

OPERATOR'S COPY

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FEB 27 2008

OCD-ARTESIA

APPLICATION FOR PERMIT TO DRILL OR REENTER

FORM APPROVED
OMB No 1004-0136
Expires January 31, 2004

1-8-08 D-14

5 Lease Serial No. NMHC 028731 B
NMNM 111789X

6. If Indian, Allottee or Tribe Name

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

8 Lease Name and Well No

Dodd Federal Unit #540

9 API Well No

30-015-36152

10 Field and Pool, or Exploratory

GRBG Jackson SR Q GRBG SA

11 Sec, T, R, M, or Blk and Survey or Area

Sec 10, T17-S R29-E

12 County or Parish

Eddy County

13. State

NM

1a Type of Work ☒ DRILL ☐ REENTER

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

2. Name of Operator

Marbob Energy Corporation

3a Address

P.O. Box 227, Artesia, NM 88211-0227

3b. Phone No. (include area code)

505-748-3303

4 Location of Well (Report location clearly and in accordance with any State requirements *)

At surface 2310' FSL & 2310' FWL

At proposed prod zone

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

About 7 miles from Loco Hills, NM

15 Distance from proposed*
location to nearest
property or lease line, ft
(Also to nearest drg. unit line, if any) 990'

16. No. of Acres in lease

2400

17. Spacing Unit dedicated to this well

40

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

19 Proposed Depth

5000'

20. BLM/BIA Bond No. on file

NM B000412

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

GL 3586'

22. Approximate date work will start*

February 3, 2008

23. Estimated duration

21 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

Nancy T. Agnew

Name (Printed/Typed)

Nancy T. Agnew

Date

1/3/08

Title

Land Department

Approved by (Signature)

[Signature]

Name (Printed/Typed)

Date

2/26/08

Title

FIELD MANAGER

Office

CARLSBAD FIELD OFFICE

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon

Conditions of approval, if any, are attached

APPROVAL FOR TWO YEARS

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

*(Instructions on reverse)

ROSWELL CONTROLLED WATER BASIN

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

APPROVAL SUBJECT TO
GENERAL REQUIREMENTS
AND SPECIAL STIPULATIONS
ATTACHED



DISTRICT I
1625 N. FRENCH DR., HOHES, NM 88240

DISTRICT II
1301 W. GRAND AVENUE, ARTESIA, NM 88210

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

DISTRICT IV
1220 S. ST. FRANCIS DR., SANTA FE, NM 87505

State of New Mexico

Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION
1220 SOUTH ST. FRANCIS DR.
Santa Fe, New Mexico 87505

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

FEB 27 2008

OCD-ARTESIA

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number	Pool Code 28509	Pool Name GRBG JACKSON SR Q GRBG SA
Property Code 34537	Property Name DODD FEDERAL UNIT	Well Number 540
OGRID No. 14049	Operator Name MARBOB ENERGY CORPORATION	Elevation 3586'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
K	10	17-S	29-E		2310	SOUTH	2310	WEST	EDDY

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
Dedicated Acres 40	Joint or Infill	Consolidation Code	Order No.						

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

GEODETIC COORDINATES NAD 27 NME Y=672351.0' N X=582941.1' E LAT.=32.848086° N LONG.=104.063262° W SEE DETAIL 2310' 2310' DETAIL 3584.2' 3588.7' 600' 3582.9' 3588.7'	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. <u>Nancy T. Agnew</u> 7/24/07 Signature Date Nancy T. Agnew Printed Name SURVEYOR CERTIFICATION I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief. MARCH 20 2007 Date Surveyed AR Signature & Seal of Professional Surveyor 3239 07.11.0296 Certificate No. GARY EDSON 12641 RONALD J. EIDSON 3239
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**Master Drilling Plan
MARBOB ENERGY CORPORATION
DODD FEDERAL UNIT**

**Master Drilling Program for Dodd Federal Unit
Attached to Form 3160-3**

T-17S, R29E

E/2W/2 Section 10
E/2 Section 10
ALL Section 11
ALL Section 14
E/2 Section 15
SE/4 Section 22

T-17S, R29E

S/2NE/4 Section 22
NE/4NE/4 Section 22
SE/4SW/4 Section 22

Eddy County, New Mexico

1. Geological Name of Surface Formation:

Permian

2. Estimated Tops of Important Geologic Markers:

Yates 830'
Queen 1765'
Grayburg 2078'
San Andres 2418'
Glorieta 3888'
Yeso 3954'

3. Estimated Depths of Anticipated Fresh Water, Oil, or Gas:

Grayburg	2078'	Oil
San Andres	2418'	Oil
Yeso	3954'	Oil

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 8-5/8" casing at 375' and circulating cement back to surface. Any shallower zones above TD which contain commercial quantities of oil and/or gas will have cement circulated across them by inserting a float shoe joint into the 5 1/2" production casing which will be run at TD to sufficiently cover all known oil and gas horizons above 200'.

4. Casing Program:

<u>Hole Size</u>	<u>Interval</u>	<u>OD Csg.</u>	<u>Weight</u>	<u>Grade</u>	<u>Jt.</u>	<u>Cond</u>	<u>Type</u>	<u>Collapse</u>	<u>Burst</u>	<u>Tension</u>
12 1/4"	0 - 375'	8 5/8"	24#	J-55	LTC	NEW	R-3	1.125	1.125	1.6
7 7/8"	0 - 5000'	5 1/2"	17#	J-55	LTC	NEW	R-3	1.125	1.125	1.6

5TC
LTC not shown
MMK
2/16/08

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1/23/2008

Cement Program:

8 5/8" Surface: Cement to surface with 300 sk "C" yield 1.34 wt 14.8 ppg

The 8 5/8 inch surface casing shall be set at 350-375 feet or 25' in the Rustler Anhydrite or in the case that salt occurs at a shallower depth above the top of the salt, below usable water and cement circulated to the surface. The surface casing shoe shall be set in the anhydrite to ensure adequate sealing. If cement does not circulate to the surface the operator may then use ready-mix cement to fill the remaining annulus. The operator is required to use an excess of 100% cement volume to fill the annulus.

