

RM

ATS-09-363  
E#-09-662

OCD-ARTESIA

Form 3160-3  
(February 2005)

AUG - 3 2009

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

FORM APPROVED  
OMB No 1004-0137  
Expires March 31, 2007

5 Lease Serial No.  
**NMNM101108**

6 If Indian, Allottee or Tribe Name

7 If Unit or CA Agreement, Name and No

8 Lease Name and Well No.  
**West Brushy 5 Federal #5 SWD**

9 API Well No.  
**30-015-31869**

10 Field and Pool, or Exploratory  
**Brushy Pool (Delaware)**

11 Sec, T R M or Blk and Survey or Area  
**Section 5, T26S - R29E**

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 88211-0228**

3b Phone No. (include area code)  
**575-748-3303**

4 Location of Well (Report location clearly and in accordance with any State requirements.)  
At surface **800' FSL & 850' FEL**  
At proposed prod zone

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

15 Distance from proposed\*  
location to nearest  
property or lease line, ft  
(Also to nearest drig. unit line, if any) **800'**

16 No of acres in lease  
**400.00**

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  
**6050'**

20 BLM/BIA Bond No. on file  
**NMB000412**

21 Elevations (Show whether DF, KDB, RT, GL, etc )  
**2881' 6L operator**

22 Approximate date work will start\*  
**05/15/2009**

23 Estimated duration  
**3 Weeks**

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 **Nancy T. Agnew**

Name (Printed/Typed)  
**Nancy T. Agnew**

Date  
**03/31/2009**

Title  
**Land Department**

Approved by (Signature) **/s/ Don Peterson**

Name (Printed/Typed)

Date **JUL 29 2009**

Title **FOR**  
**FIELD MANAGER**

Office  
**CARLSBAD FIELD OFFICE**

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

**APPROVAL FOR TWO YEARS**

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

\*(Instructions on page 2)

SEE ATTACHED FOR  
CONDITIONS OF APPROVAL

Approval Subject to General Requirements  
& Special Stipulations Attached

Carlsbad Controlled Water Basin

**District I**  
1625 N. French Dr., Hobbs, NM 88240

**District II**  
1301 W. Grand Avenue, Artesia, NM 88210

**District III**  
1000 Rio Brazos Rd., Aztec, NM 87410

**District IV**  
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico  
Energy, Minerals & Natural Resources Department  
**OIL CONSERVATION DIVISION**  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

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

☐ AMENDED REPORT

**WELL LOCATION AND ACREAGE DEDICATION PLAT**

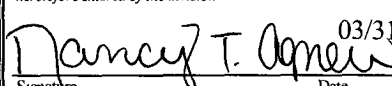
<sup>1</sup> API Number 30-015-31869	<sup>2</sup> Pool Code <del>8080</del> 9600 SWD	<sup>3</sup> Pool Name Brushy Draw (Delaware)
<sup>4</sup> Property Code	<sup>5</sup> Property Name West Brushy 5 Federal SWD	<sup>6</sup> Well Number 5
<sup>7</sup> OGRID No. 14049	<sup>8</sup> Operator Name Marbob Energy Corporation	<sup>9</sup> Elevation 2881'

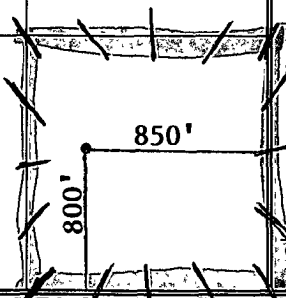
<sup>10</sup> Surface Location									
UL or lot no. P	Section 5	Township 26-S	Range 29-E	Lot Idn	Feet from the 800	North/South line South	Feet from the 850	East/West line East	County Eddy

<sup>11</sup> 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

<sup>12</sup> Dedicated Acres 40	<sup>13</sup> Joint or Infill	<sup>14</sup> Consolidation Code	<sup>15</sup> Order No.
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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.

16					<sup>17</sup> <b>OPERATOR CERTIFICATION</b> 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  Signature Date 03/31/2009 Nancy T. Agnew Printed Name
					<sup>18</sup> <b>SURVEYOR CERTIFICATION</b> 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  Date of Survey Signature and Seal of Professional Surveyor  Certificate Number



# State of New Mexico

Energy, Minerals and Natural Resources Department

## DISTRICT I

P.O. Box 1988, Hobbs, NM 88241-1988

## DISTRICT II

P.O. Drawer 80, Artesia, NM 88211-0719

## DISTRICT III

1000 Rio Brazos Rd., Aztec, NM 87410

## DISTRICT IV

P.O. Box 2088, Santa Fe, N.M. 87504-2088

# OIL CONSERVATION DIVISION

P.O. Box 2088

Santa Fe, New Mexico 87504-2088

Form C-102

Revised February 10, 1994

Submit to Appropriate District Office

State Lease - 4 Copies

Fee Lease - 3 Copies

## WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number	Pool Code	Pool Name
Property Code	Property Name <b>WEST BRUSHY FEDERAL "5"</b>	Well Number <b>5</b>
OCRID No.	Operator Name <b>ARCO PERMIAN</b>	Elevation <b>2883'</b>

### Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	5	26-S	29-E		800	SOUTH	850	EAST	EDDY

### Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County

Dedicated Acres	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

LOT 4	LOT 3	LOT 2	LOT 1
40.60 AC	40.31 AC	40.40 AC	40.12 AC

**OPERATOR CERTIFICATION**

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief.

*Kellie D. Murrish*  
Signature  
**Kellie D. Murrish**  
Printed Name  
**Sr. Admin Asst**  
Title  
**6-19-01**  
Date

