

UNITED STATES  
 DEPARTMENT OF THE INTERIOR  
 BUREAU OF LAND MANAGEMENT

N.M. Oil Cons. Div-Dist. 8  
 1301 W. Grand Avenue  
 Artesia, NM 88210

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

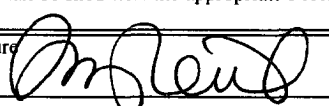
APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of Work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		6. If Indian, Allottee or Tribe Name	
1b. Type of Well: <input type="checkbox"/> Oil Well <input checked="" type="checkbox"/> Gas Well <input type="checkbox"/> Other <input type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		7. If Unit or CA Agreement, Name and No.	
2. Name of Operator Marbob Energy Corporation 14049		8. Lease Name and Well No. Michalada Federal #1 35162	
3a. Address PO Box 227, Artesia, NM 88211-0227		9. API Well No. 30-015-34381	
3b. Phone No. (include area code) 505-748-3303		10. Field and Pool, or Exploratory Revelation; Morrow 83760	
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface 1980 660 FNL & 660 FEL per Blunt 9/20/05 & SN dated 8/19/05 At proposed prod. zone		11. Sec., T., R., M., or Blk. and Survey or Area Section 3, T22S-R25E	
14. Distance in miles and direction from nearest town or post office*		12. County or Parish Eddy	13. State NM
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)	16. No. of Acres in lease	17. Spacing Unit dedicated to this well 321.08	
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.	19. Proposed Depth 11200	20. BLM/BIA Bond No. on file 585716	
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3651 GL	22. Approximate date work will start* August 8, 2005	23. Estimated duration 21 Days	

24. Attachments CARLSBAD CONTROLLED WATER BASIN

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.  | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).    |
| 2. A Drilling Plan.   | 5. Operator certification.   |
| 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). | 6. Such other site specific information and/or plans as may be required by the authorized officer. |

25. Signature 	Name (Printed/Typed) Amy Reid	Date 07/08/05
Title Land Department		
Approved by (Signature) /s/ Joe G. Lara	Name (Printed/Typed) /s/ Joe G. Lara	Date OCT - 4 2005
Title ACTING 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 1 YEAR

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)

APPROVAL SUBJECT TO  
 GENERAL REQUIREMENTS  
 AND SPECIAL STIPULATIONS  
 ATTACHED



## DISTRICT I

1625 N. FRENCH DR., HOBBS, NM 88240

## DISTRICT II

1301 W. GRAND AVENUE, ARTESIA, NM 88210

## DISTRICT III

1000 Rio Brazos Rd., Aztec, NM 87410

## DISTRICT IV

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

Form C-102

Revised JUNE 10, 2003

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 83760	Pool Name REVELATION; MORROW
Property Code	Property Name MICHALADA FEDERAL	Well Number 1
OGRID No. 14049	Operator Name MARBOB ENERGY CORPORATION	Elevation 3610'

## Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
H	3	22-S	25-E		1980	NORTH	660	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 321.08	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 6	LOT 5	LOT 4	LOT 3		<b>OPERATOR CERTIFICATION</b> I hereby certify the the information contained herein is true and complete to the best of my knowledge and belief.  Signature <b>AMY REID</b> Printed Name <b>LAND DEPARTMENT</b> Title <b>AUGUST 19, 2005</b> Date
41.59 AC LOT 7	41.78 AC LOT 8				<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. <b>AUGUST 4, 2005</b> Date Surveyed  Signature & Seal of Professional Surveyor <b>GARY E. EASON</b> Certificate No. 12641
42.10 AC LOT 10	42.28 AC LOT 9				
43.73 AC LOT 11	43.45 AC LOT 12				
42.91 AC	42.63 AC				
GEODETIC COORDINATES NAD 27 NME Y=517512.3 N X=486508.4 E LAT.=32°25'21.89" N LONG.=104°22'37.41" W					

