ATS-15-48

Form 3160-3
(March 2012)

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.
NMLC-028731A

6. If Indian, Allotee or Tribe Name
N/A

1a. Type of work: ☑ DRILL ☐ REENTER

7. If Unit or CA Agreement, Name and No.
NMNM-111789X; Dodd Federal Unit

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

8. Lease Name and Well No.
DODD FEDERAL UNIT #650

2. Name of Operator COG Operating LLC

9. API Well No.
30-015- 43078

3a. Address One Concho Center, 600 W. Illinois Ave
Midland, TX 79701

3b. Phone No. *(include area code)*
432-685-4384

10. Field and Pool, or Exploratory
Dodd; Glorieta-Upper Yeso

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*
At surface SHL: 1338' FNL & 1006' FEL, Unit H
At proposed prod. zone BHL: 1650' FNL & 990' FEL, Unit H

11. Sec., T. R. M. or Blk. and Survey or Area
Sec 22 T17S R29E

14. Distance in miles and direction from nearest town or post office*
2 miles from 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) | 16. No. of acres in lease | 17. Spacing Unit dedicated to this well |
|---|---|---|
| 1006' | 600 | 40 |

| 18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. | 19. Proposed Depth | 20. BLM/BIA Bond No. on file |
|---|---|---|
| 110.8' | TVD: 4550' MD: 4571' | NMB000740; NMB000215 |

| 21. Elevations (Show whether DF, KDB, RT, GL, etc.) | 22. Approximate date work will start* | 23. Estimated duration |
|---|---|---|
| 3571' GL | 12/30/2014 | 15 Days |

## 24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No.1, must 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 must 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 BLM.

| 25. Signature | Name *(Printed/Typed)* | Date |
|---|---|---|
| | Kelly J. Holly | 09/11/2014 |

Title
Permitting Tech

| Approved by *(Signature)* Steve Caffey | Name *(Printed/Typed)* | Date APR 21 2015 |
|---|---|---|
| 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.

(Continued on page 2)

*(Instructions on page 2)

NM OIL CONSERVATION
ARTESIA DISTRICT
APR 27 2015

4/28/15

Roswell Controlled Water Basin

SEE ATTACHED FOR CONDITIONS OF APPROVAL

RECEIVED

Approval Subject to General Requirements & Special Stipulations Attached

I hereby certify that I, or persons under my direct supervision, have inspected the drill site and access road proposed herein; that I am familiar with the conditions that presently exist; that I have full knowledge of State and Federal laws applicable to this operation; that the statements 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 14th day of October, 2013.

Signed: Carl Bird

Printed Name: Carl Bird

Position: Sr. Drilling Engineer

Address: One Concho Center, 600 W. Illinois, Midland, Texas 79701

Telephone: (432) 683-7443

Field Representative (if not above signatory): Same

E-mail: cbird@concho.com

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 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
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-102
Revised August 1, 2011
Submit one copy to appropriate District Office

☐ AMENDED REPORT

# WELL LOCATION AND ACREAGE DEDICATION PLAT

| 1 API Number | 2 Pool Code | 3 Pool Name |
|---|---|---|
| 30-015- 43078 | 97917 | Dodd; Glorieta Upper Yeso |

| 4 Property Code | 5 Property Name | 6 Well Number |
|---|---|---|
| 308195 | DODD FEDERAL UNIT | 650 |

| 7 OGRID No. | 8 Operator Name | 9 Elevation |
|---|---|---|
| 229137 | COG OPERATING, LLC | 3571' |

## 10 Surface Location

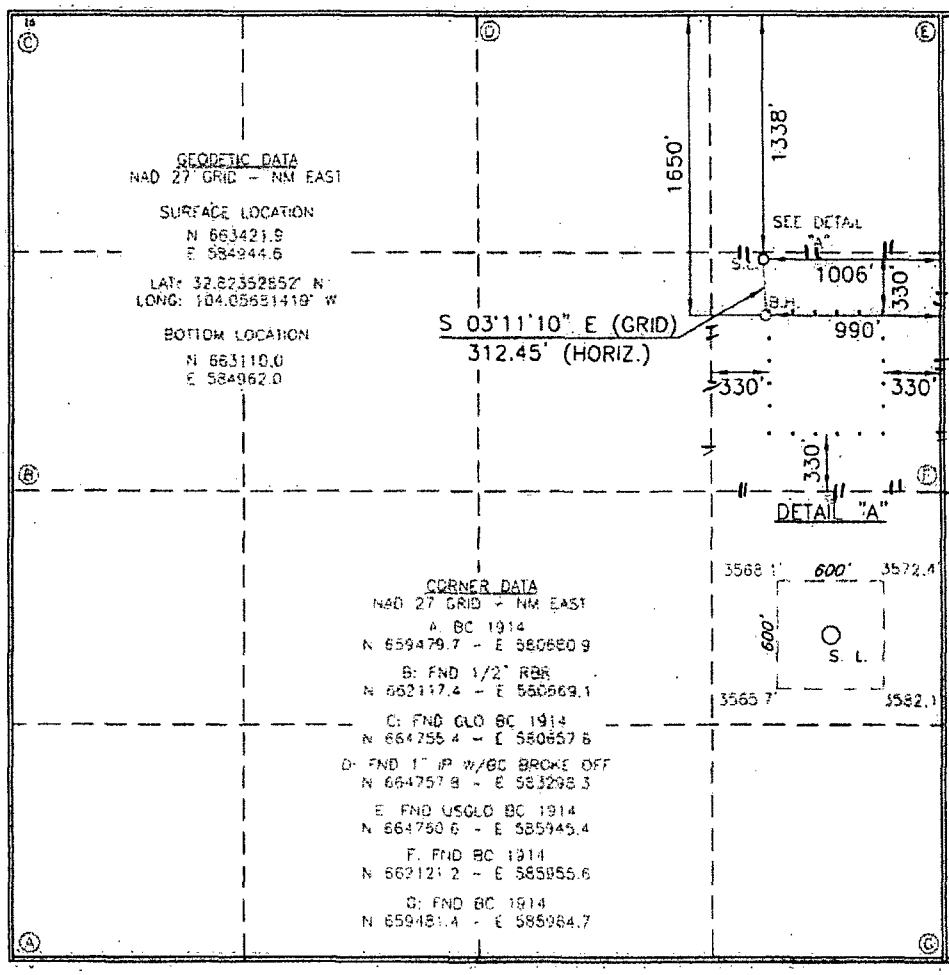
| UL or lot no. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|---|---|---|---|---|---|---|---|---|---|
| H | 22 | 17-S | 29-E | | 1338 | NORTH | 1006 | EAST | EDDY |

## 11 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 | 22 | 17-S | 29-E | | 1650 | NORTH | 990 | EAST | EDDY |

| 12 Dedicated Acres | 13 Joint or Infill | 14 Consolidation Code | 15 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.




## 17 OPERATOR CERTIFICATION

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

9-17-13
Signature Date

Kelly J. Holly
Printed Name

kholly@concho.com
E-mail Address

## 18 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.*

7/30/13
Date of Survey

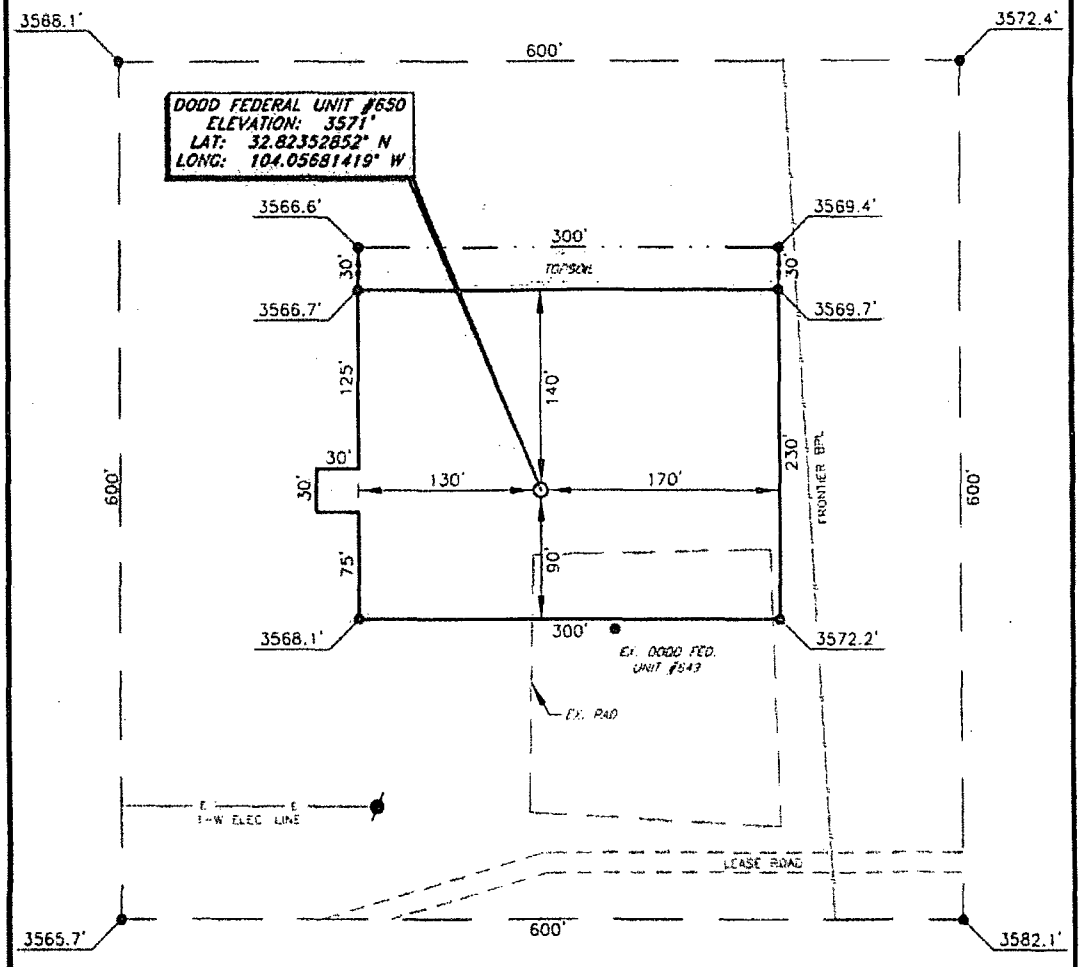
Signature and Seal of Professional Surveyor:

ROBERT M. HOWETT
NEW MEXICO
19680
PROFESSIONAL SURVEYOR

19680
Certificate Number

# COG OPERATING, LLC

## Dodd Federal Unit #650
## (1338' FNL & 1006' FEL)
## Section 22, T-17-S, R-29-E,
## N. M. P. M., Eddy Co., New Mexico




*DIRECTIONS TO LOCATION*

*From the Intersection of U.S. Hwy. #82 and CR-214 (Barnaval Draw):*

*Go North on CR-214 approx. 140 feet.*

*Turn right and go Northeast approx. 0.3 mile.*

*The location is approx. 265 feet North of the lease road.*

N

SCALE: 1" = 100'

0 50 100

BEARINGS ARE NAD 27 - NM EAST
DISTANCES ARE GROUND.



| NO. | REVISION | DATE |
|---|---|---|
| | | |
| | | |
| | | |

JOB. NO.: LS130297

DWG. NO.: 130297PAD

PROSPERITY CONSULTANTS, LLC

2251 Double Creek Drive, Suite 602, Round Rock, Texas 78664 o (512) 992-2087 f (512) 251-2518

SCALE: 1" = 100'