5 1/2" Production: 1st Stage with 250 sk "H" wt 13.0 ppg yield 1.67, TOC 3250'. 2nd Stage lead 300 sk "H" Lite wt 12.7 yield 1.91 Tail in with 300 sk "H" wt 13.0 ppg yield 1.67 DV Tool @ 3250' TOC 100'

5. Minimum Specifications for Pressure Control:

The blowout preventer equipment (BOP) shown in Exhibit #1 will consist of a double ram (2000 psi wp) preventer. This unit will be hydraulically operated and the ram-type preventer will be quipped with blind rams on the top and 3 1/2" drill pipe rams on bottom. This BOP will be nipped up on the 8-5/8" surface casing and used continuously until TD is reached. All BOP's and accessory equipment will be tested to 1000 psi before drilling out of surface casing.

See log

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 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 3000 psi wp rating

6. Types and Characteristics of the Proposed Mud System:

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

<u>Depth</u>	<u>Type</u>	<u>Weight (ppg)</u>	<u>Viscosity (sec)</u>	<u>Waterloss (cc)</u>
0-375'	Fresh Water (Spud)	8.5	48	N.C.
375'-5000'	Brine	9.8-10.2	40-45	N.C.

7. Auxiliary Well Control and Monitoring Equipment:

(A) A Kelly cock will be kept in the drill string at all time.

(B) A full opening drill pipe stabbing valve (inside BOP) with proper drill pipe connections will be on the rig floor at all times.

DRILLING PROGRAM

**Dodd Federal Unit #540
2310' FSL & 2310' FWL
Section 10-17S-29E
Eddy County, New Mexico**

10. Anticipated Starting Date and Duration of Operations

Starting date will be scheduled upon approval.

Duration of Operations: Once commenced, the drilling operations should be completed in approximately 14 days. If the well is productive, an additional 30 to 60 days will be required for completion and testing of the well.

8. **Logging, Testing, and Coring Program:**

- (A) No Drillstem tests are anticipated.
- (B) The electric logging program will consist of Dual Laterolog Micro SFL, Spectral Density Dual Spaced Neutron Casing Log, and Depth Control Log. Selected SW cores may be taken in zones of interest.
- (C) No conventional coring is anticipated.
- (D) Further testing procedures will be determined after the 5 1/2" production casing has been cemented at TD based on drill shows, and log evaluation, and drill stem test results.

9. **Abnormal Conditions, Pressures, Temperatures, & Potential Hazards:**

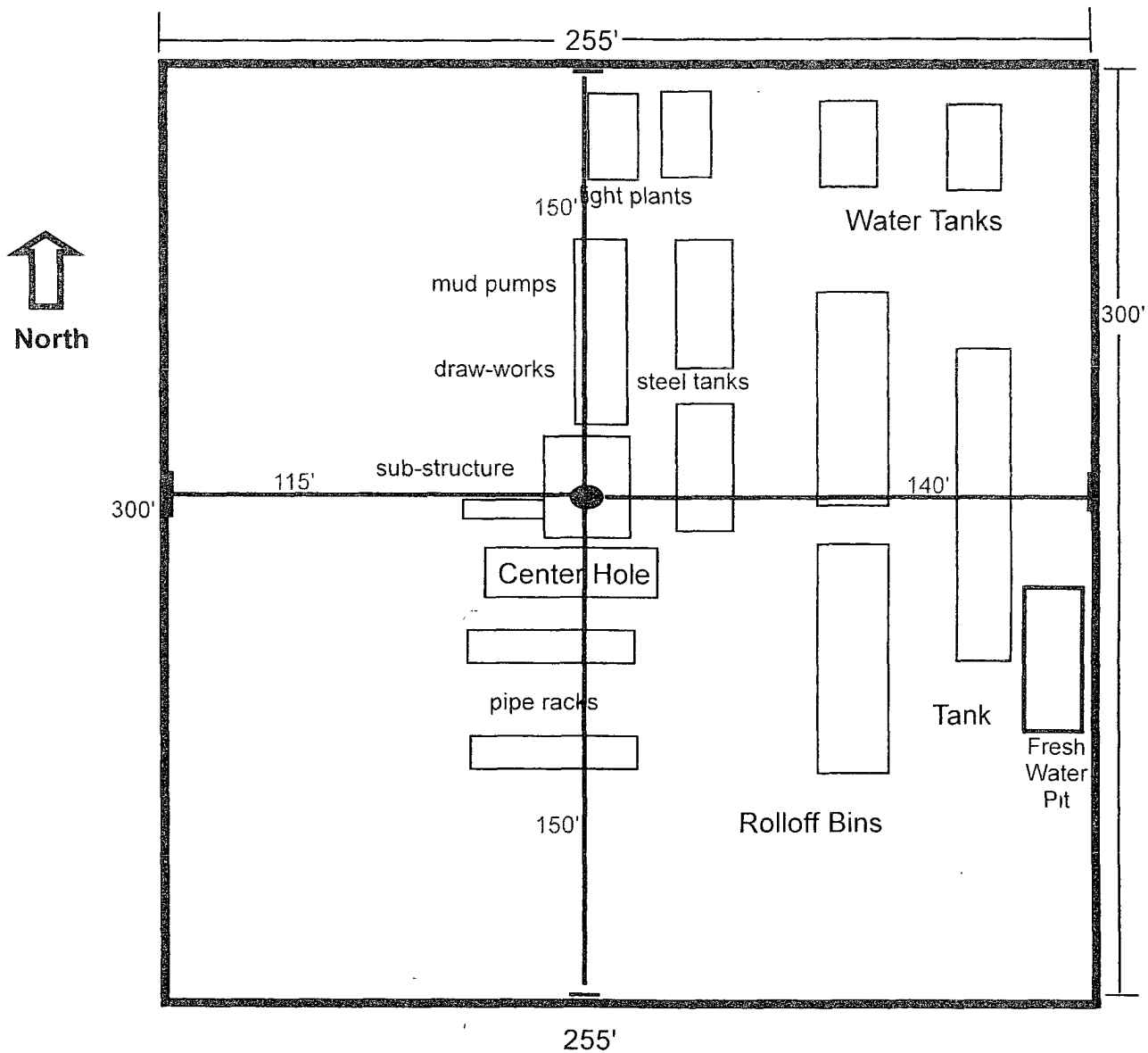
No abnormal pressures or temperatures are anticipated. The estimated bottom hole temperature (BHT) at TD is 104° and estimated bottom hole pressure (BHP) is 2250 psig.