**SURVEYOR CERTIFICATION**

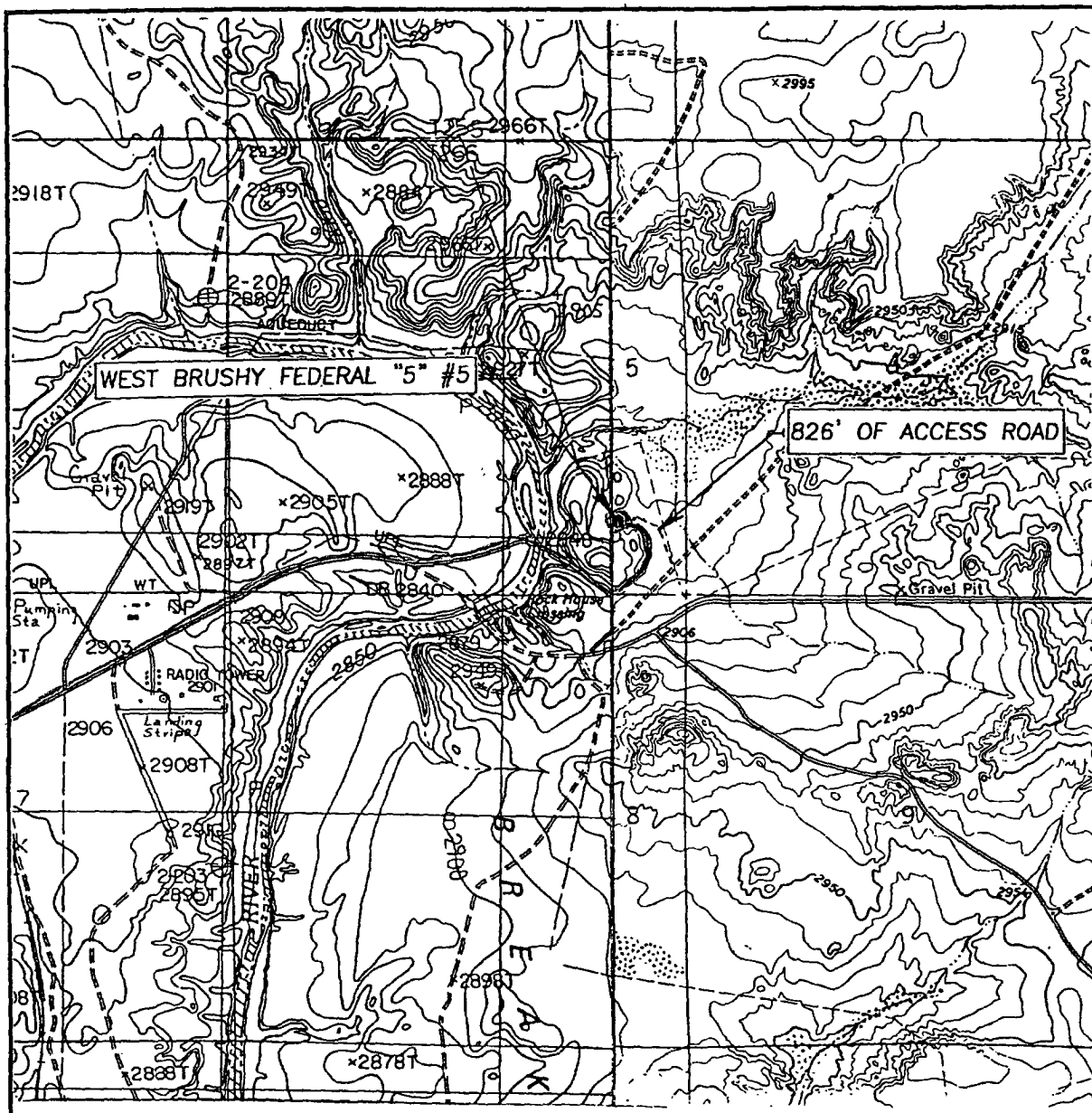
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision and that the same is true and correct to the best of my belief.

**JUNE 12, 2001**

Date Surveyed  
Signature & Seal of Professional Surveyor  
*Ronald J. Eidson*  
**RONALD J. EIDSON**  
Professional Surveyor  
**01-11-0727**

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

## LOCATION VERIFICATION MAP



SCALE: 1" = 2000'

CONTOUR INTERVAL: 10'

SEC. 5 TWP. 26-S RGE. 29-E

ROSS RANCH, N.MN.

SURVEY N.M.P.M.

COUNTY EDDY

DESCRIPTION 850' FSL & 800' FEL

ELEVATION 2881'

OPERATOR ARCO PERMIAN

LEASE WEST BRUSHY FEDERAL "5"

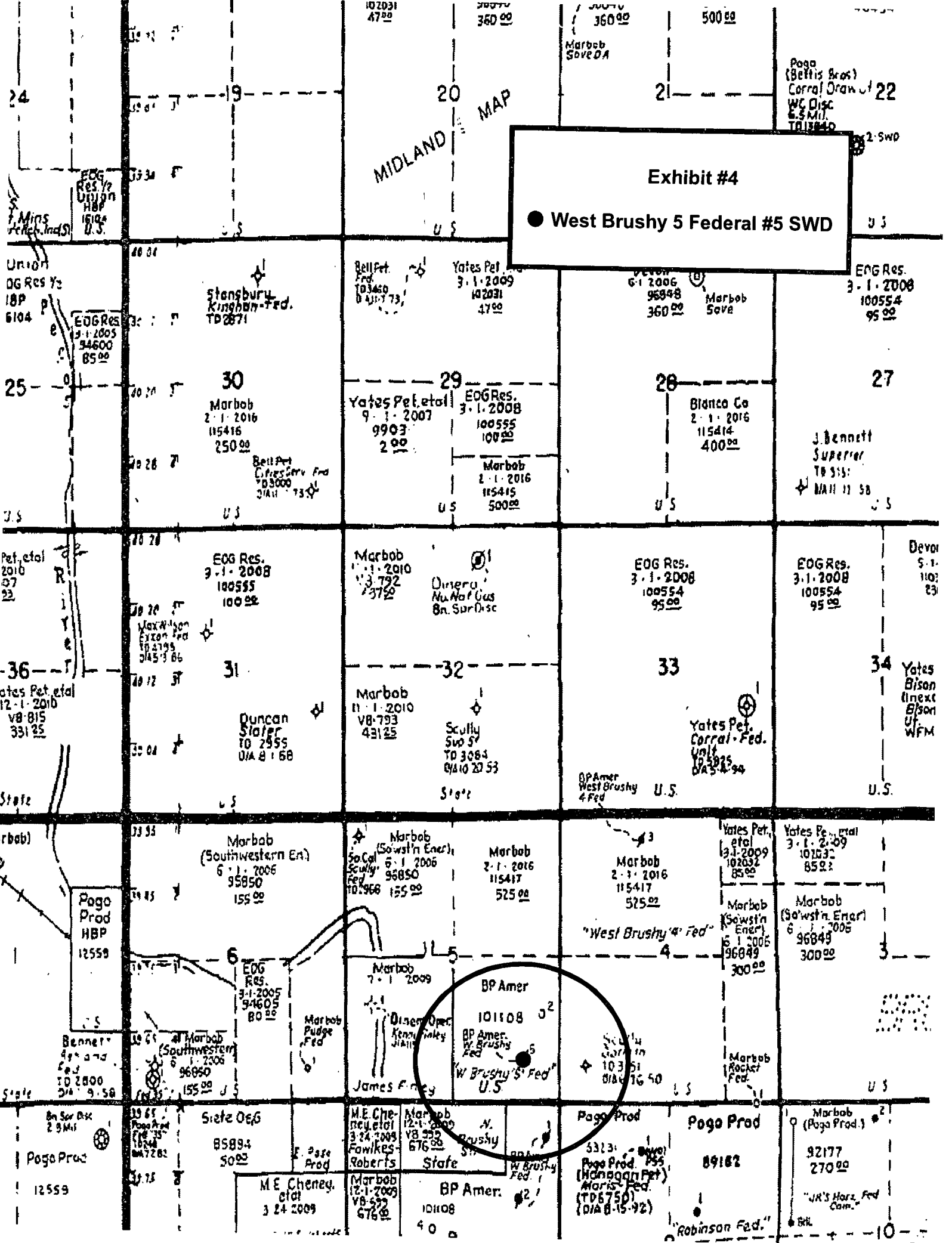
U.S.G.S. TOPOGRAPHIC MAP  
ROSS RANCH, N.M.

JOHN WEST SURVEYING  
HOBBS, NEW MEXICO  
(505) 393-3117

## ~~—~~Existing Roads

MIDLAND MAP

Exhibit #4  
● West Brushy 5 Federal #5 SWD



**MARBOB ENERGY CORPORATION**  
**DRILLING AND OPERATIONS PROGRAM**

**West Brushy 5 Federal #5 SWD**  
**(Formerly West Brushy Draw 5 Federal #5)**  
**800' FSL & 850' FEL**  
**Section 5, T26S, R29E**  
**Eddy County, New Mexico**

In conjunction with Form 3160-3, Application for Permit to Drill subject well, Marbob Energy Corporation submits the following ten items of pertinent information in accordance with BLM requirements. Also attached for your information are before/after wellbore schematics and the NMOCD SWD order.