DATE: 7/30/13

SURVEYED BY: GB

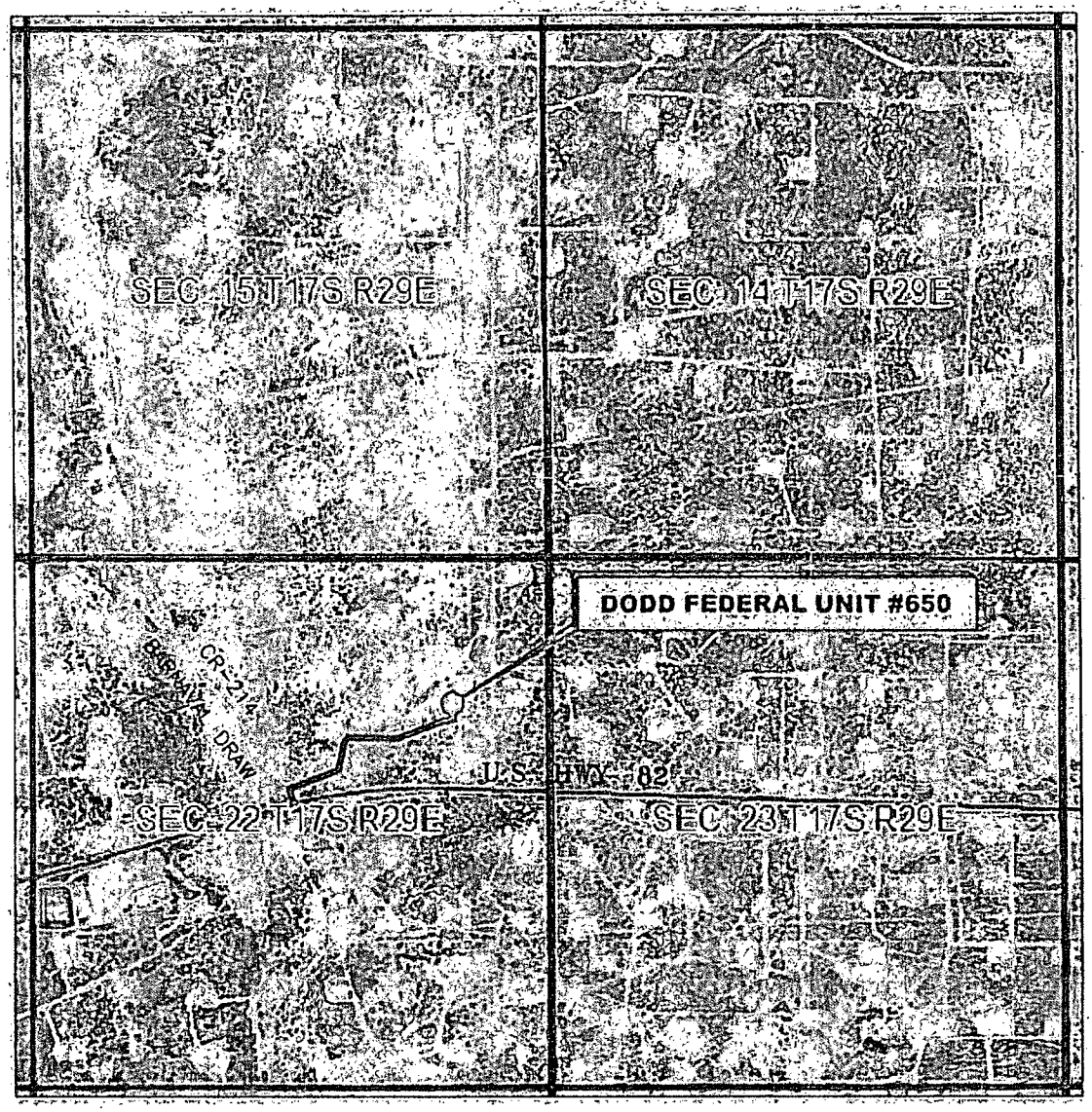
DRAWN BY: LWB

APPROVED BY: LWB

SHEET : 1 OF 1

# VICINITY MAP

NOT TO SCALE




*SECTION 22, TWP. 17 SOUTH, RGE. 29 EAST,*
*N. M. P. M., EDDY COUNTY, NEW MEXICO*

OPERATOR: COG Operating, LLC
LEASE: Dodd Federal Unit
WELL NO.: 650

LOCATION: 1338' FNL & 1006' FEL
ELEVATION: 3571'



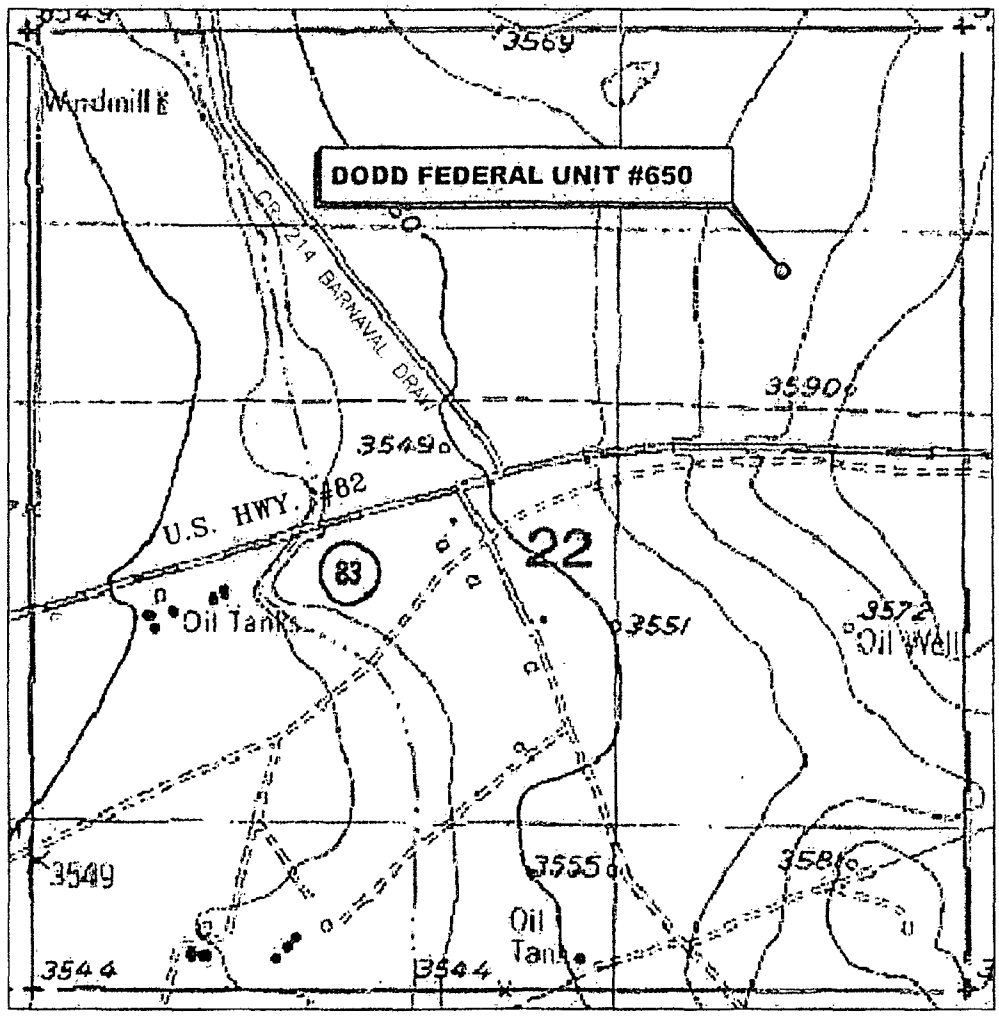
| NO. | REVISION | DATE |
|---|---|---|
| | | |
| | | |
| | | |

JOB NO.: LS130297
DWG. NO.: 130297VM

PROSPERITY CONSULTANTS, LLC
2251 Double Creek Drive, Suite 602, Round Rock, Texas 78664
o (512) 992-2087 f (512) 251-2518

SCALE: N.T.S.
DATE: 7/30/13
SURVEYED BY: GB
DRAWN BY: AF
APPROVED BY: LWB
SHEET: 1 OF 1

# LOCATION VERIFICATION MAP




*SECTION 22, TWP. 17 SOUTH, RGE. 29 EAST,*
*N. M. P. M., EDDY COUNTY, NEW MEXICO*

OPERATOR: COG Operating, LLC
LEASE: Dodd Federal Unit
WELL NO.: 650
ELEVATION: 3571'

LOCATION: 1338' FNL & 1006' FEL
CONTOUR INTERVAL: 10'
USGS TOPO. SOURCE MAP:
Red Lake SE, NM (1955)



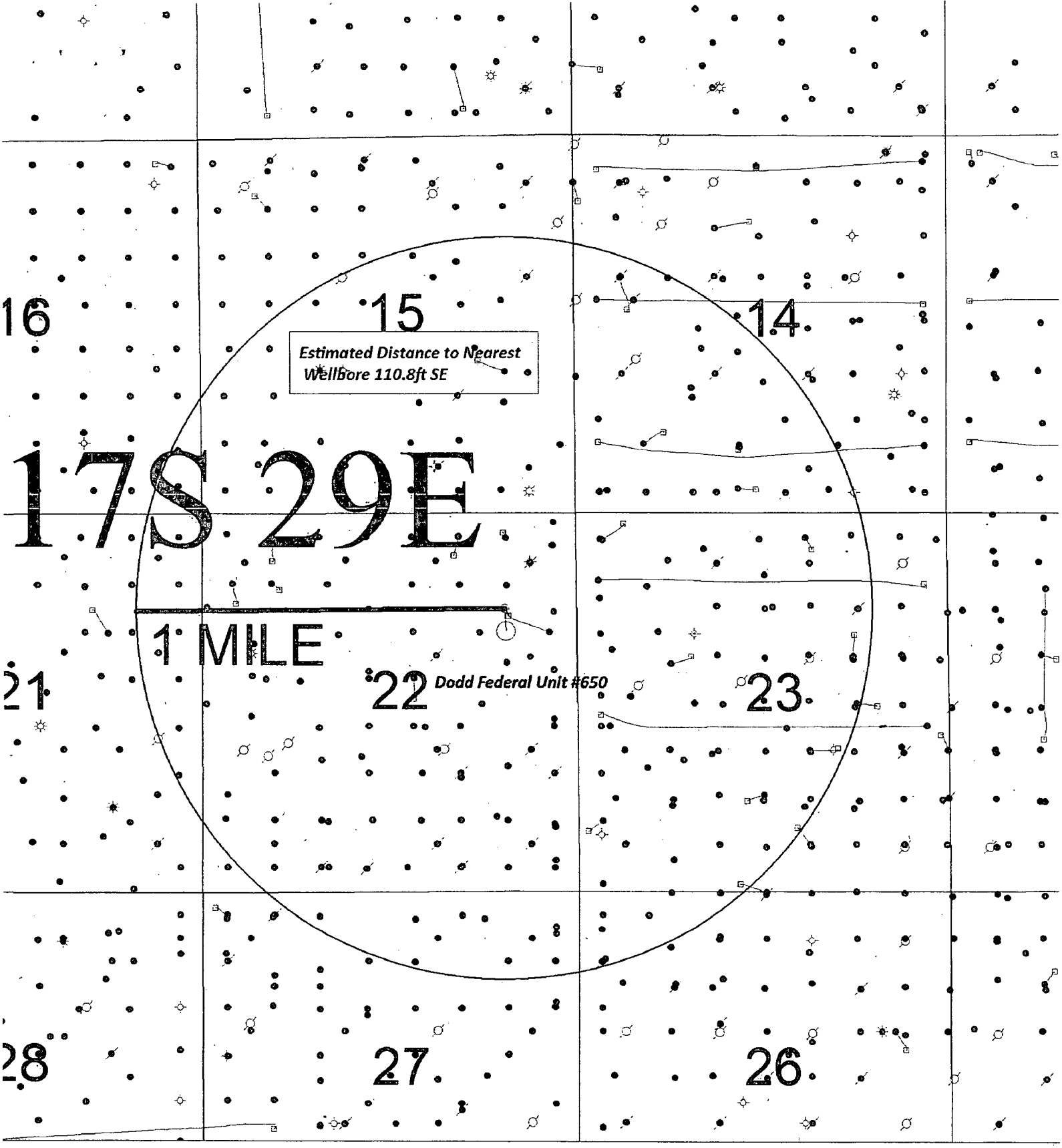
| NO. | REVISION | DATE |
|---|---|---|
| | | |
| | | |
| | | |