This area has a potential H₂S hazard. An H₂S Drilling Plan is attached, including a diagram of the drilling rig layout with H₂S monitors and wind direction indicators shown.

10. **Anticipated Starting Date and Duration of Operations:**

Location and road work will not begin until approval has been received from the BLM. The anticipated spud date will be provided with each well application. Once commenced, the drilling operation should be finished in approximately 14 days. If the well is productive, an additional 30 to 60 days will be required for completion and testing before a decision is made to install permanent facilities.

Well Site Lay-Out Plat



SEE ATTACHED FOR
CONDITIONS OF APPROVAL

Dodd Federal Unit #540
2310' FSL & 2310' FWL
Section 10-17S-29E
Eddy County, New Mexico

EXHIBIT THREE

Attachment to Exhibit #1
Notes Regarding the Blowout Preventers

- 1. Blow out preventer and all fittings must be in good condition, 2000 psi W.P. minimum.**
- 2. All fittings to be flanged.**
- 3. Safety valve must be available on rig floor at all times with proper connections, valve to be bore 2000 psi W.P. minimum.**
- 4. All choke and fill line to be securely anchored, especially ends of choke lines.**
- 5. Equipment through which bit must pass shall be at least as large as the diameter of the casing being drilled through.**
- 6. Kelly cock on Kelly.**
- 7. Extension wrenches and hand wheels to be properly installed.**
- 8. Blow out preventer closing equipment to include minimum 40 gallon accumulator, two independent sources of pump power on each closing unit installation, and meet all API specifications.**

BOPE SCHEMATIC

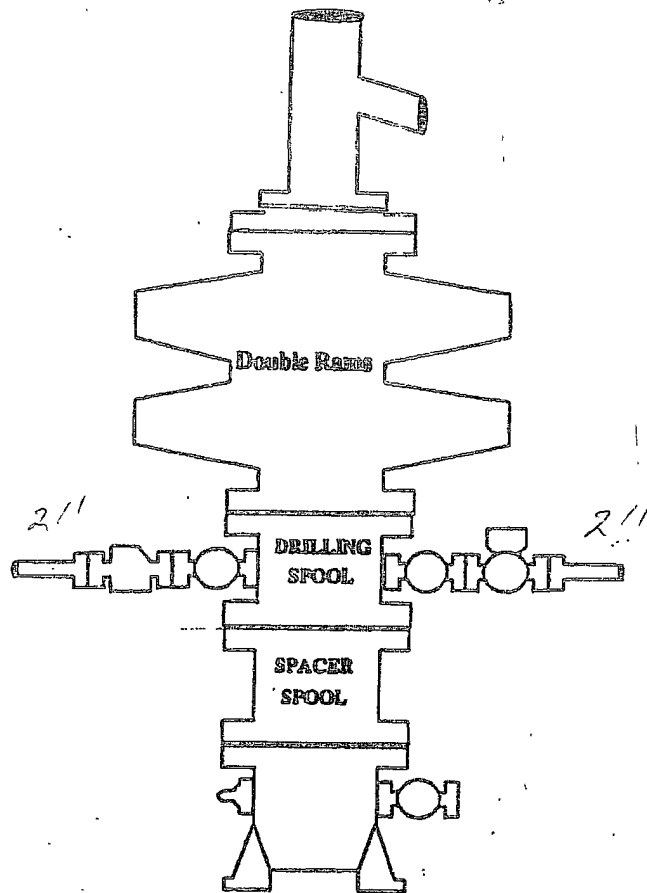
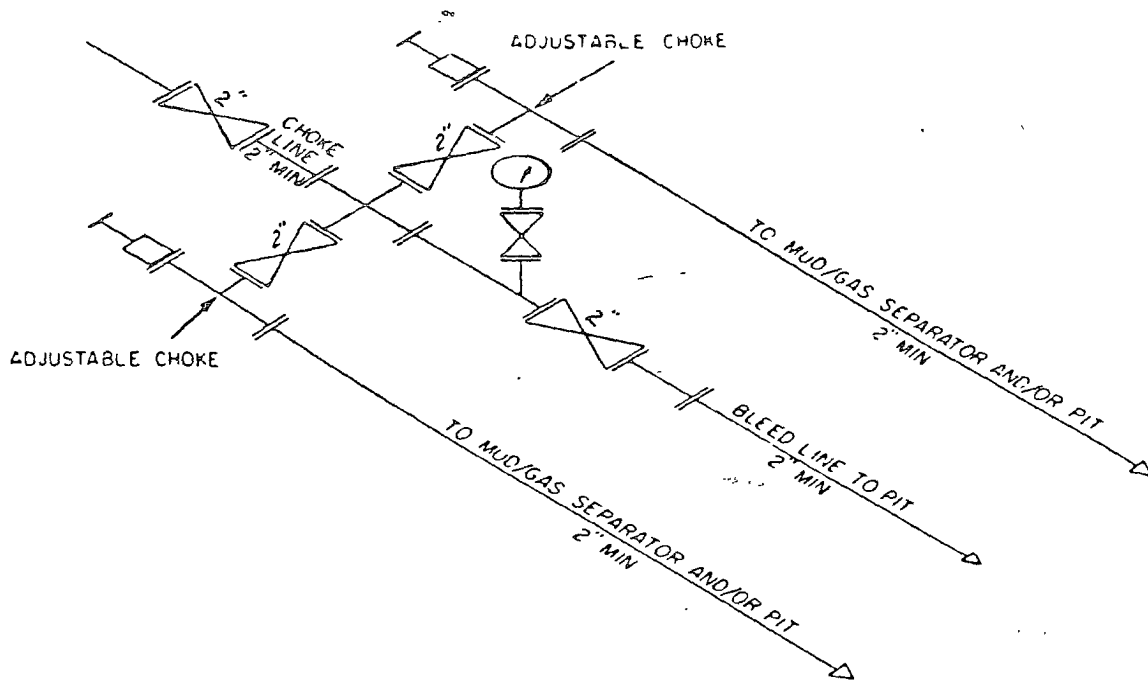
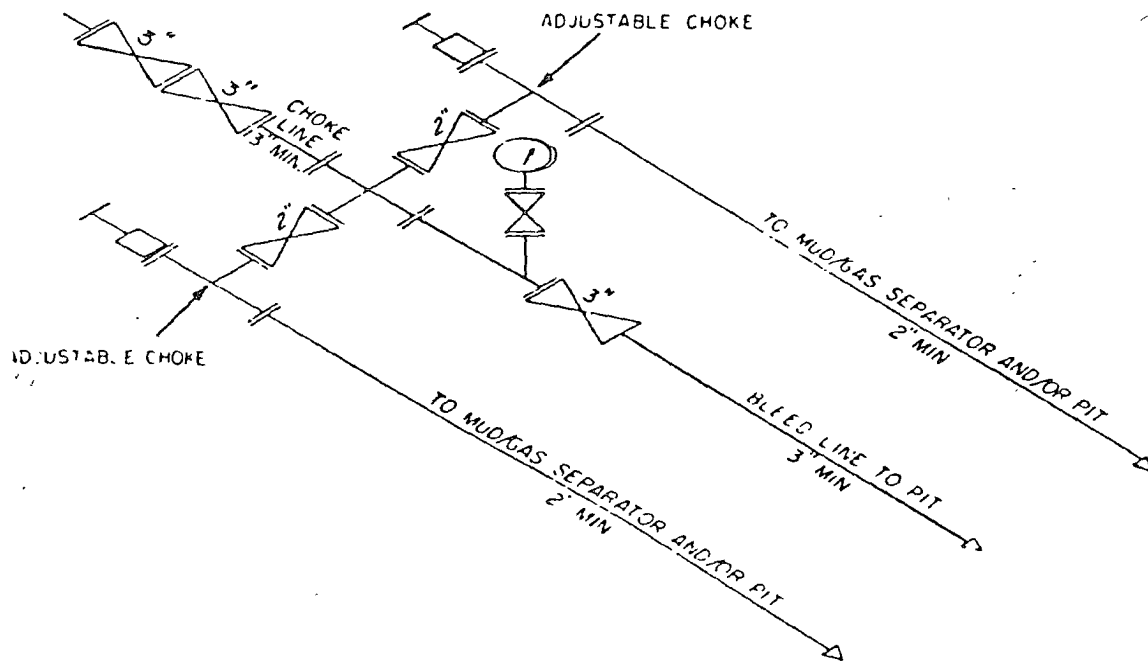