1. The geological surface formation is Permian.
2. The tops of geologic markers are as follows:

Delaware	2813'
TD	6050'

3. The estimated depths at which anticipated water, oil or gas formations are expected to be encountered:

Rustler	591'	Water
Delaware	2813'	Oil Zones depleted in this well.

No formations are expected to give up oil, gas, or fresh water in measurable quantities. The Delaware oil zones in this well were depleted prior to plugging well. The surface fresh water sands are protected by casing at 591' in place. The Delaware is sweet and doesn't produce hydrogen sulfide.

4. Actual Casing Program (In Place):

Hole Size	Interval	OD Casing	Wt	Grade
11	0 – 591'	8 5/8"	24#	J-55
7 7/8	0 – 6049'	5 1/2"	15.5#	J-55

Actual Cement Program:

8 5/8" Surface Casing: Cemented w/ 375 sx cmt. Circulated to surface.

5 1/2" Production Casing: Cemented w/ 1100 sx cmt. TOC 620' by cement bond log.

5. Pressure Control Equipment: Double ram workover BOP (reentry of existing cased wellbore with subnormal pressures). Delaware sands don't flow in this area and require artificial lift to produce fluids to surface.
6. Mud Program: Will use cut brine or fresh water to drill out cement plugs.
7. Auxiliary Equipment: Sub with full opening valve on floor
8. Testing, Logging and Coring Program: Plan to clean wellbore out to 5975' squeeze cement the Williamson sand 4890' – 4910', and perforate, acidize, injection test and possibly frac Delaware Sands 4354' – 4630' and 5208' – 5912'. Will run internally lined injection tubing and set injection packer at approximately 4300'.
9. No abnormal pressures or temperatures are anticipated. Maximum anticipated BHP is 2459 psi (5912' x 8 ppg gradient x .052). BHT is 115°F.
10. Anticipated starting date: As soon as possible after approval.

Well: West Brushy 5 Fld 5

Location: 880' FSL, 880' FEL  
P-5-263-290  
Eddy NM  
30-015-31869

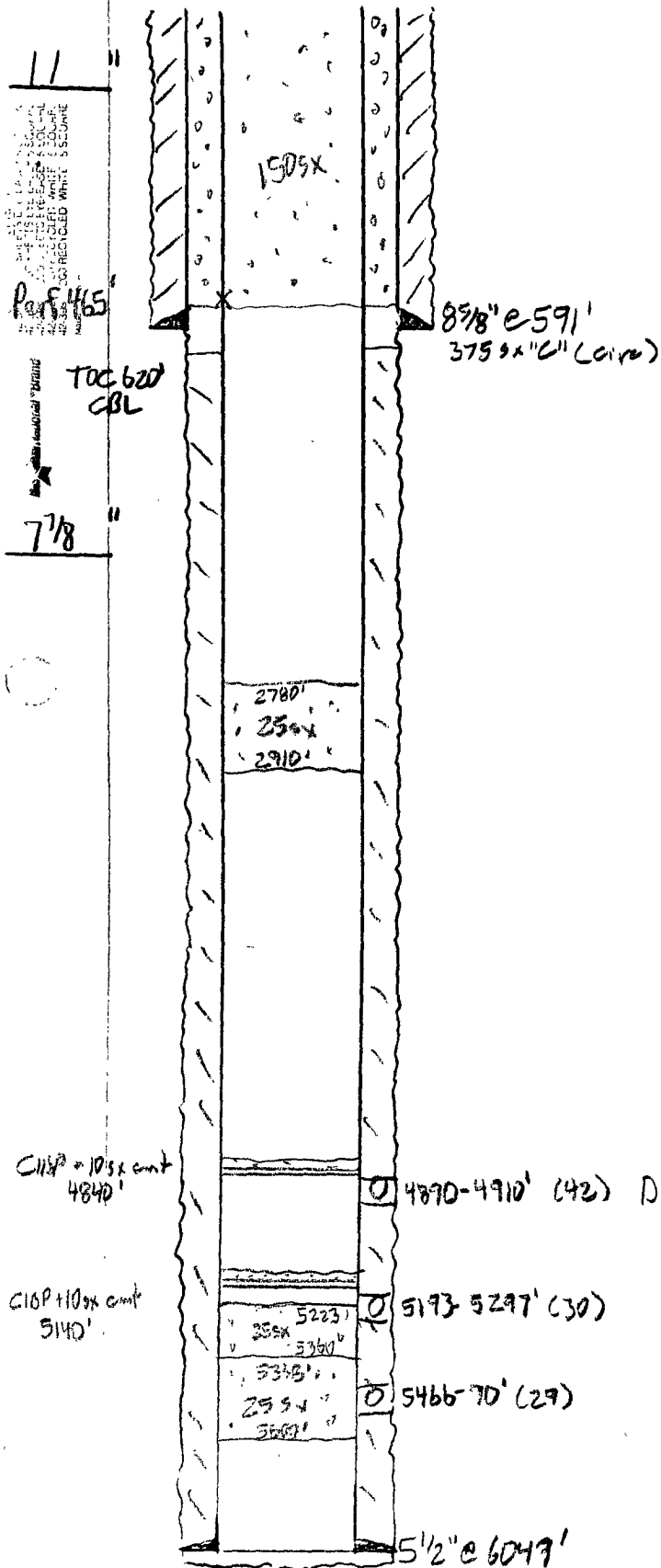
Zero: 12' AGL

KB: 2893'

GL: 2881'

Casing Program:

Size	Wt.	Grade	Conn	Depth
8 5/8"	24	J55	STC	571'
5 1/2"	15.5	J55	STC	6049'



Before SWD Conversion



Well: West Brushy 5 Fld 5 SWD

Zero: 12' AGL

KB: 2873'

GL: 2881'