JOB NO.: LS130297
DWG. NO.: 130297LVM

PROSPERITY CONSULTANTS, LLC

2251 Double Creek Drive, Suite 602, Round Rock, Texas 78664 o (512) 992-2087 f (512) 251-2518

SCALE: 1" = 1000'
DATE: 7/30/13
SURVEYED BY: GB
DRAWN BY: AF
APPROVED BY: LWB
SHEET : 1 OF 1



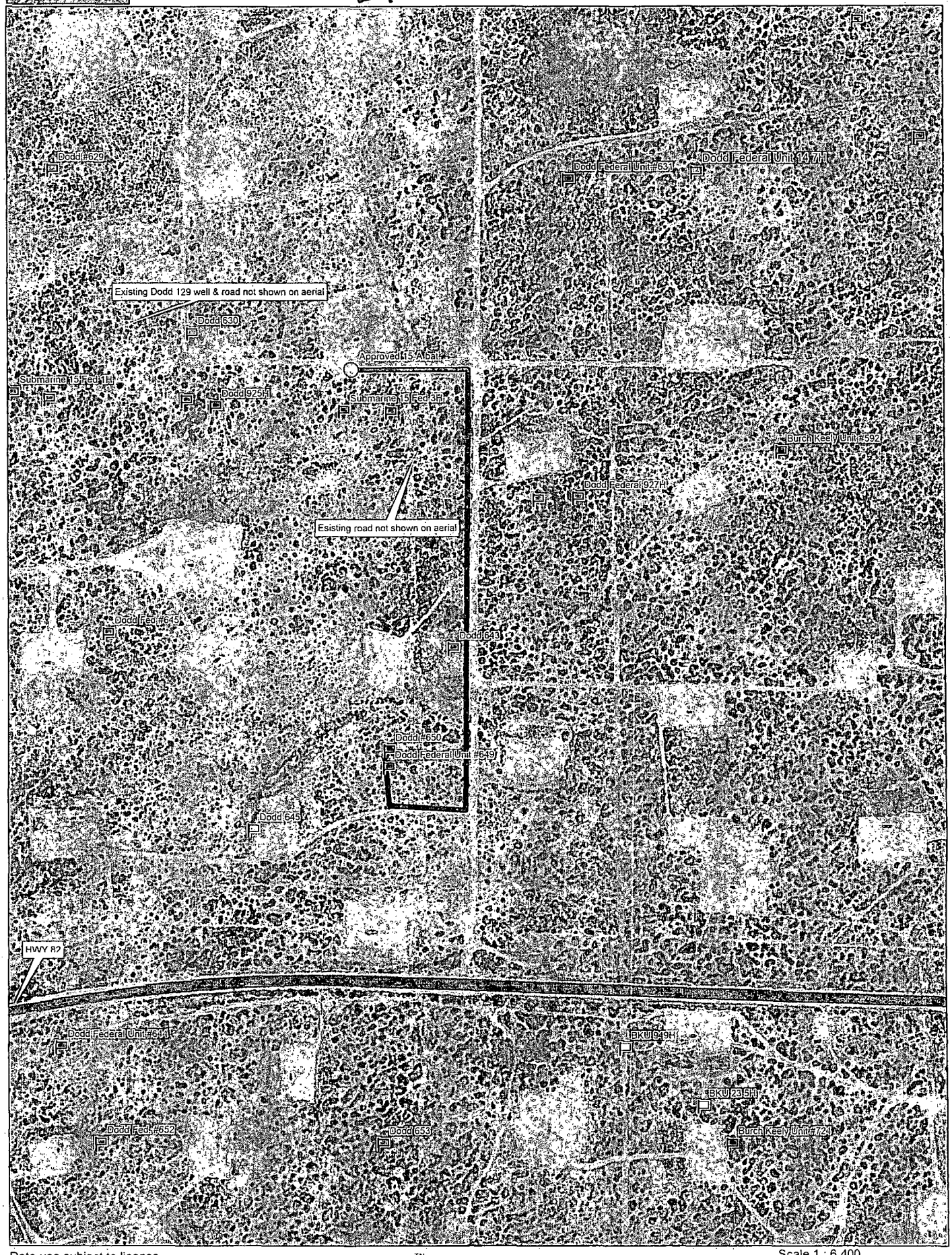

CONCHO

SENM Shelf Area
Dodd Federal Unit #650
SHL 1338 FNL 1006 FEL, UNIT H
BHL 1650 FNL 990 FEL, UNIT H

EXBT 2

DELORME

XMap® 7






TN
MN (7.6°E)

Scale 1 : 6,400

0 180 360 540 720 900 ft
0 40 80 120 160 200 m

1" = 533.3 ft Data Zoom 15-0

**COG Operating LLC**
**Dodd Federal Unit #650**

## 1. Geologic Formations

| | | | |
|---|---|---|---|
| TVD of target | 4550 | Pilot hole depth | N/A |
| MD at TD: | 4571 | Deepest expected fresh water: | 110 |

**Back Reef**

| Formation | Depth (TVD) from KB | Water/Mineral Bearing/ Target Zone? | Hazards* |
|---|---|---|---|
| Quaternary Fill | Surface | Fresh Water | |
| Rustler | 300' | Brackish Water | Lost Circulation |
| Top of Salt | 360' | Salt | |
| Tansill/Btm of Salt | 780' | Barren | |
| Yates | 950' | Gas | |
| Seven Rivers | 1235' | Oil/Gas | |
| Queen | 1845' | Oil/Gas | |
| Grayburg | 2220' | Oil/Gas | |
| San Andres | 2540' | Oil/Gas | Water Flows |
| Glorieta | 4000' | Oil/Gas | |
| Paddock | 4075' | Oil/Gas | |
| Blinebry | 4620' | Target Zone | |
| Tubb | 5520' | Oil/Gas | |

*H2S, water flows, loss of circulation, abnormal pressures, etc.

## 2. Casing Program

See COA

| Hole Size | Casing Interval From | To | Csg. Size | Weight (lbs) | Grade | Conn. | SF Collapse | SF Burst | SF Tension |
|---|---|---|---|---|---|---|---|---|---|
| 17.5" | 0 | ~~325~~ 180' | 13.375" | 48 | H40 | STC | 5.15 | 4.16 | 20.64 |
| 11" | 0 | ~~800~~ 910' | 8.625" | 24 | J55 | STC | 3.29 | 1.34 | 12.71 |
| 7.875" | 0 | TD | 5.5" | 15.5 | J55 | LTC | 2.86 | 3.52 | 4.74 |
| | | | | BLM Minimum Safety Factor | | | 1.125 | 1 | 1.6 Dry<br>1.8 Wet |

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

| | Y or N |
|---|---|
| Is casing new? If used, attach certification as required in Onshore Order #1 | Y |
| Is casing API approved? If no, attach casing specification sheet. | Y |
| Is premium or uncommon casing planned? If yes attach casing specification sheet. | N |
| Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria). | Y |
| Will the pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing? | Y |

| | |
|---|---|
| Is well located within Capitan Reef? | No |
| If yes, does production casing cement tie back a minimum of 50' above the Reef? | |
| Is well within the designated 4 string boundary. | |
| Is well located in SOPA but not in R-111-P? | No |
| If yes, are the first 2 strings cemented to surface and 3rd string cement tied back 500' into previous casing? | |
| Is well located in R-111-P and SOPA? | No |
| If yes, are the first three strings cemented to surface? | |
| Is 2nd string set 100' to 600' below the base of salt? | |
| Is well located in high Cave/Karst? | No |
| If yes, are there two strings cemented to surface? | |
| (For 2 string wells) If yes, is there a contingency casing if lost circulation occurs? | |
| Is well located in critical Cave/Karst? | No |
| If yes, are there three strings cemented to surface? | |

**3. Cementing Program**

| Casing | # Sks | Wt. lb/ Gal | Yld ft3/ sack | $H_2O$ gal/sk | 500# Comp. Strength (hours) | Slurry Description |
|---|---|---|---|---|---|---|
| Surf. | 400 | 14.8 | 1.32 | 6.3 | 6 | Class C w/2% CaCl2 + 0.25 pps CF |
| | | | | | | |
| Inter. | 120 | 11.8 | 2.45 | 14.4 | 24 | Lead: 50:50:10 C:Poz:Gel w/ 5% Salt+ 0.25% CF |
| | 200 | 14.8 | 1.32 | 6.3 | 6 | Tail: Class C w/2% CaCl2 |
| | Multi-stage Contingency: DV/ECP Tool +/-375' | | | | | |
| | 50 | 11.8 | 2.45 | 14.4 | 24 | 1st stage Lead: 50:50:10 C:Poz:Gel w/ 5% Salt+ 0.25% CF |
| | 200 | 14.8 | 1.32 | 6.3 | 6 | 1st stage Tail: Class C w/2% CaCl2 |
| | 70 | 11.8 | 2.45 | 14.4 | 11 | 2nd stage: 50:50:10 C:Poz:Gel w/5% salt + 0.25% CF |
| Prod. | 550 | 12.5 | 2.01 | 11.4 | 22 | Lead: 35:65:6 C:Poz Gel w/5% salt+ 5 pps LCM+ 0.2 % SMS+ 1% FL-25+ 1% BA-58+0.3% FL-52A+ 0.125 pps CF |
| | 400 | 14.0 | 1.37 | 6.4 | 10 | Tail: 50:50:2 C:Poz Gel w/5% salt+ 3 pps LCM+ 0.6 % SMS + 0.3% FL-52A + 0.125 pps CF + 1% FL-25 + 1% BA-58 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | Multi-stage Contingency: DV/ECP Tool +/-2500' | | | | | |
| | 250 | 11.8 | 2.01 | 11.4 | 22 | 1st stage Lead: 35:65:6 C:Poz Gel w/5% salt + 5 pps LCM + 0.2 % SMS + 1% FL-25 + 1% BA-58 + 0.3% FL-52A + 0.125 pps CF |
| | 175 | 14.8 | 1.32 | 6.4 | 10.0 | 1st stage Tail: 50:50:2 C:Poz Gel w/5% salt + 3 pps LCM + 0.6 % SMS + 1% FL-25 + 1% BA-58 + 0.3% FL-52A + 0.125 pps CF |
| | 325 | 12.5 | 2.01 | 11.4 | 22 | 2nd stage Lead: 35:65:6 C:Poz Gel w/5% salt + 5 pps LCM + 0.2 % SMS + 1% FL-25 + 1% BA-58 + 0.3% FL-52A + 0.125 pps CF |
| | 250 | 16.8 | 1.02 | 5.8 | 6 | 2nd stage Tail: Class C w/0.3% R-3 + 1.5% CD-32 |

Assumption for this DV Tool is water flow. This dense cement is used to combat water flows if they are encountered. This cement recipe also has a right angle set time and is mixed a little under saturated so the water flow will be absorbed by the cement. DV tool depth(s) are based on hole conditions and cement volumes and will be adjusted proportionally. DV tool will be set a minimum of 50 feet below previous casing and a minimum of 200 feet above current shoe.

| Casing String | TOC | % Excess |
|---|---|---|
| Surface | 0' | 100% |
| Intermediate | 0' | 100% |
| Production | 0' | 100% |

## 4. Pressure Control Equipment

| BOP installed and tested before drilling which hole? | Size? | Min. Required WP | Type | ✓ | Tested to: |
|---|---|---|---|---|---|
| 11" | 13-5/8" or 11" | 2M | Annular | X | Rated working pressure |
| | | | Blind Ram | | Rated working pressure |
| | | | Pipe Ram | | |
| | | | Double Ram | X | |
| | | | Other* | | |
| 7 7/8" | 13 5/8" or 11" | 2M | Annular | X | Rated working pressure |
| | | | Blind Ram | | Rated working pressure |
| | | | Pipe Ram | | |
| | | | Double Ram | X | |
| | | | Other* | | |
| | | | Annular | | |
| | | | Blind Ram | | |
| | | | Pipe Ram | | |
| | | | Double Ram | | |
| | | | Other* | | |

See COA

*Specify if additional ram is utilized.