Exhibit One



2M CHOKE MANIFOLD EQUIPMENT — CONFIGURATION OF CHOKES

MAY VARY



3M CHOKE MANIFOLD EQUIPMENT — CONFIGURATION OF CHOKES

MAY VARY

MARBOB ENERGY CORPORTATION

HYDROGEN SULFIDE DRILLING OPERATIONS PLAN

I. HYDROFEN 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 and 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 tubulars are to be used, personnel will 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 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.

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

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4/27/2007

prior penetrating the first zone containing or reasonably expected to contain H₂S.

- 1. Well Control Equipment:**
 - A. Choke manifold**
 - B. Blind rams and pipe rams to accommodate all pipe sizes with properly sized closing unit.**
- 2. Protective equipment for essential personnel:**
 - A. Mark II Surviveair 30-minute units located in the dog house and at briefing areas, as indicated on well site diagram.**
- 3. H₂S detection and monitoring equipment:**
 - A. 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.**
 - B. 1 – portable S02 monitor positioned near flow line.**
- 4. Visual warning systems:**
 - A. Wind direction indicators as shown on well site diagram.**
 - B. 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.**
- 5. Mud Program:**
 - A. The mud program has been designed to minimize the volume of H₂S circulated to the 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 preventers, 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) communications at field office.**

SURFACE USE AND OPERATING PLAN

**Dodd Federal Unit #540
2310' FSL & 2310' FWL
Section 10-17S-29E
Eddy County, New Mexico**

- 1.(c) Directions to Locations: From the intersection of U.S. Hwy #83 and Co. Rd #214 (Barnaval Draw Rd.), go North on Co. Rd. #214 approx. 1.5 miles. Turn right and go East approx. 0.2 miles. Turn Left and go North approx. 0.3 miles. Turn Right at staked road go East approx. 233 feet to the Southwest corner of this location.**
- 2. There will be 233' of proposed access road.**
- 4. (a) If productive, this well will use the North tank battery.**

**SURFACE USE PLAN
MARBOB ENERGY CORPORATION
DODD FEDERAL UNIT**

Attached to Form 3160-3

T-17S, R29E

E/2W/2	Section 10
E/2	Section 10
ALL	Section 11
ALL	Section 14
W/2	Section 15
SE/4	Section 22

T-17S, R29E

S/2NE/4	Section 22
NE/4NE/4	Section 22
SE/4SW/4	Section 22

Eddy County, New Mexico

1. Existing Roads:

- (A) The well site and elevation plat for the proposed well is shown.
- (B) All roads to the location are shown on Exhibit #2 of each individual application. The existing roads are illustrated in red and are adequate for travel during drilling and production operations. Upgrading of the road prior to drilling will be done where necessary determined during the onsite inspection.
- (C) Directions to location will be provided for each individual well application.
- (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.

Proposed Access Road:

Exhibit #2 of each application will show the new access road (if necessary) to be constructed and will be illustrated in red. The road will be constructed as follows:

- (A) The maximum width of the running surface will be 10'. The road will be crowned and ditched and constructed of 6" of rolled and compacted caliche. Ditches will be at 3:1 slope and 4' wide. Water will be diverted where necessary to avoid ponding, prevent erosion, maintain good drainage, and to be consistent with local drainage patterns. BLM may specify any additions or changes during the onsite inspection.
- (B) The average grade will be less than 1%.
- (C) No turnouts are planned.
- (D) No culverts, cattle guards, gates, low-water crossings, or fence cuts are necessary.

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1/24/2008

- (E) Surfacing material will consist of native caliche. Caliche will be obtained from the nearest BLM approved caliche pit. Any additional materials that are required will be purchased from the dirt contractor.

3. Location of Existing and/or Proposed Facilities:

- (A) Marbob Energy Corp. already has tank batteries set up for this lease. There are two tank batteries located on the lease. The tank batteries are located:

North Tank Battery	NWSW	14-17S-29E
South Tank Battery	NWSE	22-17S-29E

Each new well will use either the North or South Tank facility corresponding to the side of highway it is located on.