Location: 800' FSL, 850' FEL

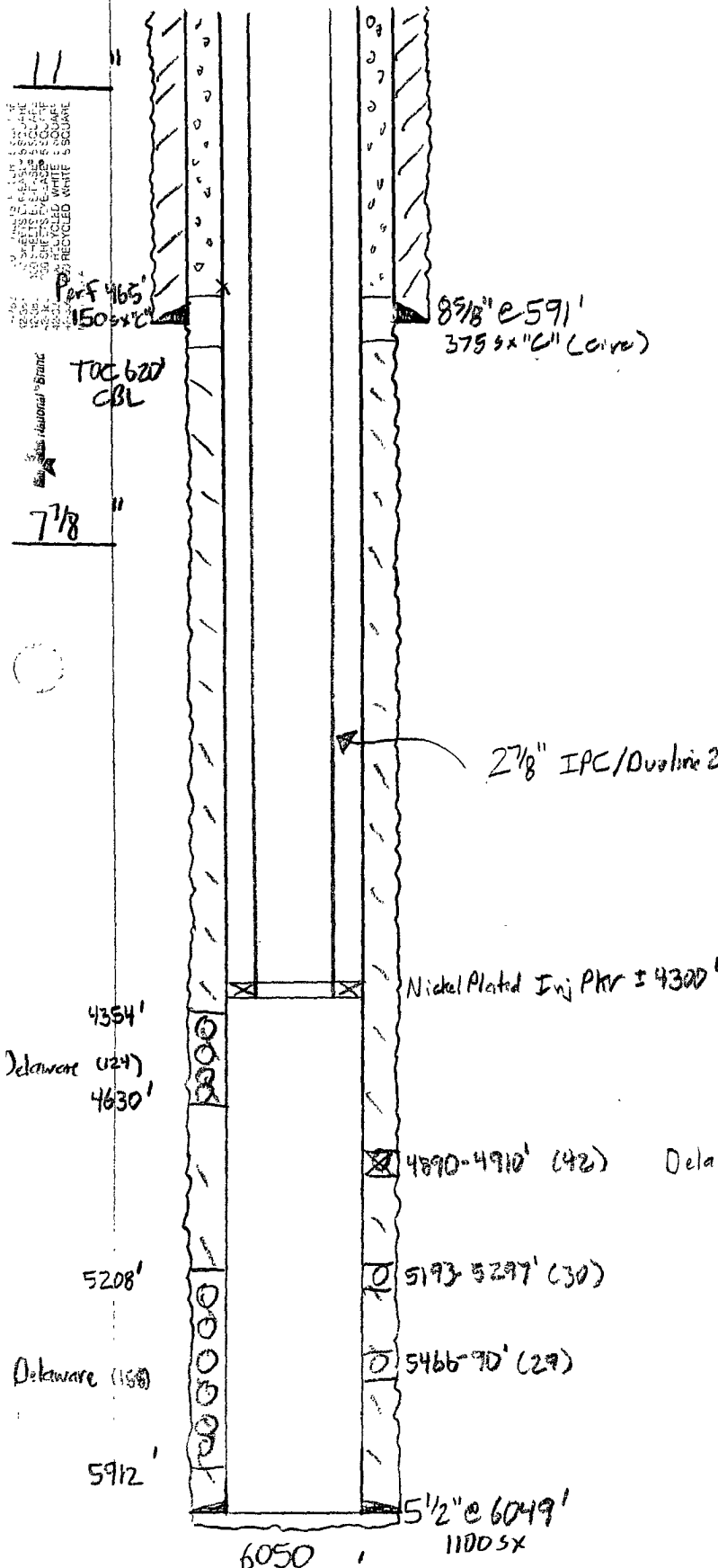
P-5-263-290

Eddy NM

30-015-31869

Casing Program:

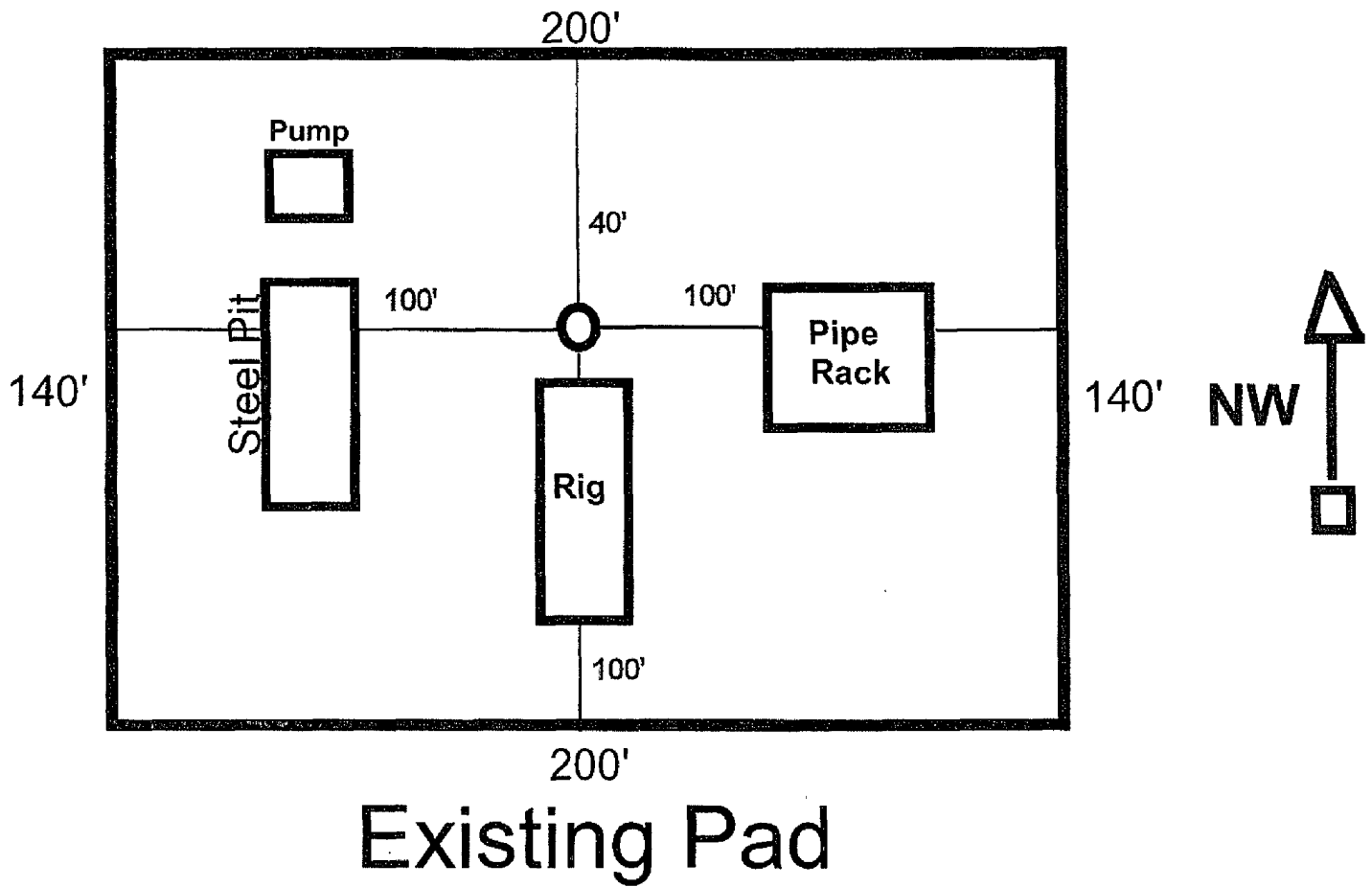
Size	Wt.	Grade	Conn	Depth
8 5/8"	24	J55	STC	591'
5 1/2"	15.5	J55	STC	6049'
2 7/8"	6.5	J55	FVE	±4300'
		IPC/Dualine 20		