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

If double ram BOPS are used 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 will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. See attached schematics Exhibits 9 & 10.

| | |
|---|---|
| N/A | Formation integrity test will be performed per Onshore Order #2.<br>On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i. |
| N/A | A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart. |
| | N — Are anchors required by manufacturer? |
| N/A | A multibowl wellhead is being used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested.<br>• Provide description here<br>See attached schematic. |

**5. Mud Program**

| Depth | | Type | Weight (ppg) | Viscosity | Water Loss |
|---|---|---|---|---|---|
| From | To | | | | |
| 0 | Surf. shoe | FW Gel | 8.3-8.5 | 28-36 | N/C |
| Surf csg | Int shoe | Saturated Brine | 9.8-10.0 | 28-32 | N/C |
| Int shoe | TD | Cut Brine | 8.5-9.2 | 28-34 | N/C |

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

Lost circulation is possible in the Rustler and will be controlled with lost circulation pills

| | |
|---|---|
| What will be used to monitor the loss or gain of fluid? | PVT/Pason/Visual Monitoring |

## 6. Logging and Testing Procedures

| Logging, Coring and Testing. | |
|---|---|
| X | Will run GR/CNL from TD to surface (horizontal well – vertical portion of hole). Stated logs run will be in the Completion Report and submitted to the BLM. |
| | No Logs are planned based on well control or offset log information. |
| | Drill stem test? If yes, explain |
| | Coring? If yes, explain |

| Additional logs planned | | Interval |
|---|---|---|
| X | Resistivity | Int. shoe to TD |
| X | Density | Int. shoe to TD |
| X | CBL | Production casing |
| X | Mud log | Intermediate shoe to TD |
| | PEX | |

## 7. Drilling Conditions

| Condition | Specify what type and where? |
|---|---|
| BH Pressure at deepest TVD | 2024 psi |
| Abnormal Temperature | No |

Mitigation measure for abnormal conditions. Describe.

| Hydrogen Sulfide (H2S) monitors will be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. Remote operated choke will be installed. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM. | |
|---|---|
| X | H2S is present |
| X | H2S Plan attached |

See COA

## 8. Other facets of operation

**Is this a walking operation? No**
**Will be pre-setting casing? No**

Attachments:
H2S Plan
Multi-stage cement details

**Discussion of DV Tool cement options:**

**8 5/8" DV Tool cement option is proposed for approval. This may become necessary if lost circulation occurs while drilling the 11" intermediate hole.** DV tool depth(s) are based on hole conditions and cement volumes and will be adjusted proportionally. DV tool will be set a minimum of 50 feet below previous casing and a minimum of 200 feet above current shoe.

**5 ½" DV Tool cement option is proposed for approval. This may become necessary if water flows in the San Andres an encountered. These water flows occur in areas where produced water disposal is happening.** This dense cement is used to combat water flows if they are encountered. This cement recipe also has a right angle set time and is mixed a little under saturated so the water flow will be absorbed by the cement. DV tool depth(s) are based on hole conditions and cement volumes and will be adjusted proportionally. DV tool will be set a minimum of 50 feet below previous casing and a minimum of 200 feet above current shoe.

CONCHO

# COG Operating LLC

**Eddy County, New Mexico (NAD 27 NME)**
**Dodd Federal Unit**
**#650**

**WB1**

**Plan: Plan #1 11-07-13**
**Surface: 1338' FNL, 1006' FEL, Sec 22, T17S, R29E, Unit H**
**\BHL: 1660' FNL, 980' FEL, Sec 22, T17S, R29E, Unit H**

# Standard Planning Report

**11 November, 2013**

PHOENIX
TECHNOLOGY SERVICES

| | | | |
|---|---|---|---|
| **Database:** | GCR DB | **Local Co-ordinate Reference:** | Well #650 |
| **Company:** | COG Operating LLC | **TVD Reference:** | WELL @ 3571.00usft |
| **Project:** | Eddy County, New Mexico (NAD 27 NME) | **MD Reference:** | WELL @ 3571.00usft |
| **Site:** | Dodd Federal Unit | **North Reference:** | Grid |
| **Well:** | #650 | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | WB1 | | |
| **Design:** | Plan #1 11-07-13 | | |

**Project** Eddy County, New Mexico (NAD 27 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** Dodd Federal Unit

| | | | | | |
|---|---|---|---|---|---|
| **Site Position:** | | **Northing:** | 669,009.70 usft | **Latitude:** | 32° 50' 19.97600 N |
| **From:** | Map | **Easting:** | 585,704.90 usft | **Longitude:** | 104° 3' 15.44871 W |
| **Position Uncertainty:** | 0.00 usft | **Slot Radius:** | 13-3/16 " | **Grid Convergence:** | 0.15 ° |

**Well** #650

| | | | | | | |
|---|---|---|---|---|---|---|
| **Well Position** | **+N/-S** | -5,587.80 usft | **Northing:** | 663,421.90 usft | **Latitude:** | 32° 49' 24.70282 N |
| | **+E/-W** | -760.30 usft | **Easting:** | 584,944.60 usft | **Longitude:** | 104° 3' 24.53150 W |
| **Position Uncertainty** | | 0.00 usft | **Wellhead Elevation:** | | **Ground Level:** | 3,571.00 usft |

**Wellbore** WB1

| Magnetics | Model Name | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
|---|---|---|---|---|---|
| | IGRF2010_14 | 11/07/13 | 7.56 | 60.60 | 48,683 |

**Design** Plan #1 11-07-13

**Audit Notes:**

| | | | | | |
|---|---|---|---|---|---|
| **Version:** | | **Phase:** | PROTOTYPE | **Tie On Depth:** | 0.00 |

| Vertical Section: | Depth From (TVD) (usft) | +N/-S (usft) | +E/-W (usft) | Direction (°) |
|---|---|---|---|---|
| | 0.00 | 0.00 | 0.00 | 175.17 |

**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 | |
| 1,150.00 | 0.00 | 0.00 | 1,150.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 1,540.40 | 7.81 | 175.17 | 1,539.19 | -26.47 | 2.23 | 2.00 | 2.00 | 0.00 | 175.17 | |
| 3,530.46 | 7.81 | 175.17 | 3,510.81 | -295.87 | 24.98 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 3,920.86 | 0.00 | 0.00 | 3,900.00 | -322.33 | 27.21 | 2.00 | -2.00 | 0.00 | 180.00 | TG1-Dodd Federal Ur |
| 4,570.86 | 0.00 | 0.00 | 4,550.00 | -322.33 | 27.21 | 0.00 | 0.00 | 0.00 | 0.00 | PBHL-Dodd Federal U |

| | | | |
|---|---|---|---|
| **Database:** | GCR DB | **Local Co-ordinate Reference:** | Well #650 |
| **Company:** | COG Operating LLC | **TVD Reference:** | WELL @ 3571.00usft |
| **Project:** | Eddy County, New Mexico (NAD 27 NME) | **MD Reference:** | WELL @ 3571.00usft |
| **Site:** | Dodd Federal Unit | **North Reference:** | Grid |
| **Well:** | #650 | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | WB1 | | |
| **Design:** | Plan #1 11-07-13 | | |

**Planned Survey**

| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
|---|---|---|---|---|---|---|---|---|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1,050.00 | 0.00 | 0.00 | 1,050.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **8-5/8"** | | | | | | | | | |
| 1,150.00 | 0.00 | 0.00 | 1,150.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **KOP, 2.00°/100' Build** | | | | | | | | | |
| 1,200.00 | 1.00 | 175.17 | 1,200.00 | -0.43 | 0.04 | 0.44 | 2.00 | 2.00 | 0.00 |
| 1,300.00 | 3.00 | 175.17 | 1,299.93 | -3.91 | 0.33 | 3.93 | 2.00 | 2.00 | 0.00 |
| 1,400.00 | 5.00 | 175.17 | 1,399.68 | -10.86 | 0.92 | 10.90 | 2.00 | 2.00 | 0.00 |
| 1,500.00 | 7.00 | 175.17 | 1,499.13 | -21.28 | 1.80 | 21.35 | 2.00 | 2.00 | 0.00 |
| 1,540.40 | 7.81 | 175.17 | 1,539.19 | -26.47 | 2.23 | 26.56 | 2.00 | 2.00 | 0.00 |
| **Hold 7.81° Inc, 175.17° Azm** | | | | | | | | | |
| 1,600.00 | 7.81 | 175.17 | 1,598.24 | -34.53 | 2.92 | 34.66 | 0.00 | 0.00 | 0.00 |
| 1,700.00 | 7.81 | 175.17 | 1,697.31 | -48.07 | 4.06 | 48.24 | 0.00 | 0.00 | 0.00 |
| 1,800.00 | 7.81 | 175.17 | 1,796.39 | -61.61 | 5.20 | 61.83 | 0.00 | 0.00 | 0.00 |
| 1,900.00 | 7.81 | 175.17 | 1,895.46 | -75.15 | 6.34 | 75.41 | 0.00 | 0.00 | 0.00 |
| 2,000.00 | 7.81 | 175.17 | 1,994.53 | -88.68 | 7.49 | 89.00 | 0.00 | 0.00 | 0.00 |
| 2,100.00 | 7.81 | 175.17 | 2,093.60 | -102.22 | 8.63 | 102.58 | 0.00 | 0.00 | 0.00 |
| 2,200.00 | 7.81 | 175.17 | 2,192.68 | -115.76 | 9.77 | 116.17 | 0.00 | 0.00 | 0.00 |
| 2,300.00 | 7.81 | 175.17 | 2,291.75 | -129.29 | 10.92 | 129.75 | 0.00 | 0.00 | 0.00 |
| 2,400.00 | 7.81 | 175.17 | 2,390.82 | -142.83 | 12.06 | 143.34 | 0.00 | 0.00 | 0.00 |
| 2,500.00 | 7.81 | 175.17 | 2,489.90 | -156.37 | 13.20 | 156.93 | 0.00 | 0.00 | 0.00 |
| 2,600.00 | 7.81 | 175.17 | 2,588.97 | -169.91 | 14.34 | 170.51 | 0.00 | 0.00 | 0.00 |
| 2,700.00 | 7.81 | 175.17 | 2,688.04 | -183.44 | 15.49 | 184.10 | 0.00 | 0.00 | 0.00 |
| 2,800.00 | 7.81 | 175.17 | 2,787.11 | -196.98 | 16.63 | 197.68 | 0.00 | 0.00 | 0.00 |
| 2,900.00 | 7.81 | 175.17 | 2,886.19 | -210.52 | 17.77 | 211.27 | 0.00 | 0.00 | 0.00 |
| 3,000.00 | 7.81 | 175.17 | 2,985.26 | -224.05 | 18.92 | 224.85 | 0.00 | 0.00 | 0.00 |
| 3,100.00 | 7.81 | 175.17 | 3,084.33 | -237.59 | 20.06 | 238.44 | 0.00 | 0.00 | 0.00 |
| 3,200.00 | 7.81 | 175.17 | 3,183.41 | -251.13 | 21.20 | 252.02 | 0.00 | 0.00 | 0.00 |
| 3,300.00 | 7.81 | 175.17 | 3,282.48 | -264.67 | 22.34 | 265.61 | 0.00 | 0.00 | 0.00 |
| 3,400.00 | 7.81 | 175.17 | 3,381.55 | -278.20 | 23.49 | 279.19 | 0.00 | 0.00 | 0.00 |
| 3,500.00 | 7.81 | 175.17 | 3,480.63 | -291.74 | 24.63 | 292.78 | 0.00 | 0.00 | 0.00 |
| 3,530.46 | 7.81 | 175.17 | 3,510.80 | -295.86 | 24.98 | 296.92 | 0.00 | 0.00 | 0.00 |
| **Begin 2.00°/100' Drop** | | | | | | | | | |
| 3,600.00 | 6.42 | 175.17 | 3,579.81 | -304.44 | 25.70 | 305.53 | 2.00 | -2.00 | 0.00 |
| 3,700.00 | 4.42 | 175.17 | 3,679.35 | -313.85 | 26.50 | 314.97 | 2.00 | -2.00 | 0.00 |
| 3,800.00 | 2.42 | 175.17 | 3,779.17 | -319.79 | 27.00 | 320.93 | 2.00 | -2.00 | 0.00 |
| 3,900.00 | 0.42 | 175.17 | 3,879.14 | -322.26 | 27.21 | 323.40 | 2.00 | -2.00 | 0.00 |
| 3,920.86 | 0.00 | 0.00 | 3,900.00 | -322.33 | 27.21 | 323.48 | 2.00 | -2.00 | -839.58 |
| **Begin Vertical Hold - Top of Paddock - TG1-Dodd Federal Unit #650** | | | | | | | | | |
| 4,570.86 | 0.00 | 0.00 | 4,550.00 | -322.33 | 27.21 | 323.48 | 0.00 | 0.00 | 0.00 |
| **TD at 4570.86 - PBHL-Dodd Federal Unit #650** | | | | | | | | | |

| | | | |
|---|---|---|---|
| **Database:** | GCR DB | **Local Co-ordinate Reference:** | Well #650 |
| **Company:** | COG Operating LLC | **TVD Reference:** | WELL @ 3571.00usft |
| **Project:** | Eddy County, New Mexico (NAD 27 NME) | **MD Reference:** | WELL @ 3571.00usft |
| **Site:** | Dodd Federal Unit | **North Reference:** | Grid |
| **Well:** | #650 | **Survey Calculation Method:** | Minimum Curvature |
| **Wellbore:** | WB1 | | |
| **Design:** | Plan #1.11-07-13 | | |