- (B) If the well is productive, a 2" or 3" plastic flowline (grade SDR 7 @ 265 psi) will be laid on the surface following the existing lease road Right-of-Way to the Tank Battery. Anticipated pressures in the flowline should not exceed 75 psi. Proposed flowline route is indicated in blue on exhibit #2.
- (C) If the well is productive; power will be obtained from Central Valley Electric. Central Valley Electric will apply for ROW for their power lines.
- (D) If the well is productive, rehabilitation plans are as follows:
- (1) Topsoil removed from the drill site will be used to recontour the pit area and any unused portions of the drill pad to the original natural level, as nearly as possible, and reseeded as per BLM specifications.

4. Location and Type of Water Supply:

The well will be drilled with a 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 the location by transport truck over the existing and proposed access roads. If a commercial fresh water source is nearby, pipeline may be laid along existing road ROW's and fresh water pumped to the well. No water well will be drilled on the location.

5. Source of Construction Materials:

All Caliche utilized for the drilling pad and proposed access road will be obtained from an existing BLM approved pit or from prevailing deposits found under the location. All roads will be constructed of 6" rolled and compacted caliche. Will use BLM recommended use of extra caliche from other locations close by for roads, if available.

6. **Methods of Handling Water Disposal:**

- a. All trash, junk and other waste material will be removed from the wellsite within 30 days after finishing drilling and/or completion operations. All waste material will be contained in trash cages or trash bins to prevent scattering. When the job is completed, all contents will be removed and disposed of in an approved sanitary landfill.
- b. The supplier, including broken sacks, will pick up slats remaining after completion of well.
- c. A porto-john will be provided for the rig crews. This equipment will be properly maintained during the drilling and completion operations and will be removed when all operations are complete.
- d. Disposal of fluids and cuttings below the fresh water zone will be transported by an approved disposal company.

7. **Ancillary Facilities:**

No campsite or other facilities will be constructed as a result of this well.

8. **Well Site Layout:**

- a. Exhibit 3 shows the proposed well site layout with dimensions of the pad layout.
- b. This exhibit indicates proposed location of fresh water sump pits if utilized and living facilities.
- c. Mud pits in the active circulating system will be steel pits and a closed loop system will be utilized.
- d. A fresh water/Cement Pit will be on the pad and will be closed at the end of drilling operations.

9. **Plans for Restoration of the Surface:**

- a. After finishing drilling and/or completion operations, if the well is found non-commercial, the caliche will be removed from the pad and transported to the original caliche pit or used for other drilling locations. The road will be reclaimed as directed by the BLM. The original top soil will again be returned to the pad and contoured, as close as possible, to the original state.
- b. The location and road will be rehabilitated as recommended by the BLM.
- c. If the well is deemed commercially productive, the reserve pit will be restored as described in 10(A) within 120 days subsequent to the completion date. Caliche from areas of the pad site not required for operations will be reclaimed. The original top soil will be returned to the area of the drill pad not necessary to operate the well. These unused areas of the drill pad will be contoured, as close as possible, to match the original topography.

10. Surface Ownership:

The wellsite and lease is located on federal surface.

- (A) The area around the well site is grassland and the topsoil is sandy. The vegetation is native scrub grasses with abundant oakbrush, sagebrush, yucca, and prickly pear.
- (B) There is no permanent or live water in the immediate area.
- (C) A Cultural Resources Examination had been requested and will be forwarded to the BLM office for each location staked.

11. Lessee's and Operator's Representative:

The Marbob Energy Corp. representative responsible for assuring compliance with the surface use plan is as follows:

A. Through A.P.D. Approval:
Dean Chumbley, Landman
Marbob Energy Corporation
P. O. Box 227
Artesia, NM 88211-0227
Phone (505)748-3303
Cell (505)748-5988

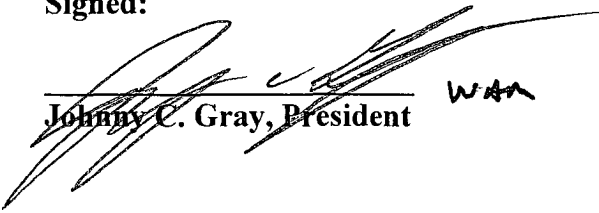
B. Through Drilling Operations
Sheryl Baker, Drilling Supervisor
Marbob Energy Corporation
P. O. Box 227
Artesia, NM 88211-0227
Phone (505)748-3303
Cell (505)748-5489

Certification:

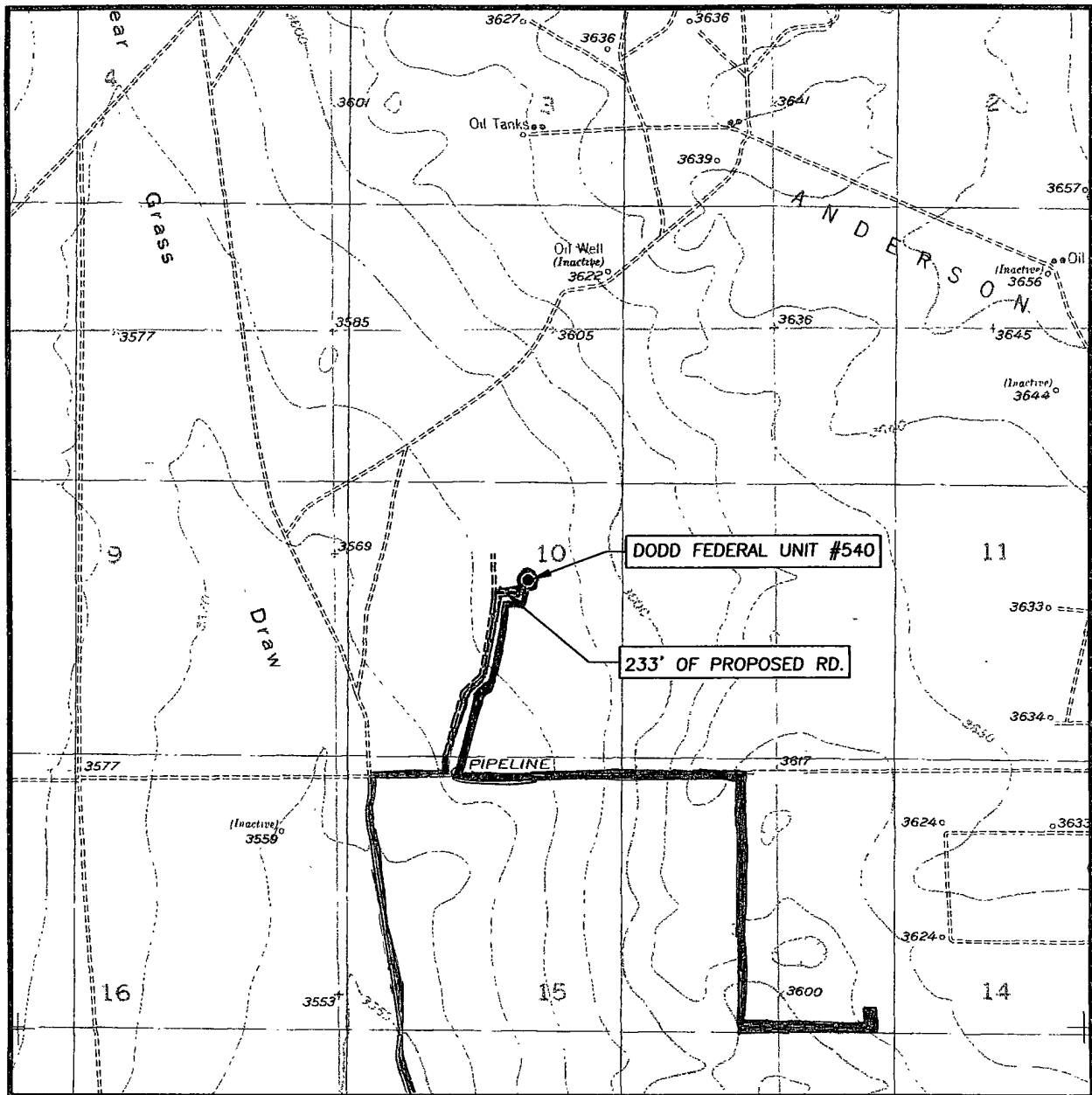
I hereby certify that I, or persons under my direct supervision, have inspected the proposed drillsite and access route; that I am familiar with the conditions which currently exist; that the statements made in this plan are to the best of my knowledge, true and correct; and the work associated with the operations proposed herein will be performed by Marbob Energy Corporation and its contractors and subcontractors in conformity with this plan and provisions of 18 U.S.C. 1001 for the filing of a false statement.

Signed:

Date: 5/1/2007


Johnny C. Gray, President

LOCATION VERIFICATION MAP



SCALE: 1" = 2000'

CONTOUR INTERVAL:
RED LAKE SE, N.M. - 10'

SEC. 10 TWP. 17-S RGE. 29-E

SURVEY N.M.P.M.

COUNTY EDDY STATE NEW MEXICO

DESCRIPTION 2310' FSL & 2310' FWL

ELEVATION 3586'

OPERATOR MARBOB ENERGY CORPORATION

LEASE DODD FEDERAL UNIT

U.S.G.S. TOPOGRAPHIC MAP
RED LAKE SE, N.M.

