore pressure of the formation below the shoe (not the mud weight required to prevent dissolving the salt formation) and the mud weight for the bottom of the hole. Report results to BLM office.

Centralizers required on horizontal leg, must be type for horizontal service and a minimum of one every other joint.

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

   ☒ Cement should tie-back at least 500 feet into previous casing string. Operator shall provide method of verification.

The pilot hole plugging procedure is approved as written. Note plug top on drilling report.

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. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **9-5/8** intermediate casing shoe shall be 5000 (5M) psi. **5M system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.**

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

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

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

   c. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock.

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

   e. 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.**

   f. 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. This test shall be performed prior to the test at full stack pressure.

   g. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the **Wolfcamp** formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

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.

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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 from the BLM Standard Environmental Color Chart (CC-001: June 2008).

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).

Seed Mixture 1, for Loamy 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 regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (small/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 lovegrass (Eragrostis intermedia)	0.5
Sand dropseed (Sporobolus cryptandrus)	1.0
Sideoats grama (Bouteloua curtipendula)	5.0
Plains bristlegrass (Setaria macrostachya)	2.0

*Pounds of pure live seed:

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