**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 |
|---|---|---|---|---|---|---|---|---|---|
| TG1-Dodd Federal Unit - plan hits target center - Point | 0.00 | 0.00 | 3,900.00 | -322.33 | 27.21 | 663,099.57 | 584,971.81 | 32° 49' 21.51255 N | 104° 3' 24.22250 W |
| PBHL-Dodd Federal Uni - plan hits target center - Circle (radius 10.00) | 0.00 | 0.00 | 4,550.00 | -322.33 | 27.21 | 663,099.57 | 584,971.81 | 32° 49' 21.51255 N | 104° 3' 24.22250 W |

**Casing Points**

| Measured Depth (usft) | Vertical Depth (usft) | Name | Casing Diameter (") | Hole Diameter (") |
|---|---|---|---|---|
| 1,050.00 | 1,050.00 | 8-5/8" | 8-5/8 | 12-1/4 |

**Formations**

| Measured Depth (usft) | Vertical Depth (usft) | Name | Lithology | Dip (°) | Dip Direction (°) |
|---|---|---|---|---|---|
| 3,920.86 | 3,900.00 | Top of Paddock | | 0.00 | 0.00 |

**Plan Annotations**

| Measured Depth (usft) | Vertical Depth (usft) | Local Coordinates +N/-S (usft) | Local Coordinates +E/-W (usft) | Comment |
|---|---|---|---|---|
| 1,150.00 | 1,150.00 | 0.00 | 0.00 | KOP, 2.00°/100' Build |
| 1,540.40 | 1,539.19 | -26.47 | 2.23 | Hold 7.81° Inc, 175.17° Azm |
| 3,530.46 | 3,510.80 | -295.86 | 24.98 | Begin 2.00°/100' Drop |
| 3,920.86 | 3,900.00 | -322.33 | 27.21 | Begin Vertical Hold |
| 4,570.86 | 4,550.00 | -322.33 | 27.21 | TD at 4570.86 |

Project: Eddy County, New Mexico (NAD 27 NME)
Site: Dodd Federal Unit
Well: #650
Wellbore: WB1
Design: Plan #1 11-07-13

PHOENIX TECHNOLOGY SERVICES

Azimuths to Grid North
True North: -0.15°
Magnetic North: 7.41°

Magnetic Field
Strength: 48682.5snT
Dip Angle: 60.60°
Date: 11/07/2013
Model: IGRF2010_14

## WELL DETAILS

Ground Level: 3571.00

| +N/-S | +E/-W | Northing | Easting | Latitude | Longitude |
|---|---|---|---|---|---|
| 0.00 | 0.00 | 663421.90 | 584944.60 | 32° 49' 24.70282 N | 104° 3' 24.53150 W |

## SECTION DETAILS

| Sec | MD | Inc | Azi | TVD | +N/-S | +E/-W | Dleg | TFace | VSect | Target | Annotation |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | |
| 2 | 1150.00 | 0.00 | 0.00 | 1150.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | | KOP, 2.00°/100' Build |
| 3 | 1540.40 | 7.81 | 175.17 | 1539.19 | -26.47 | 2.23 | 2.00 | 175.17 | 26.56 | | Hold 7.81° Inc, 175.17° Azm |
| 4 | 3530.46 | 7.81 | 175.17 | 3510.81 | -295.87 | 24.98 | 0.00 | 0.00 | 296.92 | | Begin 2.00°/100' Drop |
| 5 | 3920.86 | 0.00 | 0.00 | 3900.00 | -322.33 | 27.21 | 2.00 | 180.00 | 323.48 | TG1-Dodd Federal Unit #650 | Begin Vertical Hold |
| 6 | 4570.86 | 0.00 | 0.00 | 4550.00 | -322.33 | 27.21 | 0.00 | 0.00 | 323.48 | PBHL-Dodd Federal Unit #650 | TD at 4570.86 |

## DESIGN TARGET DETAILS

| Name | TVD | +N/-S | +E/-W | Northing | Easting | Latitude | Longitude | Shape |
|---|---|---|---|---|---|---|---|---|
| TG1-Dodd Federal Unit #650 - plan hits target center | 3900.00 | -322.33 | 27.21 | 663099.57 | 584971.81 | 32° 49' 21.51255 N | 104° 3' 24.22250 W | Point |
| PBHL-Dodd Federal Unit #650 - plan hits target center | 4550.00 | -322.33 | 27.21 | 663099.57 | 584971.81 | 32° 49' 21.51255 N | 104° 3' 24.22250 W | Circle (Radius: 10.00) |

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

Local Origin: Well #650, Grid North

Latitude: 32° 49' 24.70282 N
Longitude: 104° 3' 24.53150 W

Grid East: 584944.60
Grid North: 663421.90
Scale Factor: 1.000

Geomagnetic Model: IGRF2010_14
Sample Date: 07-Nov-13
Magnetic Declination: 7.56°
Dip Angle from Horizontal: 60.60°
Magnetic Field Strength: 48683

To convert a Magnetic Direction to a Grid Direction, Add 7.41°
To convert a Magnetic Direction to a True Direction, Add 7.56° East
To convert a True Direction to a Grid Direction, Subtract 0.15°

## FORMATION TOP DETAILS

| TVDPath | MDPath | Formation | DipAngle | DipDir |
|---|---|---|---|---|
| 3900.00 | 3920.86 | Top of Paddock | 0.00 | 0.00 |

## SITE DETAILS: Dodd Federal Unit

Site centered on #917H

Site Centre Northing: 669009.70
Easting: 585704.90

Positional Uncertainty: 0.00
Convergence: 0.15
Local North: Grid

## PROJECT DETAILS: Eddy County, New Mexico (NAD 27 NME)

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

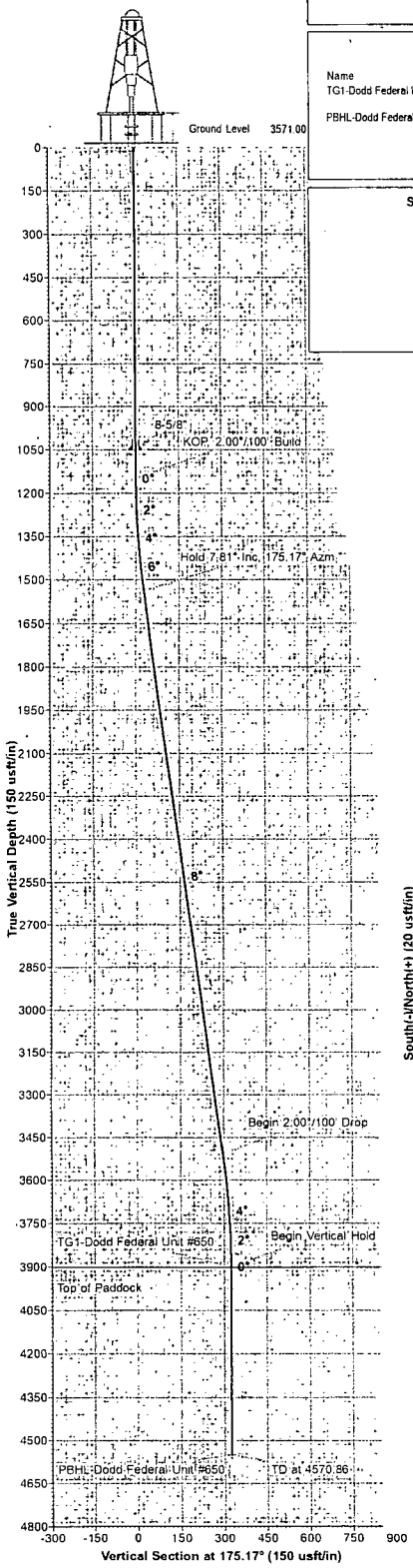
System Datum: Mean Sea Level

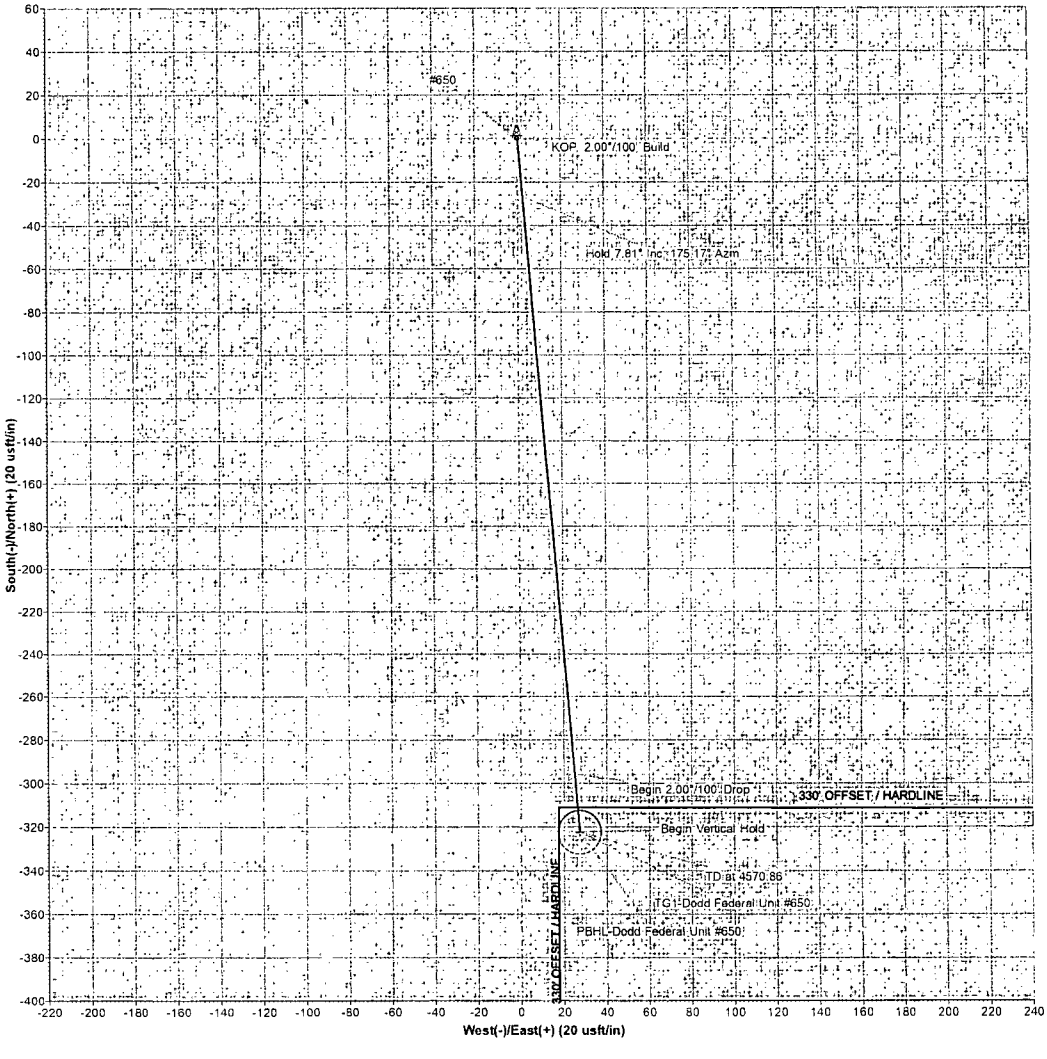
## CASING DETAILS

| TVD | MD | Name | Size |
|---|---|---|---|
| 1050.00 | 1050.00 | 8-5/8" | 8-5/8 |