 Existing Roads

 Proposed Flowline Route

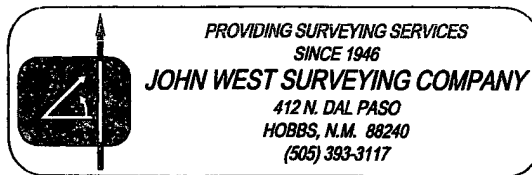


EXHIBIT #2

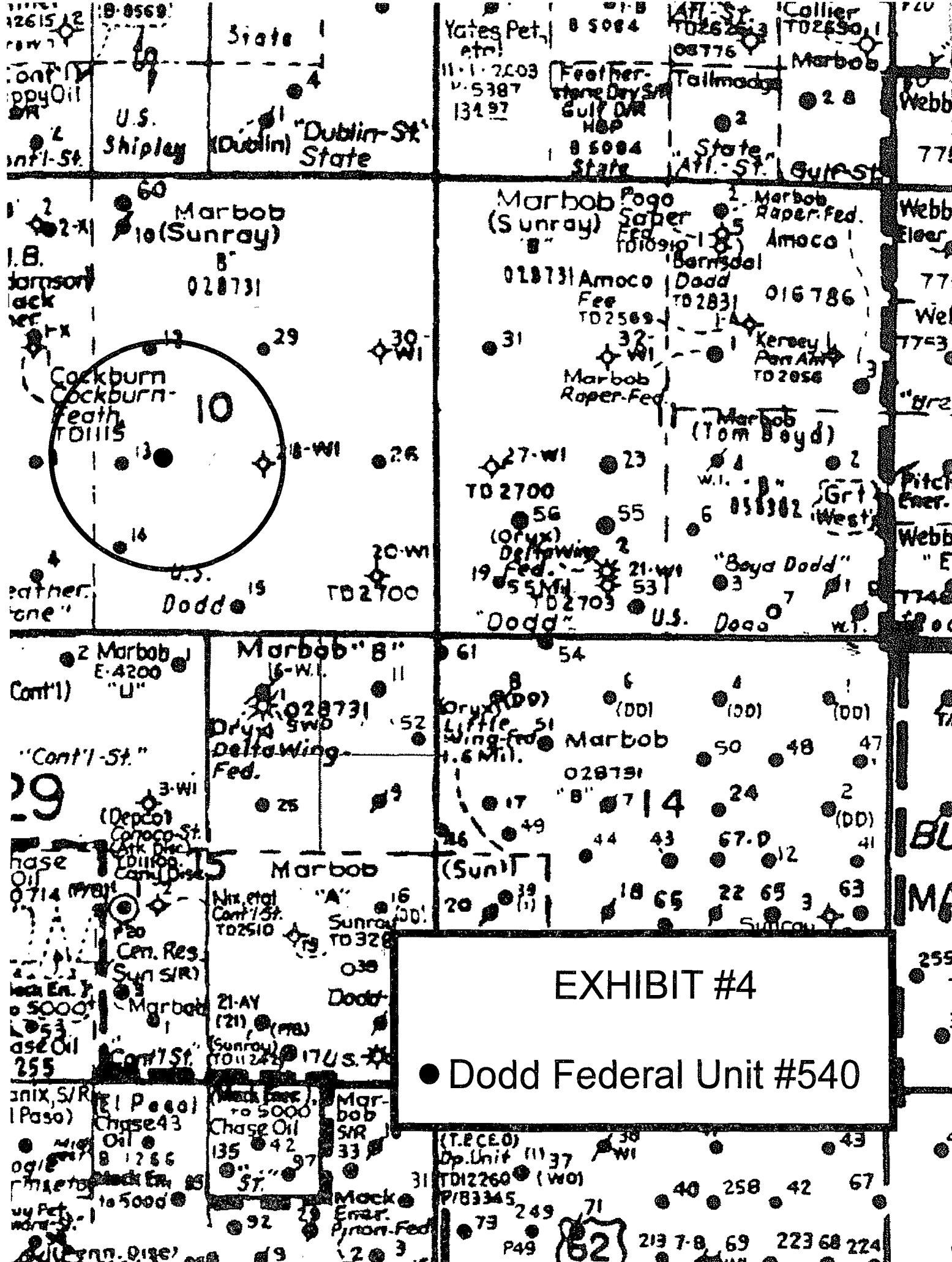


EXHIBIT #4

● Dodd Federal Unit #540

PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Marbob Energy Corp
LEASE NO.:	LC028731B
WELL NAME & NO.:	540-Dodd Federal Unit
SURFACE HOLE FOOTAGE:	2310' FSL & 2310' FWL
BOTTOM HOLE FOOTAGE	' F L & ' F L
LOCATION:	Section 10, T. 17 S., R29 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.

- ☐ **General Provisions**
- ☐ **Permit Expiration**
- ☐ **Archaeology, Paleontology, and Historical Sites**
- ☐ **Noxious Weeds**
- ☐ **Special Requirements**
 - Cave/Karst
 - VRM
 - Cultural
- ☒ **Construction**
 - Notification
 - Topsoil
 - Fresh Water Pit**
 - Federal Mineral Material Pits
 - Well Pads
 - Roads
- ☐ **Road Section Diagram**
- ☒ **Drilling**
- ☒ **Production (Post Drilling)**
 - Pipelines
- ☐ **Reserve Pit Closure/Interim Reclamation**
- ☐ **Final Abandonment/Reclamation**

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)

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 (505) 234-5972 at least 3 working days prior to commencing construction of the access road and/or well pad.

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

B. TOPSOIL

The operator shall stockpile the topsoil of the well pad. The topsoil to be stripped is approximately 6 inches in depth. The topsoil shall not be used to backfill the reserve pit and will be used for interim and final reclamation.

C. FRESH WATER PIT

The fresh water pit shall be constructed and closed in accordance with the NMOCD rules.

The fresh water pit shall be constructed 100' X 150' X 6' on the North side of the well pad.

The fresh water pit shall be constructed and maintained so that runoff water from outside the location is not allowed to enter the pit. The berms surrounding the entire perimeter of the pit shall extend a minimum of two (2) feet above ground level. At no time will standing fluids in the pit be allowed to rise above ground level.

The fresh water shall be fenced on three (3) sides during drilling operations. The fourth side shall be fenced immediately upon rig release.

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

If the operator elects to surface the access road and/or well pad, mineral materials extracted during construction of the reserve pit may be used for surfacing the well pad and access road and other facilities on the lease.

Payment shall be made to the BLM prior to removal of any additional federal mineral materials from any site other than the reserve pit. Call the Carlsbad Field Office at (505) 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 thirty (30) feet.

Surfacing

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

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

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

Crowning

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

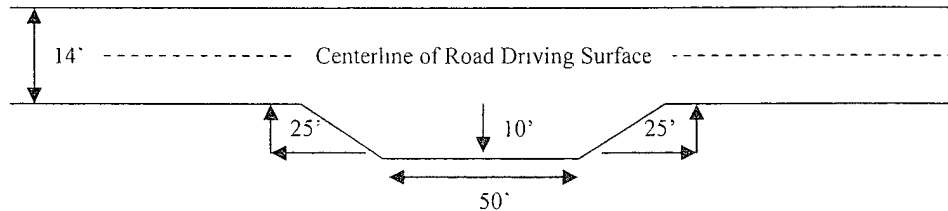
Ditching

Ditching shall be required on both sides of the road.

Turnouts

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

Standard Turnout – Plan View

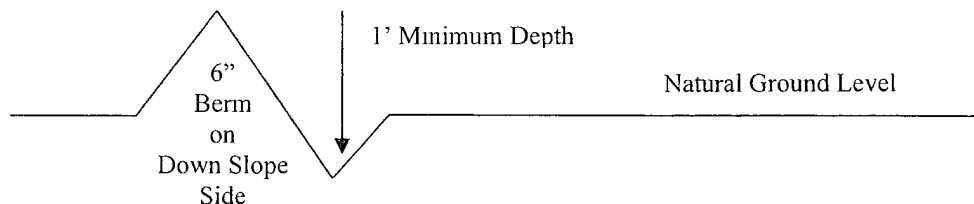


Drainage

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:

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

Culvert Installations

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

Cattleguards

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

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

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

Fence Requirement

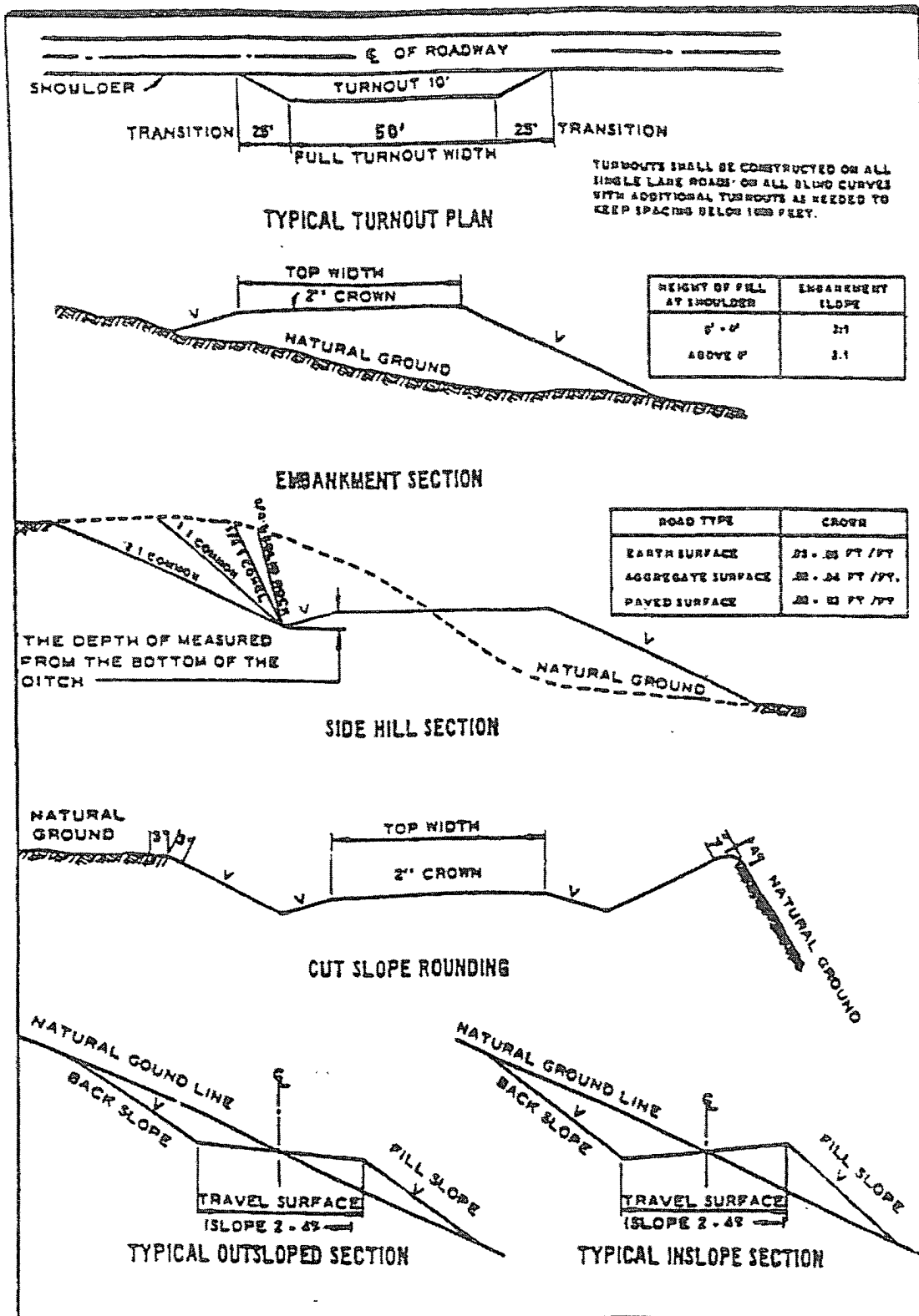
Where entry is required across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting.

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

Public Access

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

Figure 1 – Cross Sections and Plans For Typical Road Sections



VII. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

The BLM is to be notified a minimum of 2 hours in advance for a representative to witness:

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

☒ **Eddy County**

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

1. A Hydrogen Sulfide (H₂S) Drilling Plan should be activated 500 feet prior to drilling into the **Yates** formation. **Measurements in this area have recorded 1700 - 8000 ppm in the gas stream.**
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.

B. CASING

1. The **8-5/8** inch surface casing shall be set **at approximately 375 feet (a minimum of 25 feet into the Rustler Anhydrite and 25 feet above the salt)** and cemented to the surface.
 - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with a surface log readout will be used or a cement bond log shall be run to verify the top of the cement. **Master Drilling Plan in effect. Ready-mix can be used if less than 100' of annulus is open. Measurement to top of cement to be reported to BLM technician.**
 - b. Wait on cement (WOC) time 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. (This is to include the lead cement). **Please provide WOC times to inspector for cement slurries.**
 - 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.

Possible lost circulation in the Grayburg and San Andres formations.

Possible water flows in the Salado and Artesia Groups.

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

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

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. The appropriate BLM office shall be notified a minimum of 2 hours in advance for a representative to witness the tests.
 - a. The tests shall be done by an independent service company.
 - b. The results of the test shall be reported to the appropriate BLM office.
 - c. 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.
 - d. 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.
 - e. **No variance granted on BOP test when running only two casing strings.**

D. DRILL STEM TEST

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

WWI 021608

VIII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

Placement of Production Facilities

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

Containment Structures

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

Painting Requirement

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

VRM Facility Requirement

B. PIPELINES

STANDARD STIPULATIONS FOR SURFACE INSTALLED PIPELINES

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

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

1. The holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.
2. The holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as

a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.

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

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

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

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

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

5. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil, salt water, or other pollutant should be discharged from the pipeline system, impacting Federal lands, the control and total removal, disposal, and cleaning up of such oil, salt water, or other pollutant, wherever found, shall be the responsibility of the holder, regardless of fault. Upon failure of the holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages resulting

therefrom, on the Federal lands, the Authorized Officer may take such measures as he deems necessary to control and clean up the discharge and restore the area, including, where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the holder. Such action by the Authorized Officer shall not relieve the holder of any responsibility as provided herein.

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

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

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

IX. INTERIM RECLAMATION & RESERVE PIT CLOSURE

A. INTERIM RECLAMATION

If the well is a producer, interim reclamation shall be conducted on the well site in accordance with the orders of the Authorized Officer. The operator shall submit a Sundry Notices and Reports on Wells (Notice of Intent), Form 3160-5, prior to conducting 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.

At the time reserve pits are to be reclaimed, operators should work with BLM surface management specialists to devise the best strategies to reduce the size of the location. Any reductions 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 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.

B. FRESH WATER PIT CLOSURE

The fresh water pit, when dried and closed, shall be recontoured, all trash removed, and resceded as follows:

Seed Mixture for LPC Sand/Shinnery Sites

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

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

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

<u>Species</u>	<u>lb/acre</u>
Plains Bristlegrass	5lbs/A
Sand Bluestem	5lbs/A
Little Bluestem	3lbs/A
Big Bluestem	6lbs/A
Plains Coreopsis	2lbs/A
Sand Dropseed	1lbs/A
 **Four-winged Saltbush	 5lbs/A

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

*Pounds of pure live seed:

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

X. FINAL ABANDONMENT & REHABILITATION REQUIREMENTS

Upon abandonment of the well and/or when the access road is no longer in service the Authorized Officer shall issue instructions and/or orders for surface reclamation and restoration of all disturbed areas.

On private surface/federal mineral estate land the reclamation procedures on the road and well pad shall be accomplished in accordance with the private surface land owner agreement.