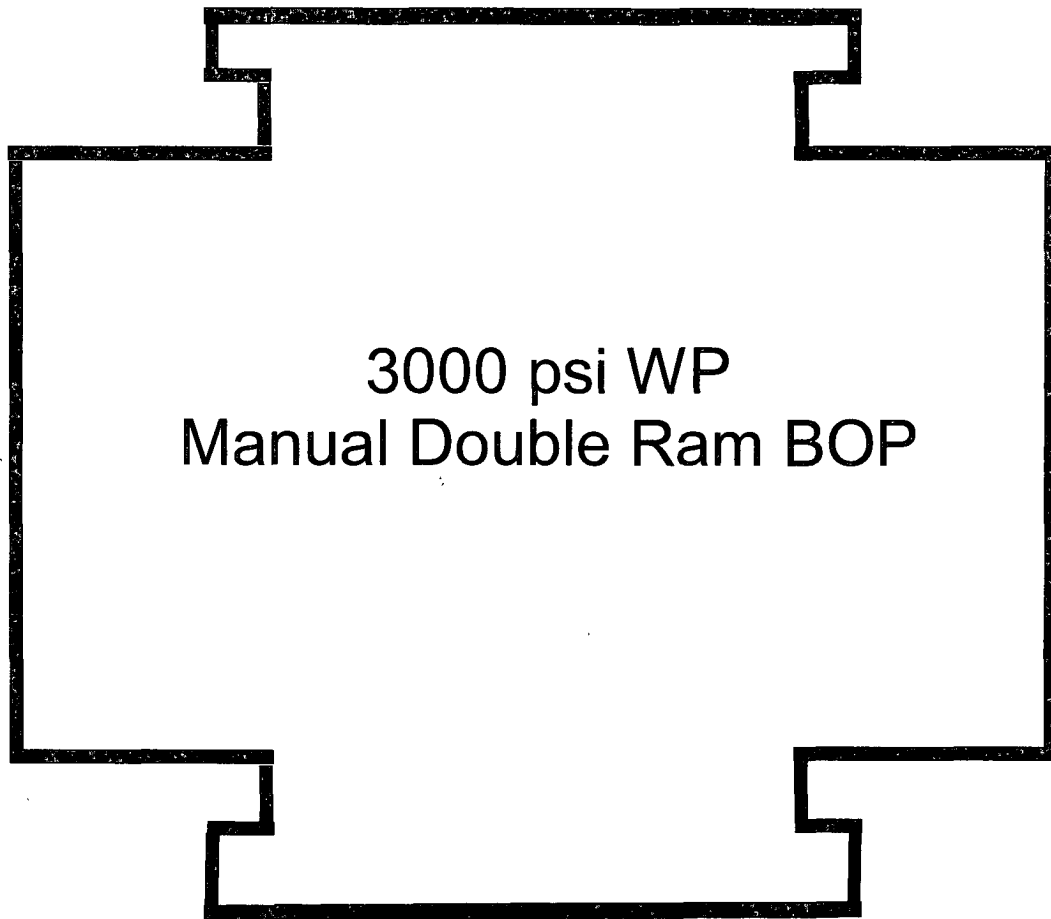
After SWD Conversion

Delaware Williamson Sd Sq2d

**EXHIBIT #3**



**West Brushy 5 Federal #5 SWD  
(Formerly West Brushy Draw 5 Federal #5)  
800' FSL & 850' FEL  
Section 5, T26S, R29E  
Eddy County, New Mexico**



**West Brushy 5 Federal #5 SWD  
(Formerly West Brushy Draw 5 Federal #5)  
800' FSL & 850' FEL  
Section 5, T26S, R29E  
Eddy County, New Mexico**

## **MARBOB ENERGY CORPORATION**

### **HYDROGEN SULFIDE DRILLING OPERATIONS 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:

- A. The hazards and characteristics of hydrogen sulfide (H<sub>2</sub>S).
- B. The proper use and maintenance of personal protective equipment and life support systems.
- C. The proper use of H<sub>2</sub>S detectors, alarms, warning systems, briefing areas, evacuation procedures, and prevailing winds.
- D. The proper techniques for first aid and rescue procedures.

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

- A. The effects of H<sub>2</sub>S on metal components. If high tensile tubulars are to be used, personnel will be trained in their special maintenance requirements.
- B. Corrective action and shut-in procedures when drilling or reworking a well and blowout prevention and well control procedures.
- C. The contents and requirements of the H<sub>2</sub>S Drilling Operations Plan and the Public Protection Plan.

There will be an initial training session just prior to encountering a known or probable H<sub>2</sub>S zone (within 3 days or 500 feet) and weekly H<sub>2</sub>S and well control drills for all personnel in each crew. The initial training session shall include a review of the site specific H<sub>2</sub>S 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. H<sub>2</sub>S SAFETY EQUIPMENT AND SYSTEMS**

Note: All H<sub>2</sub>S safety equipment and systems will be installed, tested, and operational when drilling reaches a depth of 500 feet above, or three days prior to penetrating the first zone containing or reasonably expected to contain H<sub>2</sub>S.

A. Well Control Equipment:

Flare line.

Choke manifold.

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

Auxiliary equipment to include: annular preventer, mud-gas separator, rotating head.

B. Protective equipment for essential personnel:

Mark II Surviveair 30-minute units located in the dog house and at briefing areas.

C. H<sub>2</sub>S detection and monitoring equipment:

2 - portable H<sub>2</sub>S monitor positioned on location for best coverage and response. These units have warning lights and audible sirens when H<sub>2</sub>S levels of 20 ppm are reached.

D. Visual warning systems:

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

E. Mud Program:

The mud program has been designed to minimize the volume of H<sub>2</sub>S circulated to the surface.

F. Metallurgy:

All drill strings, casings, tubing, wellhead, blowout preventers, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H<sub>2</sub>S service.

G. Communication:

Company vehicles equipped with cellular telephone and 2-way radio.

Marbob Energy has conducted a review to determine if an H<sub>2</sub>S contingency plan is required for the above referenced well. We were able to conclude that any potential hazardous volume would be minimal. H<sub>2</sub>S concentrations of wells in this area from surface to TD are low enough; therefore we do not believe that an H<sub>2</sub>S Contingency Plan would be necessary.

# **W A R N I N G**

**YOU ARE ENTERING AN H<sub>2</sub>S AREA  
AUTHORIZED PERSONNEL ONLY**

- 1. BEARDS OR CONTACT LENSES NOT ALLOWED**
- 2. HARD HATS REQUIRED**
- 3. SMOKING IN DESIGNATED AREAS ONLY**
- 4. BE WIND CONSCIOUS AT ALL TIMES**
- 5. CK WITH MARBOB FOREMAN AT MAIN OFFICE**

**MARBOB ENERGY CORPORATION**

**1-575-748-3303**

### **EMERGENCY CALL LIST**

	<u>Office</u>	<u>Mobile</u>	<u>Home</u>
Marbob Energy Corp.	575-748-3303		
Sheryl Baker	575-748-3303	575-748-5489	575-748-2396
Johnny C. Gray	575-748-3303	575-748-5983	575-885-3879
Raye Miller	575-748-3303	575-513-0176	575-746-9577
Dean Chumbley	575-748-3303	575-748-5988	575-748-2426

### **EMERGENCY RESPONSE NUMBERS** **Eddy County, New Mexico**

State Police	575-748-9718
Eddy County Sheriff	575-746-2701
Emergency Medical Services (Ambulance)	911 or 575-746-2701
Eddy County Emergency Management (Harry Burgess)	575-887-9511
State Emergency Response Center (SERC)	575-476-9620
Carlsbad Police Department	575-885-2111
Carlsbad Fire Department	575-885-3125
New Mexico Oil Conservation Division	575-748-1283
Indian Fire & Safety	800-530-8693
Halliburton Services	800-844-8451

**MARBOB ENERGY CORPORATION**  
**MULTI-POINT SURFACE USE AND OPERATIONS PLAN**

**West Brushy 5 Federal #5 SWD**  
**(Formerly West Brushy Draw 5 Federal #5)**  
**800' FSL & 850' FEL**  
**Section 5, T26S, R29E**  
**Eddy County, New Mexico**

This plan is submitted with Form 3160-3, Application for Permit to Drill, covering the above described well. The purpose of this plan is to describe the location of the proposed well, the proposed construction activities and operations plan, the magnitude of the surface disturbance involved and the procedures to be followed in rehabilitating the surface after completion of the operations, so that a complete appraisal can be made of the environmental effect associated with the operations.