## LEGEND

Plan #1 11-07-13




Created By: Julio Peña Date: 14:14, November 11 2013

**COG OPERATING LLC**
One Concho Center
600 W Illinois Ave
Midland, TX 79701

# DIRECTIONAL PLAN VARIANCE REQUEST

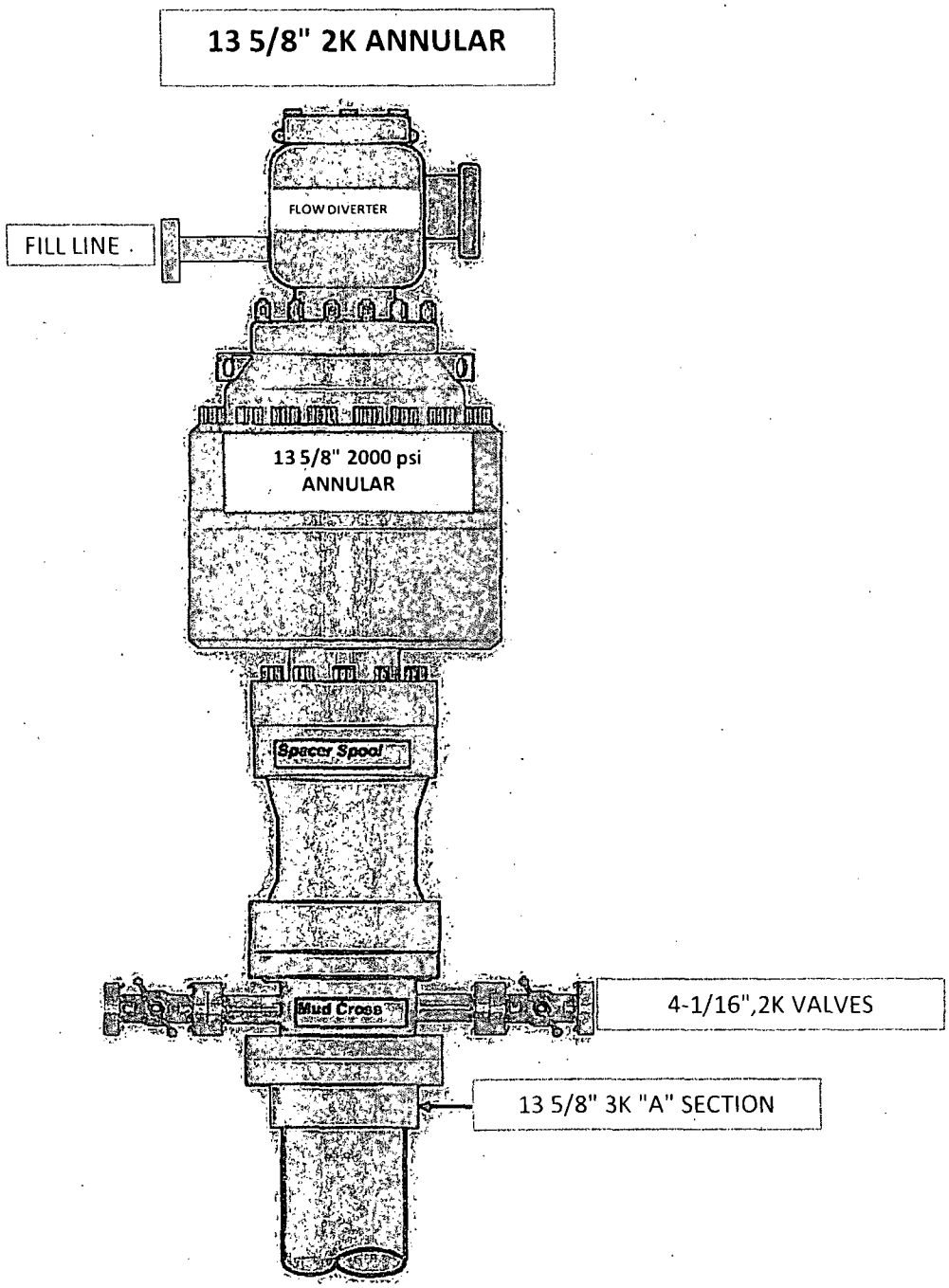
**Dodd Federal Unit #650**
**EDDY, NM**

| | | |
|---|---|---|
| SHL | 1338 FNL, 1006 FEL | Sec 22, T17S, R29E, Unit H |
| BHL | 1650 FNL, 990 FEL | Sec 22, T17S, R29E, Unit H |

COG Operating LLC, as Operator, desires that the APD reflect the footages as stated on the surveyor's plat. However, Operator also desires to avoid inadvertently drilling the well to a non-standard location. Therefore, due to the proximity of the plat bottom hole location to the pro-ration unit hard line(s), the attached directional plan is designed to avoid the hard lines by as much as fifty feet; said fifty feet being in either (or both) the north-south and/or east-west directions as applicable.

# Exhibit #10

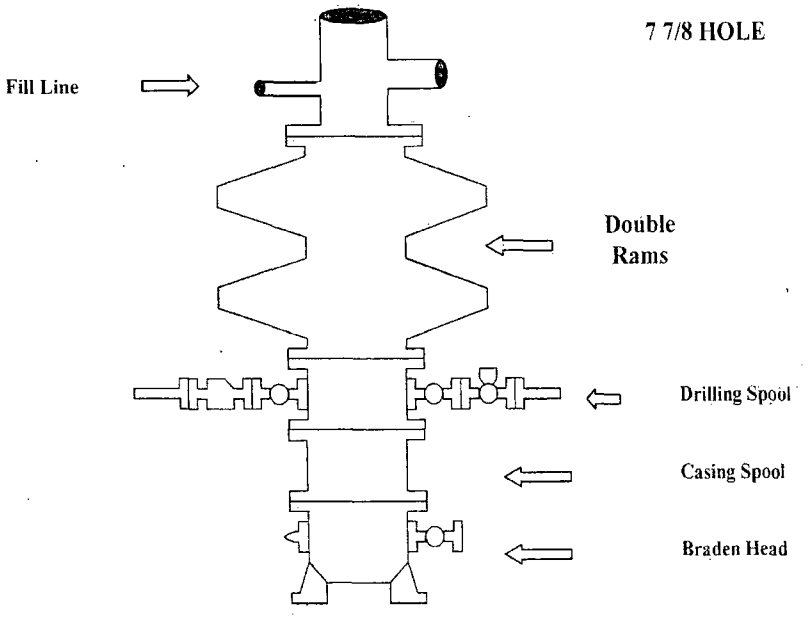
(Choke Manifold Schematic same as Exhibit #9)



# COG Operating LLC

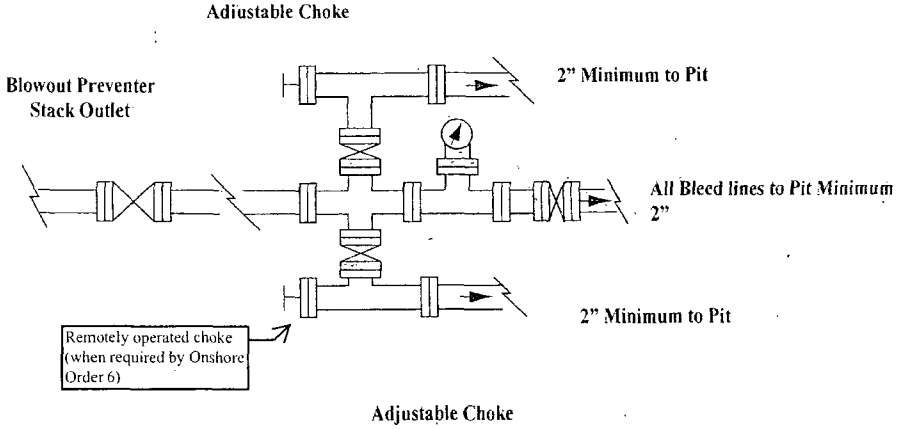
## Exhibit #9

## BOPE and Choke Schematic




Minimum 4" Nominal choke and kill lines

Choke Manifold Requirement (2000 psi WP)
No Annular Required



## 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.

# Closed Loop Operation & Maintenance Procedure

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

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

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

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

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

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

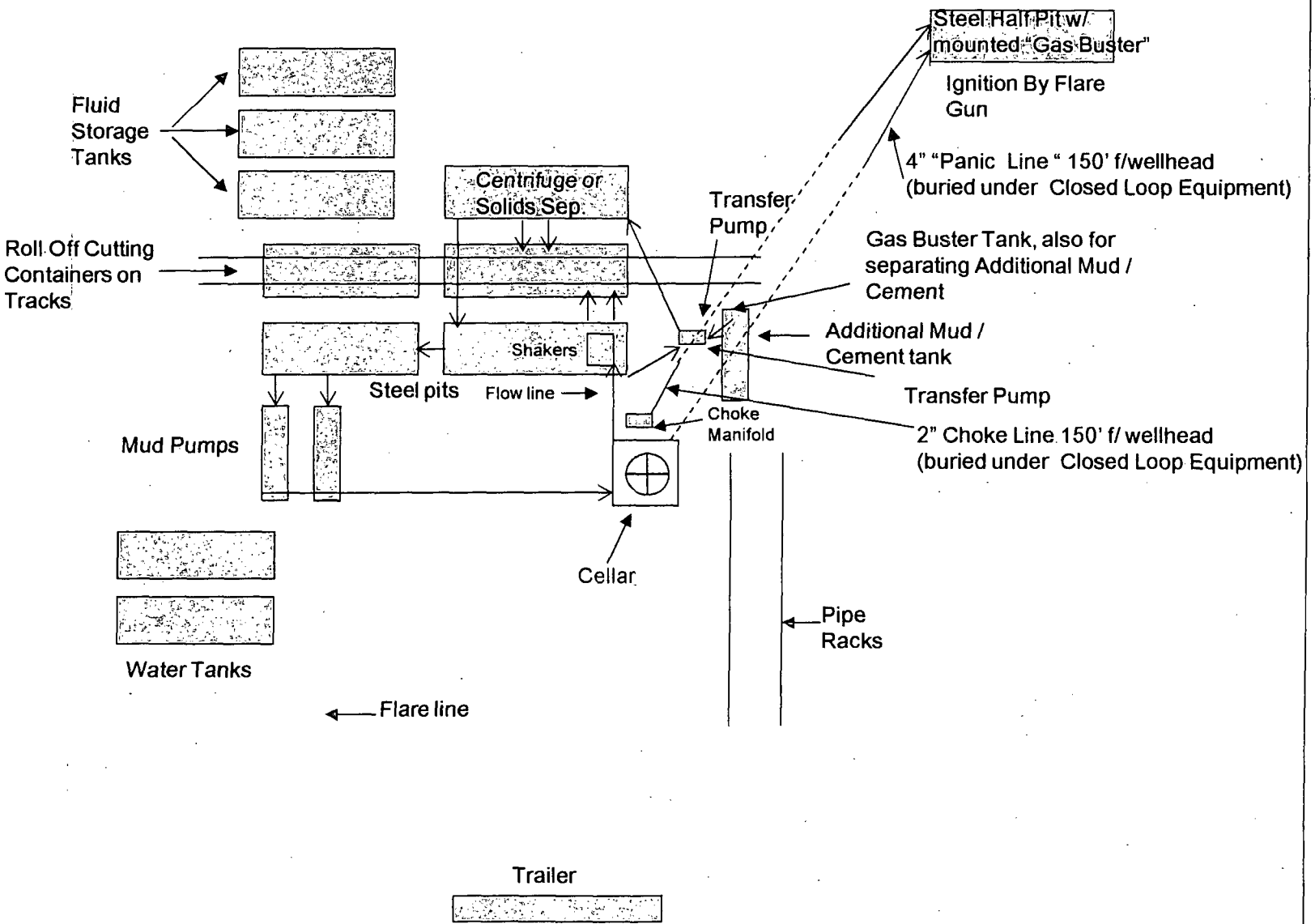
Cuttings will be hauled to either:

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

dependent upon which rig is available to drill this well.

COG Operating LLC

Closed Loop Equipment Diagram



# 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 with minimum of one remotely operated choke.

   C. Closed Loop Blow Down Tank

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

   E. Auxiliary equipment may include if applicable: mud-gas separator, annular preventer & rotating head.

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

   A. SCBA (Self contained breathing apparatus) 30-minute units located in the doghouse and at briefing areas, as indicated on well site diagram.