State of New Mexico  
Energy Minerals and Natural Resources

Form C-144  
March 12, 2004

Oil Conservation Division  
1220 South St. Francis Dr.  
Santa Fe, NM 87505

For drilling and production facilities, submit to  
appropriate NMOCD District Office.  
For downstream facilities, submit to Santa Fe  
office

**Pit or Below-Grade Tank Registration or Closure**

Is pit or below-grade tank covered by a "general plan"? Yes ☒ No ☐

Type of action: Registration of a pit or below-grade tank ☒ Closure of a pit or below-grade tank ☐

Operator: **Marbob Energy Corporation**

Telephone: **505-748-3303**

e-mail address: **marbob@marbob.com**

Address: **PO Box 227, Artesia, NM 88211-0227**

Facility or well name: **Michalada Federal #1**

API #: \_\_\_\_\_ U/L or Qtr/Qtr **E/2** Sec **3** T **22S** R **25E**

County: **Eddy**

Latitude \_\_\_\_\_ Longitude \_\_\_\_\_ NAD: 1927 ☐ 1983 ☐ Surface Owner Federal ☒ State ☐ Private ☐ Indian ☐

**Pit**

Type: Drilling ☒ Production ☐ Disposal ☐

Workover ☐ Emergency ☐

Lined ☒ Unlined ☐

Liner type: Synthetic ☒ Thickness **12** mil Clay ☐ Volume

\_\_\_\_\_ bbl

**Below-grade tank**

Volume: \_\_\_\_\_ bbl Type of fluid: \_\_\_\_\_

Construction material: \_\_\_\_\_

Double-walled, with leak detection? Yes ☐ If not, explain why not.

Depth to ground water (vertical distance from bottom of pit to seasonal high  
water elevation of ground water.)

Less than 50 feet

(20 points)

50 feet or more, but less than 100 feet

(10 points)

100 feet or more

( 0 points)

**0 points**

Wellhead protection area: (Less than 200 feet from a private domestic  
water source, or less than 1000 feet from all other water sources.)

Yes

(20 points)

No

( 0 points)

**0 points**

Distance to surface water: (horizontal distance to all wetlands, playas,  
irrigation canals, ditches, and perennial and ephemeral watercourses.)

Less than 200 feet

(20 points)

200 feet or more, but less than 1000 feet

(10 points)

1000 feet or more

( 0 points)

**0 points**

**Ranking Score (Total Points)**

**0 points**

**If this is a pit closure:** (1) attach a diagram of the facility showing the pit's relationship to other equipment and tanks. (2) Indicate disposal location:

onsite ☐ offsite ☐ If offsite, name of facility \_\_\_\_\_. (3) Attach a general description of remedial action taken including remediation start date and end date. (4) Groundwater encountered: No ☐ Yes ☐ If yes, show depth below ground surface \_\_\_\_\_ ft. and attach sample results. (5) Attach soil sample results and a diagram of sample locations and excavations.

I hereby certify that the information above is true and complete to the best of my knowledge and belief. I further certify that the above-described pit or below-grade tank has been/will be constructed or closed according to NMOCD guidelines ☐, a general permit ☒, or an (attached) alternative OGD-approved plan ☐.

Date: **July 8, 2005**

Printed Name/Title: **Amy Reid / Land Department**

Signature \_\_\_\_\_

Your certification and NMOCD approval of this application/closure does not relieve the operator of liability should the contents of the pit or tank contaminate ground water or otherwise endanger public health or the environment. Nor does it relieve the operator of its responsibility for compliance with any other federal, state, or local laws and/or regulations.

Approval: **OCT 6 2005**

Date: \_\_\_\_\_

Printed Name/Title \_\_\_\_\_

Signature \_\_\_\_\_

**Field Supervisor**

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

**Michalada Federal #1**  
**660' FNL & 660' FEL, Unit #1**  
**Section 3, T22S, R25E**  
**Lea 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.