**1. EXISTING ROADS:**

Exhibit 2 is a portion of a topo map showing the well and roads in the vicinity of the proposed location. The proposed wellsite and the access route to the location are indicated in red on Exhibit 2.

**DIRECTIONS:**

From Loving, New Mexico go South 17 miles on Highway 285 to Eddy County Road 725. Go East on CR 725 4.2 miles and turn left to location.

**2. PLANNED ACCESS ROAD:**

A. The access road is already in place.

**3. LOCATION OF EXISTING AND/OR PROPOSED FACILITIES:**

A. Marbob Energy Corporation proposes a collection facility (SWD Battery) to be located on well pad.

**4. METHODS OF HANDLING WASTE DISPOSAL:**

A. Drill cuttings will be hauled to approved disposal facility.

B. Drilling fluids will be contained in above ground tanks and hauled to approved disposal facility.

C. Water produced during completion will be contained in above ground tanks and hauled to approved disposal facility.

D. All trash and debris will be removed from the wellsite within 30 days after finishing reentry and/or completion operations. All waste material will be contained to prevent scattering by the wind.



**5. WELLSITE LAYOUT:**

- A. Exhibit 3 shows the relative location and dimensions of the well pad, the pit.
- B. Will be closed loop fluid handling system.

**6. PLANS FOR RESTORATION:**

- A. After finishing reentry and/or completion operations, all equipment and other material not needed for further operations will be removed. The location will be cleaned of all trash and junk to leave the wellsite in as aesthetically pleasing a condition as possible.
- B. All rehabilitation and/or vegetation requirements of the BLM will be complied with and will be accomplished as expeditiously as possible. All pits will be filled level within 90 days after abandonment.

**7. SURFACE OWNERSHIP:**

The well site and lease are located on Federal surface.

**8. OTHER INFORMATION:**

- A. Topography: Refer to the existing archaeological report for a description of the topography, flora, fauna, soil characteristics, dwellings, historical and cultural sites.

**9. OPERATOR'S REPRESENTATIVE:**

- A. Through A.P.D. Approval:

Dean Chumbley, Landman  
Marbob Energy Corporation  
P. O. Box 227  
Artesia, NM 88211-0227  
Phone (575)748-3303  
Cell (575)748-5988

- B. Through Reentry/Completion Operations

Shane Gray, Completions Supervisor  
Marbob Energy Corporation  
P. O. Box 227  
Artesia, NM 88211-0227  
Phone (575)748-3303  
Cell (575)748-5959

## STATEMENT ACCEPTING RESPONSIBILITY FOR OPERATIONS

The undersigned accepts all applicable terms, conditions, stipulations, and restrictions concerning operations conducted on the leased land or portion thereof, as described below:

Date: March 31, 2009

Lease #: NMNM101108  
**West Brushy 5 Federal #5 SWD**

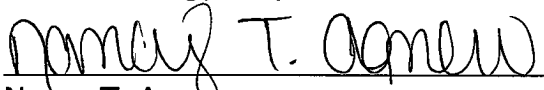
Legal Description: Section 5: SESE  
Township 26S – Range 29E  
Eddy County, New Mexico

Formation(s): Delaware

Bond Coverage: Statewide

BLM Bond File #: NMB000412

Marbob Energy Corporation

A handwritten signature in black ink, appearing to read "Nancy T. Agnew", is written over a horizontal line.

Nancy T. Agnew  
Land Department

**10. 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 presently exist; that the statements made in this plan are to the best of my knowledge, true and correct; and that 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 the terms and conditions under which it is approved. This statement is subject to the provisions of 18 U.S.C. 1001 for the filing of a false statement.

4/2/09  
Date

Marbob Energy Corporation

Nancy T. Agnew  
Nancy T. Agnew  
Land Department

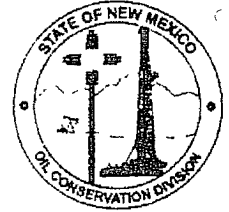
MAR 16 2009

# New Mexico Energy, Minerals and Natural Resources Department

**Bill Richardson**  
Governor

Joanna Prukop  
Cabinet Secretary  
Reese Fullerton  
Deputy Cabinet Secretary

Mark Fesmire  
Division Director  
Oil Conservation Division



**Administrative Order SWD-1168**

March 12, 2009

Brian Collins  
Petroleum Engineer  
Marbob Energy Corporation  
P.O. Box 227  
Artesia, NM 88211-0227

## **ADMINISTRATIVE ORDER OF THE OIL CONSERVATION DIVISION**

Under the provisions of Division Rule 26.8B., Marbob Energy Corporation seeks administrative order to utilize its West Brushy 5 Federal Well No. 5 (**API 30-015-31869**) located 800 feet from the South line and 850 feet from the East line, Unit P of Section 5, Township 26 South, Range 29 East, NMPM, Eddy County, New Mexico, for produced water disposal purposes.

### **THE DIVISION DIRECTOR FINDS THAT:**

The application has been duly filed under the provisions of Division Rule 26.8B. Satisfactory information has been provided that affected parties as defined in Rule 26.8B.(2) have been notified and no objections have been received within the prescribed waiting period. The applicant has presented satisfactory evidence that all requirements prescribed in Rule 26.8 will be met and the operator is in compliance with Division Rule 5.9.

### **IT IS THEREFORE ORDERED THAT:**

The applicant Marbob Energy Corporation, is hereby authorized to utilize its West Brushy 5 Federal Well No. 5 (**API 30-015-31869**) located 800 feet from the South line and 850 feet from the East line, Unit P of Section 5, Township 26 South, Range 29 East, NMPM, Eddy County, New Mexico, for injection of produced water for disposal purposes into the Delaware Sandstone formation from 4354 feet to 5930 feet through 2-7/8 inch plastic-lined tubing set in a packer at 4300 feet.

IT IS FURTHER ORDERED THAT:

The operator shall take all steps necessary to ensure that the injected water enters only the proposed injection interval and is not permitted to escape to other formations or onto the surface.

After installing injection tubing, the casing-tubing annulus shall be loaded with an inert fluid and equipped with a pressure gauge or an approved leak detection device in order to determine leakage in the casing, tubing, or packer. The casing shall be pressure tested from the surface to the packer setting depth to assure casing integrity.

The wellhead injection pressure on the well shall be limited to **no more than 870 psi**. In addition, the injection well or system shall be equipped with a pressure limiting device in workable condition which shall, at all times, limit surface injection pressure to the maximum allowable pressure for this well.

The Director of the Division may authorize an increase in injection pressure upon a proper showing by the operator of said well that such higher pressure will not result in migration of the injected fluid from the injection formation. Such proper showing shall be demonstrated by an acceptable Step-Rate-Test.


The operator shall notify the supervisor of the Division's district II office in Artesia of the date and time of the installation of disposal equipment and of any mechanical integrity test so that the same may be inspected and witnessed. The operator shall provide written notice of the date of commencement of injection to the Division's district II office. The operator shall submit monthly reports of the disposal operations on Division Form C-115, in accordance with Division Rules 26.13 and 7.24.

Without limitation on the duties of the operator as provided in Division Rules 30 and 29, or otherwise, the operator shall immediately notify the Division's district office of any failure of the tubing, casing or packer in the well, or of any leakage or release of water, oil or gas from around any produced or plugged and abandoned well in the area, and shall take such measures as may be timely and necessary to correct such failure or leakage.