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

   A. 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.

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

5. **Mud program:**

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

6. **Metallurgy:**

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

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

7. **Communication:**

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

   B. Land line (telephone) communication at Office.

8. **Well testing:**

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

   B. There will be no drill stem testing.

## EXHIBIT #7

# WARNING

## YOU ARE ENTERING AN H2S

## AUTHORIZED PERSONNEL ONLY

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

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

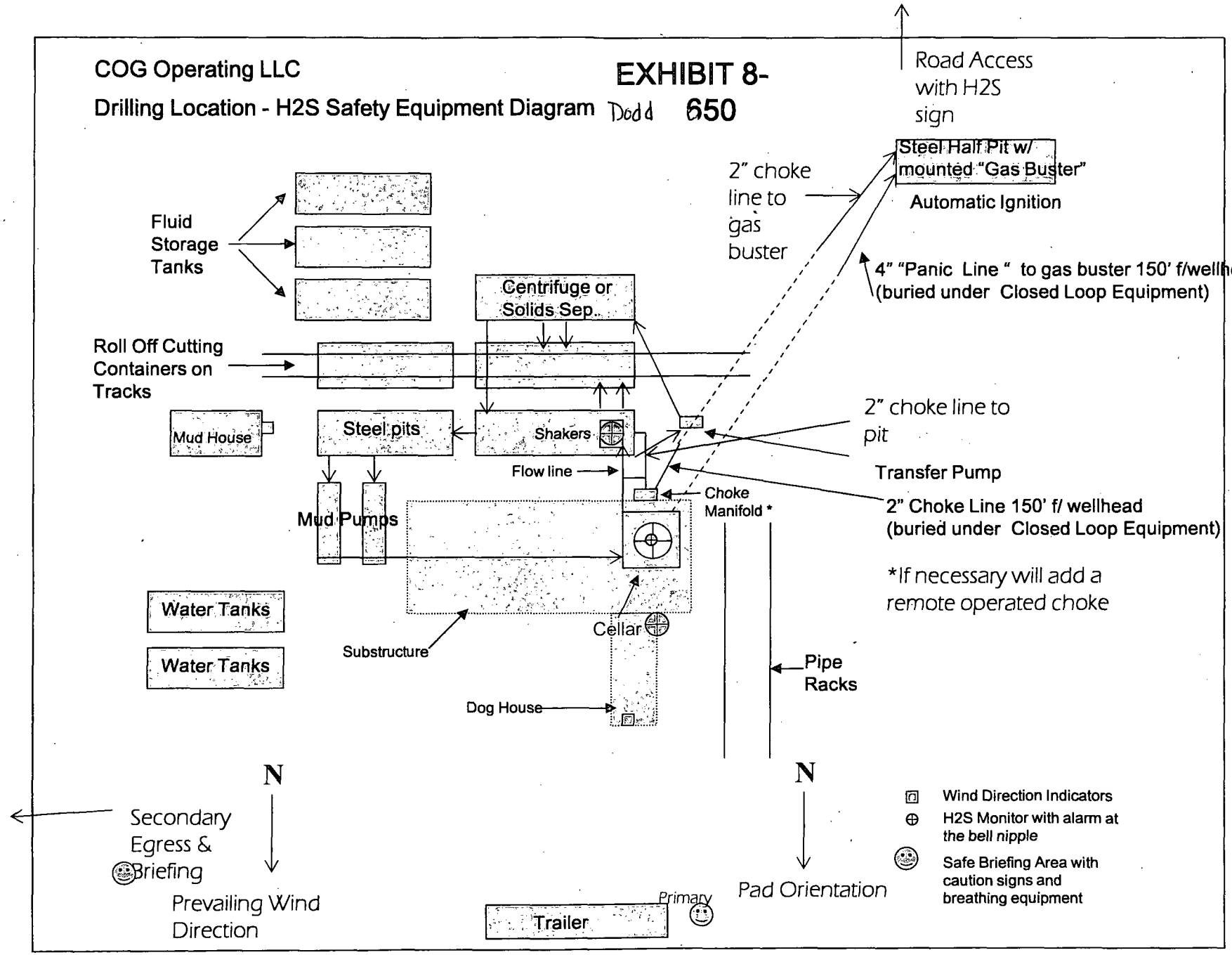
***EDDY COUNTY EMERGENCY NUMBERS***
ARTESIA FIRE DEPT. 575-746-5050
ARTESIA POLICE DEPT. 575-746-5000
EDDY CO. SHERIFF DEPT. 575-746-9888

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

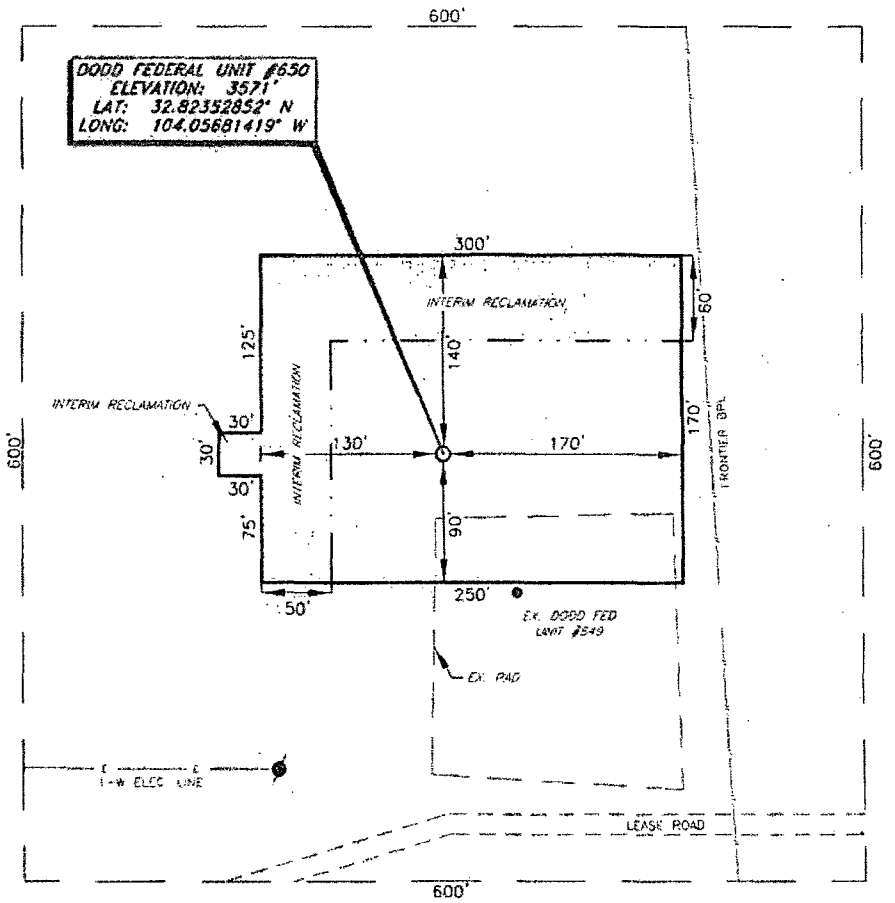
COG Operating LLC

EXHIBIT 8-

Drilling Location - H2S Safety Equipment Diagram Dodd 650



# COG OPERATING, LLC
## Interim Reclamation
## Dodd Federal Unit #650
## (1338' FNL & 1006' FEL)
## Section 22, T-17-S, R-29-E,
## N. M. P. M., Eddy Co., New Mexico




*DIRECTIONS TO LOCATION*

*From the Intersection of U.S. Hwy. #82 and CR-214 (Bernaval Draw):*

*Go North on CR-214 approx. 140 feet.*

*Turn right and go Northeast approx. 0.3 mile.*

*The location is approx. 265 feet North of the lease road.*

N

SCALE: 1" = 100'
0 50 100

BEARINGS ARE NAD '27 - NM EAST
DISTANCES ARE GROUND.



| NO. | REVISION | DATE |
|---|---|---|
| | | |
| | | |
| | | |

JOB NO.: LS130297
DWG. NO.: 130297REC

PROSPERITY CONSULTANTS, LLC

2251 Double Creek Drive, Suite 602, Round Rock, Texas 78664 p (512) 992-2088 / f (512) 251-2518

SCALE: 1" = 100'
DATE: 7/30/13
SURVEYED BY: GB
DRAWN BY: LWB
APPROVED BY: LWB
SHEET : 1 OF 1

# Surface Use & Operating Plan

## Dodd Federal Unit #650

- Surface Tenant: Bogle Farms, Lewis Derrick, P O Box 441, Artesia, NM 88211.
- New Road: approx. 0'
- Flow Line: approx. 0.5 mi
- Facilities: Dodd 15-A Federal Tank Battery

**Well Site Information**

V Door: West

Topsoil: North

Interim Reclamation: North/West

**Notes**

-N/A

**Onsite**: 6/20/2013 Legion (BLM), Curtis Griffin (COG), Gary Box (P.C.)

# 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 Prosperity Consultants, LLC, Midland, TX.

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 Vicinity Map. The road highlighted in the Vicinity Map will be used to access the well.

C. Directions to location: See Vicinity Map.

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 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 approved caliche pit.

**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 Vicinity Map. 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 alongside 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 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.

**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 Bogle Farms, Lewis Derrick, P.O. Box 441, 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 Boone Arch Services of New Mexico, LLC. Carlsbad, NM, 88220. 506 E Chapman Rd. , phone # 575.887.7667 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 Nationwide Bond # 000215

**14. Lessee's and Operator's Representative:**

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

Jim Evans
Drilling Superintendent
COG Operating LLC
One Concho Center
600 W. Illinois
Midland, TX 79701
Phone (432) 685-4304 (office)
(432) 221-0346 (business)

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

# PECOS DISTRICT
# CONDITIONS OF APPROVAL

| | |
|---|---|
| **OPERATOR'S NAME:** | **COG Operating, LLC** |
| **LEASE NO.:** | **NMLC-028731A** |
| **WELL NAME & NO.:** | **Dodd Federal Unit 650** |
| **SURFACE HOLE FOOTAGE:** | **1338' FNL & 1006' FEL** |
| **BOTTOM HOLE FOOTAGE** | **1650' FNL & 0990' FEL** |
| **LOCATION:** | **Section 22, T. 17 S., R 29 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)

**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.

This authorization is subject to your Certificate of Participation and/or Certificate of Inclusion under the New Mexico Candidate Conservation Agreement. Because it involves surface disturbing activities covered under your Certificate, your Habitat Conservation Fund Account with the Center of Excellence for Hazardous Materials Management (CEHMM) will be debited according to Exhibit B Part 2 of the Certificate of Participation.

**Unit Wells**

The well sign for a unit well shall include the unit number in addition to the surface and bottom hole lease numbers.

EXHIBIT NO. 1

**Bureau of Land Management, Carlsbad Field Office**
620 E. Greene Street Carlsbad, NM 88220

Date of Issue:
3/5/2015

BLM Report No:
11-5169

Cultural and Archaeological Resources

# NOTICE OF STIPULATIONS

**Historic properties in the vicinity of this project are protected by federal law. In order to ensure that they are not damaged or destroyed by construction activities, the project proponent and construction supervisors shall ensure that the following stipulations are implemented.**

| Project Name: | Dodd Federal Unit 650 |
|---|---|
| | ***1). A 3-day preconstruction call-in notification.*** |
| Required | ***2. Professional archaeological monitoring***. Contact your BLM project archaeologist at (575) 234-5917 for assistance. |
| A. ☒ | These stipulations must be given to your monitor at least **5 days** prior to the start of construction. |
| B. ☒ | No construction, including vegetation removal or other site prep may begin prior to the arrival of the monitor. |
| | ***3. Cultural site barrier fencing.*** (Your monitor will assist you). |
| A. ☐ | A temporary site protection barrier(s) shall be erected prior to all ground-disturbing activities. The minimum barrier(s) |

| | |
|---|---|
| B: ☐ | shall consist of upright wooden survey lath spaced no more than ten (10) feet apart and marked with blue ribbon flagging or blue paint. There shall be no construction activities or vehicular traffic past the barrier(s) at any time.<br><br>**A permanent, 4-strand barbed wire fence** strung on standard "T-posts" shall be erected prior to all ground-disturbing activities. No construction activities or vehicle traffic are allowed past the fence. |
| Required<br>A: ☐ | ***4. The archaeological monitor shall:*** |
| B: ☒ | Observe all ground-disturbing activities within 200 feet of cultural sites LA 48356 & LA 49917. |
| C: ☒ | Ensure that the proposed action remains outside of sites LA 48356 & LA 49917 by 100 feet. |
| D: ☐ | Ensure the proposed reroute for the . |
| E: ☒ | Submit a brief monitoring report within 30 days of completion of monitoring. |
| | If subsurface cultural resources are encountered during the monitoring, all activities shall cease and a BLM-CFO archaeologist shall be notified immediately. |
| Other: | **IF THE CONTRACT ARCHAEOLOGIST DOES NOT KNOW WHERE THE SITE(S) ARE LOCATED AT PLEASE COME BY THE CARLSBAD BLM AND MAPS AND OTHER DATA WILL BE PROVIDED UPON REQUEST TO THE CONTRACT ARCHAEOLOGIST** |

**Site Protection and Employee Education: It is the responsibility of the project proponent and his construction supervisor to inform all employees and subcontractors that cultural and archaeological sites are to be avoided by all personnel, vehicles, and equipment; and that it is illegal to collect, damage, or disturb cultural resources on Public Lands.**

For assistance contact: Bruce Boeke (575) 234-5917

# 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 strip the top portion of the soil (root zone) from the entire well pad area and stockpile the topsoil along the edge of the well pad as depicted in the APD. The root zone is typically six (6) inches in depth. All the stockpiled topsoil will be redistributed over the interim reclamation areas. Topsoil shall not be used for berming the pad or facilities. For final reclamation, the topsoil shall be spread over the entire pad area for seeding preparation.