In accordance with Division Rule No 26.12.C., the injection authority granted herein shall terminate one year after the effective date of this order if the operator has not commenced injection operations into the subject well, provided however, the Division, upon written request, mailed by the operator prior to the termination date, may grant an extension thereof for good cause. The injection authority shall terminate *ipso facto* one year after injection operations into the well has ceased.

Compliance with this order does not relieve the operator of the obligation to comply with other applicable federal, state or local laws or rules, or to exercise due care for the protection of fresh water, public health and safety and the environment.

Jurisdiction is retained by the Division for the entry of such further orders as may be necessary for the prevention of waste and/or protection of correlative rights or upon failure of the operator to conduct operations (1) to protect fresh or protectable waters or (2) consistent with the requirements in this order, whereupon the Division may, after notice and hearing, terminate the injection authority granted herein.

  
MARK E. FESMIRE, P.E.  
Director

MEF/re

cc: Oil Conservation Division – Artesia  
State Land Office – Oil, Gas, and Minerals Division  
Bureau of Land Management (BLM)-Roswell

## PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Marbob Energy Corporation
LEASE NO.:	NM101108
WELL NAME & NO.:	West Brushy 5 Federal SWD # 5
SURFACE HOLE FOOTAGE:	800' FSL & 850' FEL
BOTTOM HOLE FOOTAGE:	Same
LOCATION:	Section 5, T. 26 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.

- ☐ **General Provisions**
- ☐ **Permit Expiration**
- ☐ **Archaeology, Paleontology, and Historical Sites**
- ☐ **Noxious Weeds**
- ☒ **Special Requirements**
  - Cave/Karst
  - VRM
  - Cultural
  - Hydrology
  - ROW
- ☒ **Construction**
  - Notification
  - Topsoil
  - Closed Loop System
  - Federal Mineral Material Pits
  - Well Pads
  - Roads
- ☒ **Road Section Diagram**
- ☒ **Drilling**
  - Re-entry
- ☐ **Production (Post Drilling)**
  - Well Structures & Facilities
  - Pipelines
  - Electric Lines
- ☒ **Closed Loop System/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)**

**West Brushy 5 Federal # 5-SWD:** Closed Loop System- V- Door Southwest

### **VRM II**

Low-profile tanks not greater than eight feet high shall be used to minimize visual impacts to the natural features of the landscape.

The proposed construction will be limited to the approved pad size.

Any existing tanks will be replaced with a low profile tank and painted the same color as the proposed tanks.

Upon completion of the well and installation of the production facilities (if the well is a producer) the pad will be reclaimed back to a size necessary for production operations only. The edges will be recontoured and the extra caliche and pad material will be hauled off-site. The BLM may require additional reclamation depending upon vegetation recovery.

The reclaimed area will be recontoured and reseeded according to vegetation and soil type.

Tanks and production facilities will be placed in a location on the pad that maximizes the amount of interim reclamation that can be performed.

### **High Cave/Karst**

Depending on location, additional Drilling, Casing, and Cementing procedures may be required by engineering to protect critical karst groundwater recharge areas.

### **Cave/Karst Surface Mitigation**

The following stipulations will be applied to minimize impacts during construction, drilling and production.

#### **Construction:**

In the advent that any underground voids are opened up during construction activities, construction activities will be halted and the BLM will be notified immediately.

#### **No Blasting:**

No blasting will be utilized for pad construction. The pad will be constructed and leveled by adding the necessary fill and caliche.

#### **Pad Berming:**

The pad will be bermed to prevent oil, salt, and other chemical contaminants from leaving the pad. All sides will be bermed.

**Tank Battery Liners and Berms:**

Tank battery locations will be lined and bermed. A 20 mil permanent liner will be installed with a 4 oz. felt backing to prevent tears or punctures. Tank battery berms must be large enough to contain 1 ½ times the content of the largest tank.

**Leak Detection System:**

A method of detecting leaks is required. The method could incorporate gauges to measure loss, siting valves and lines so they can be visually inspected, or installing electronic sensors to alarm when a leak is present. Leak detection plan will be submitted to BLM for approval.

**Automatic Shut-off Systems:**

Automatic shut off, check valves, or similar systems will be installed for pipelines and tanks to minimize the effects of catastrophic line failures used in production or drilling.

**Cave/Karst Subsurface Mitigation**

The following stipulations will be applied to protect cave/karst and ground water concerns:

**Rotary Drilling with Fresh Water:**

Fresh water will be used as a circulating medium in zones where caves or karst features are expected. SEE ALSO: Drilling COAs for this well.

**Directional Drilling:**

Kick off for directional drilling will occur at least 100 feet below the bottom of the cave occurrence zone. SEE ALSO: Drilling COAs for this well.

**Lost Circulation:**

ALL lost circulation zones from the surface to the base of the cave occurrence zone will be logged and reported in the drilling report.

Regardless of the type of drilling machinery used, if a void of four feet or more and circulation losses greater than 70 percent occur simultaneously while drilling in any cave-bearing zone, the BLM will be notified immediately by the operator. The BLM will assess the situation and work with the operator on corrective actions to resolve the problem.

**Abandonment Cementing:**

Upon well abandonment in high cave karst areas additional plugging conditions of approval may be required. The BLM will assess the situation and work with the operator to ensure proper plugging of the wellbore.

**Pressure Testing:**

Annual pressure monitoring will be performed by the operator on all casing annuli and reported in a sundry notice. If the test results indicated a casing failure has

occurred, remedial action will be undertaken to correct the problem to the BLM's approval.

### **HYDROLOGY**

Due to the steeper terrain and runoff at the proposed well site a berm will also be required around the entire well pad to help prevent erosion.

### **ROW**

This APD is for the purpose of drilling the well only. Before any injection facilities are placed on the site, an SF-299 application for Transportation and Utility Systems must be filed with the Carlsbad Field Office Realty department.



Bureau of Land Management, Carlsbad Field Office  
620 E. Greene Street Carlsbad, NM 88220  
Cultural and Archaeological Resources

Date of Issue:

6/16/2009

BLM Report No.s

01-889

02-226

## 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:

West Brushy 5 Fed #5 SWD Well

**1. Professional archaeological monitoring.** Contact your project archaeologist, or BLM's Cultural Resources Section at (575) 234-2228, 5917, 2236, or 5967, 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.

**2. The archaeological monitor shall:**

- A. ☒ Observe all ground-disturbing activities within 100 feet of cultural site no. (s) 132358
- B. ☐ Ensure that all reroutes are adhered to avoid cultural site no.(s) LA
- C. ☒ Submit a brief monitoring report within 30 days of completion of monitoring.

Other:

**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  
BLM Cultural Resources

Martin Stein  
(575) 234-5967

George MacDonell  
(575) 234-2228

Bruce Boeke  
(575) 234-5917

Lynn Robinson  
(575) 234-2236

## **VI. CONSTRUCTION**

### **A. NOTIFICATION**

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

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

### **B. TOPSOIL**

The operator shall stockpile the topsoil of the well pad. The topsoil shall not be used to backfill the reserve pit and will be used for interim and final reclamation.

### **C. Closed Loop System**

**West Brushy 5 Federal # 5-SWD:** Closed Loop System- V- Door Southwest

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 (575) 234-5972.

### **E. WELL PAD SURFACING**

Surfacing of the well pad is not required.