Other subsoil (below six inches) stockpiles must be completely segregated from the topsoil stockpile. Large rocks or subsoil clods (not evident in the surrounding terrain) must be buried within the approved area 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. EXCLOSURE FENCING (CELLARS & PITS)

**Exclosure Fencing**
The operator will install and maintain exclosure fencing for all open well cellars to prevent access to public, livestock, and large forms of wildlife before and after drilling operations until the pit is free of fluids and the operator initiates backfilling. (For examples of exclosure fencing design, refer to BLM's Oil and Gas Gold Book, Exclosure Fence Illustrations, Figure 1, Page 18.)

## 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 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.

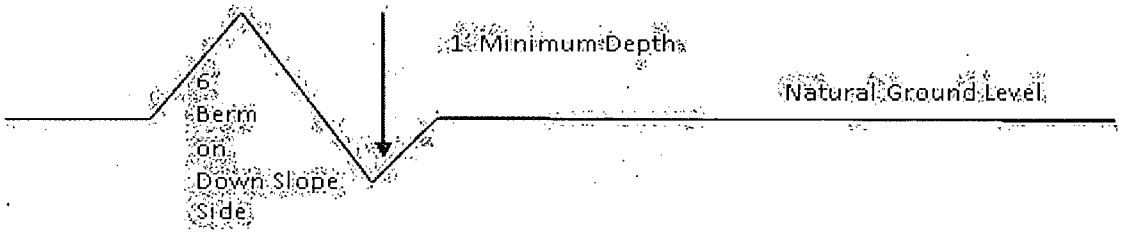
**Turnouts**
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

**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

**Cattleguards**

An appropriately sized cattleguard sufficient to carry out the project shall be installed and maintained at fence/road crossings. Any existing cattleguards on the access road route 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 cattleguards that are in place and are utilized during lease operations.

**Fence Requirement**

Where entry is granted 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 fences.

**Public Access**

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

**Construction Steps**

1. Salvage topsoil
2. Construct road
3. Redistribute topsoil
4. Revegetate slopes

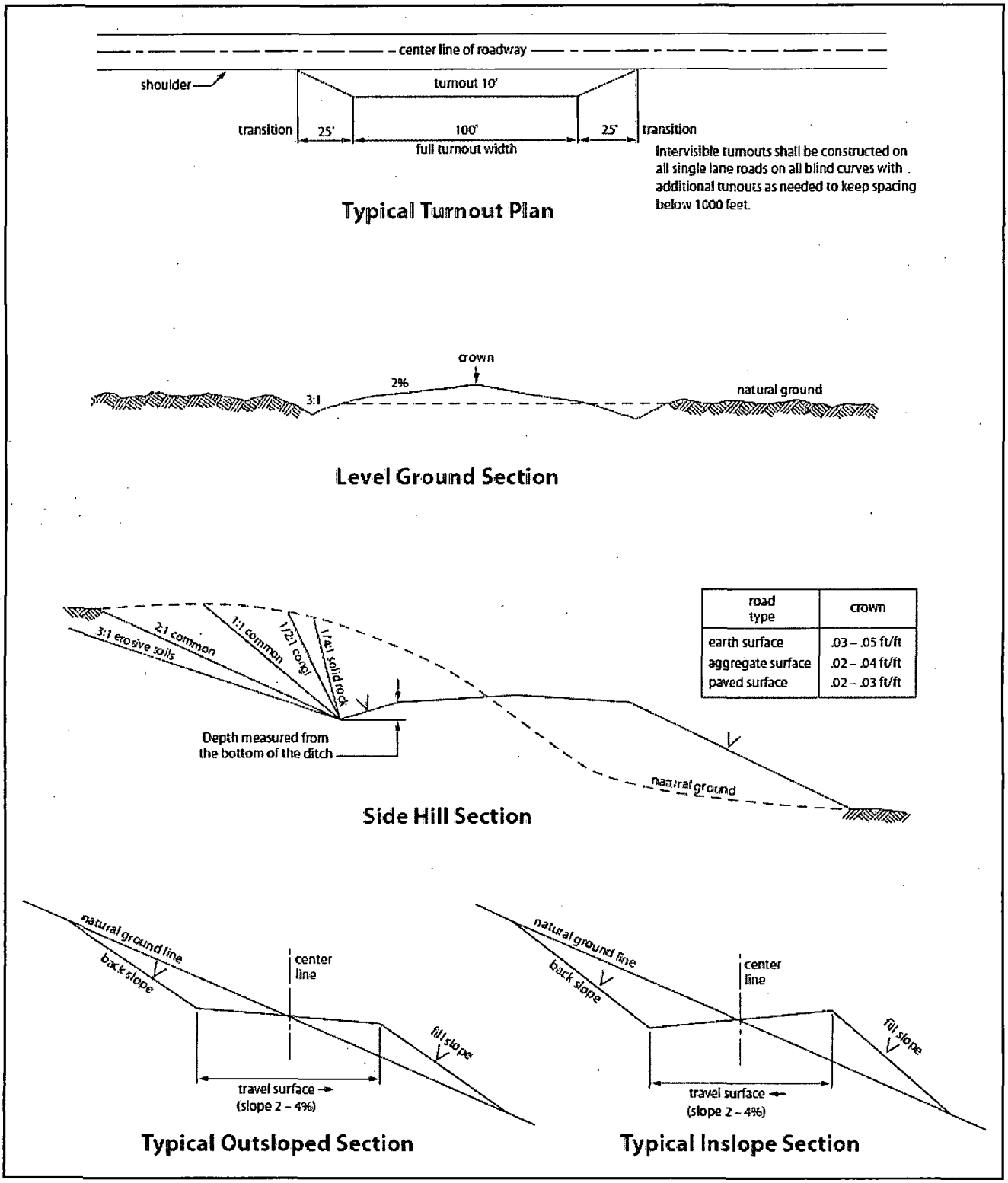



Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

# VII. DRILLING

## A. DRILLING OPERATIONS REQUIREMENTS

The BLM is to be notified in advance for a representative to witness:

a. Spudding well (minimum of 24 hours)
b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
c. BOPE tests (minimum of 4 hours)

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

1. A Hydrogen Sulfide (H2S) Drilling Plan shall 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 shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.**

## B. CASING

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

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

**Wait on cement (WOC) for Water Basin:**
**After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. 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 Salado and Artesia Group.**
**Possibility of lost circulation in the Artesia Group, Rustler, and San Andres.**

1. The **13-3/8** inch surface casing shall be set at approximately **180** feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) 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 **910** feet (**base of the Tansill**), is:

**Option #1(Single Stage):**

☒ 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.**

**Option #2:**

**Operator has proposed DV tool at depth of 375', but will adjust cement proportionately if moved. DV tool shall be set a minimum of 50' below previous shoe and a minimum of 200' above current shoe. Operator shall submit sundry if DV tool depth cannot be set in this range. If an ECP is used, it is to be set a minimum of 50' below the shoe to provide cement across the shoe. If it cannot be set below the shoe, a CBL shall be run to verify cement coverage.**

a. First stage to DV tool:

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

b. Second stage above DV tool:

☒ 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.**

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

**Option #1(Single Stage):**

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

**Option #2:**

**Operator has proposed DV tool at depth of 2500', but will adjust cement proportionately if moved. DV tool shall be set a minimum of 50' below previous shoe and a minimum of 200' above current shoe. Operator shall submit sundry if DV tool depth cannot be set in this range.**

a. First stage to DV tool:

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

b. Second stage above DV tool:

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

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 53.

2. **In the case where the only BOP installed is an annular preventer, it shall be tested to a minimum of 2000 psi (which may require upgrading to 3M or 5M annular).**

3. 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.

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**.

   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. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two 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.

## 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.

**JAM 042115**

# 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.

**Exclosure Netting (Open-top Tanks)**
Immediately following active drilling or completion operations, the operator will take actions necessary to prevent wildlife and livestock access, including avian wildlife, to all open-topped tanks that contain or have the potential to contain salinity sufficient to cause harm to wildlife or livestock, hydrocarbons, or Resource Conservation and Recovery Act of 1976-exempt hazardous substances. At a minimum, the operator will net, screen, or cover open-topped tanks to exclude wildlife and livestock and prevent mortality. If the operator uses netting, the operator will cover and secure the open portion of the tank to prevent wildlife entry. The operator will net, screen, or cover the tanks until the operator removes the tanks from the location or the tanks no longer contain substances that could be harmful to wildlife or livestock. Use a maximum netting mesh size of 1 ½ inches. The netting must not be in contact with fluids and must not have holes or gaps.

**Chemical and Fuel Secondary Containment and Exclosure Screening**
The operator will prevent all hazardous, poisonous, flammable, and toxic substances from coming into contact with soil and water. At a minimum, the operator will install and maintain an impervious secondary containment system for any tank or barrel containing hazardous, poisonous, flammable, or toxic substances sufficient to contain the contents of the tank or barrel and any drips, leaks, and anticipated precipitation. The operator will dispose of fluids within the containment system that do not meet applicable state or U. S. Environmental Protection Agency livestock water standards in accordance with state law; the operator must not drain the fluids to the soil or ground. The operator will design, construct, and maintain all secondary containment systems to prevent wildlife and livestock exposure to harmful substances. At a minimum, the operator will install effective wildlife and livestock exclosure systems such as fencing, netting, expanded metal mesh, lids, and grate covers. Use a maximum netting mesh size of 1 ½ inches.

**Open-Vent Exhaust Stack Exclosures**
The operator will construct, modify, equip, and maintain all open-vent exhaust stacks on production equipment to prevent birds and bats from entering, and to discourage perching, roosting, and nesting. (*Recommended exclosure structures on open-vent exhaust stacks are in the shape of a cone.*) Production equipment includes, but may not be limited to, tanks, heater-treaters, separators, dehydrators, flare stacks, in-line units, and compressor mufflers.

**Containment Structures**
Proposed production facilities such as storage tanks and other vessels will have a secondary containment structure that is constructed to hold the capacity of 1.5 times the

largest tank, plus freeboard to account for precipitation, unless more stringent protective requirements are deemed necessary.

**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).

## B. PIPELINES

STANDARD STIPULATIONS FOR SURFACE INSTALLED PIPELINES

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

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

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

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

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

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

a. Activities of the holder including, but not limited to construction, operation, maintenance, and termination of the facility.
b. Activities of other parties including, but not limited to:
    (1) Land clearing.
    (2) Earth-disturbing and earth-moving work.
    (3) Blasting.
    (4) Vandalism and sabotage.
c. Acts of God.

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

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

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

6. All construction and maintenance activity will be confined to the authorized right-of-way width of **20** feet. If the pipeline route follows an existing road or buried pipeline right-of-way, the surface pipeline must be installed no farther than 10 feet from the edge of the road or buried pipeline right-of-way. If existing surface pipelines prevent this distance, the proposed surface pipeline must be installed immediately adjacent to the outer surface pipeline. All construction and maintenance activity will be confined to existing roads or right-of-ways.

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

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

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

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

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

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

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

14. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway.

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

measures will be made by the authorized officer after consulting with the holder.

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

17. Surface pipelines must be less than or equal to 4 inches and a working pressure below 125 psi.

## 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.