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

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

## **F. ON LEASE ACCESS ROADS**

### **Road Width**

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

### **Surfacing**

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

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

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

### **Crowning**

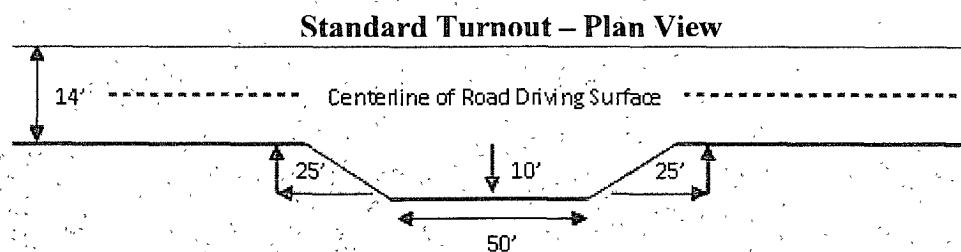
Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

### **Ditching**

Ditching shall be required on both sides of the road.

### **Turnouts**

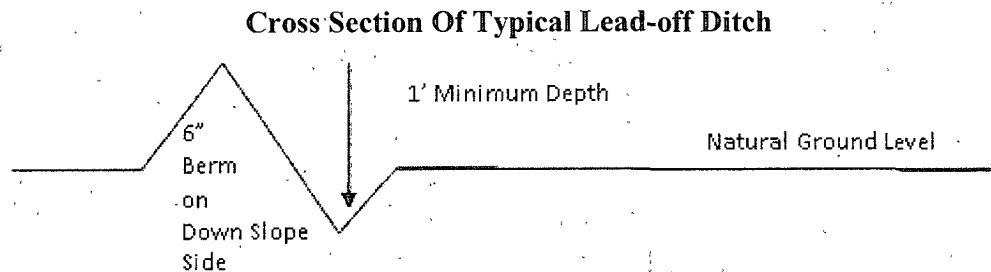
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall be constructed on all blind curves. Turnouts shall conform to the following diagram:



### **Drainage**

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outsloping and insloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.



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:

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

### **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.

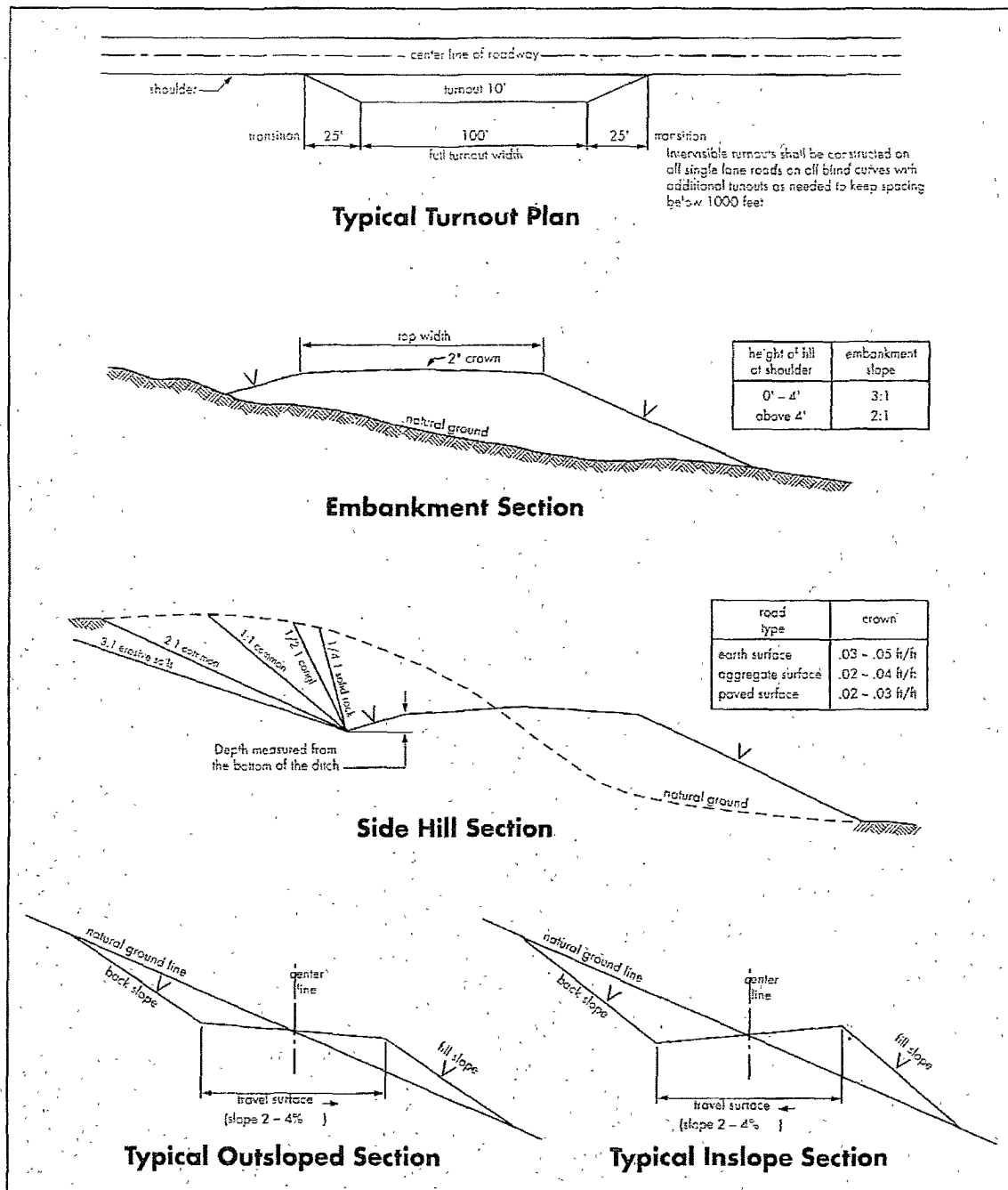
The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fence(s).

**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 – RE-ENTRY**

### **A. DRILLING OPERATIONS REQUIREMENTS**

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

- a. BOPE test
- b. CIT test

☒ **Eddy County**

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

1. **Although Hydrogen Sulfide has not been reported in this section, it is always a potential hazard. If Hydrogen Sulfide is encountered, please report measured amounts and formations to the BLM.**

### **B. CASING – Re-entry**

**A CIT is to be performed on the 5-1/2" casing per Onshore Oil and Gas Order 2.III.B.1.h prior to drilling the plug at 4840 feet. CIT pressure to be a minimum of 900 psi.**

1. **The 8-5/8" surface casing is set at 591 feet with cement circulated to surface.**
2. **The 5-1/2" production casing is set at 6049 feet with a TOC of 620' by CBL and a plug from 615' to surface.**
3. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

### **C. PRESSURE CONTROL**

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.
2. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be 2000 (2M) psi.  
**Operator is installing a manual double ram BOP – approved, test required.**

3. The appropriate BLM office shall be notified a minimum of 4 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.

**WWI 060209**

## **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**

Low-profile tanks not greater than eight-feet-high shall be used.

### **B. PIPELINES**

### **C. ELECTRIC LINES**

## **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.

The 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.

BLM SERIAL NO.  
COMPANY REFERENCE  
WELL NO. & NAME

Seed Mixture 3, for Shallow 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 ( <i>Setaria magrostachya</i> )	1.0
Green Spangletop ( <i>Leptochloa dubia</i> )	2.0
Side oats Grama ( <i>Bouteloua curtipendula</i> )	5.0

\*Pounds of pure live seed:

Pounds of seed x percent purity x percent germination = pounds pure live seed  
(Insert Seed Mixture Here)

## **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.