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

Capitan	350'	Strawn	9450
Delaware	1900'	Atoka	9800'
Bone Spring	4200'	Morrow	10500'
Wolfcamp	7900'	TD	11200'
Cisco-Canyon	8700'		

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

Capitan	350'	Water
Bone Spring	4200'	Oil
Wolfcamp	7900'	Oil
Cisco-Canyon	8700'	Gas
Strawn	9450'	Gas
Atoka	9800'	Gas
Morrow	10500'	Gas

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 1500' 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. Proposed Casing Program:

Hole Size	Interval	OD Casing	Wt	Grade
26"	0-300'	20"	48#	H-40
12 1/4"	300-1900'	9 5/8"	36#	J-55
8 3/4"	1900-11200'	5 1/2"	17#	S-95 P-110

Proposed Cement Program:

- 20" Surface Casing: Cement w/ 450 sx Class C. Circulate to surface.
- 9 5/8" Intermediate Casing: Cement w/ 400 sx Class C. Attempt to tie in to 20" csg.
- 5 1/2" Production Casing: Will place cement to 200' above all oil & gas zones. Cement volume to be determined after well is drilled.

5. Minimum Specifications for Pressure Control:

The blowout preventer equipment (BOP) shown in Exhibit #1 will consist of a double ram-type preventer. This unit will be hydraulically operated and the ram-type preventer will be equipped with blind rams on top and 4-1/2" drill pipe rams on bottom. This BOP will be nipped up on the 13 3/8" surface casing and used continuously until TD is reached. All BOP's and accessory equipment will be tested to 3500 psi before drilling out of surface casing.

Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. 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 5000 psi WP rating.

6. Mud Program: The applicable depths and properties of this system are as follows:

Depth	Type	Weight (ppg)	Viscosity (sec)	Waterloss (cc)
0 - 300'	Fresh Wtr (spud)	8.5 *	28	N.C.
300 - 1900'	Fresh Wtr	9.8-10.2	40-45	N.C.
1900 - 11200'	Cut Brine	8.6-9.4	28-36	N.C.

7. Auxiliary Equipment: Kelly Cock; Sub with full opening valve on floor; and drill pipe connections.

8. Testing, Logging and Coring Program:

No drillstem tests are anticipated.

The electric logging program will consist of Dual Laterolog Micro SFL, Spectral Density Dual Spaced Neutron Casing Log, and Depth Control Log.

No conventional coring is anticipated.

9. No abnormal pressures or temperatures are anticipated.

10. Anticipated starting date: As soon as possible after approval.

\* 10.2 - Fresh water - Incorrect - No Brine indicated late 8.9 mwi

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

**Michalada Federal #1**  
**660' FNL & 660' FEL, Unit #1**  
**Section 3, T22S, R25E**  
**Lea 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 the intersection of State Rd #524 (Happy Valley Rd) and Co. Rd #427 (Jones Rd.) Go west on Co. Rd #427 for approx. 5.1 miles to a caliche road on the right. Turn right (nw) and go approx. 1.1 miles to a trail road on the left. Turn left (west) and go approx. 1.5 miles to a proposed road survey on the south edge of trail road. Follow proposed road approx. 930' to this location.

**2. PLANNED ACCESS ROAD:**

A new access road of 930' will be necessary. The new 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 feet 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, cattleguard, gates, low-water crossings, or fence cuts are necessary.
- 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.

# **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.

# **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**

**1-505-748-3303**

## 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: July 8, 2005

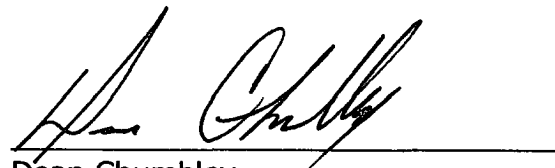
Lease #: NM-104646  
Michalada Federal #1

Legal Description: 660' FNL & 660' FEL, Sec. 3-T22-R25E E/2  
Eddy County, New Mexico

Formation(s): Permian

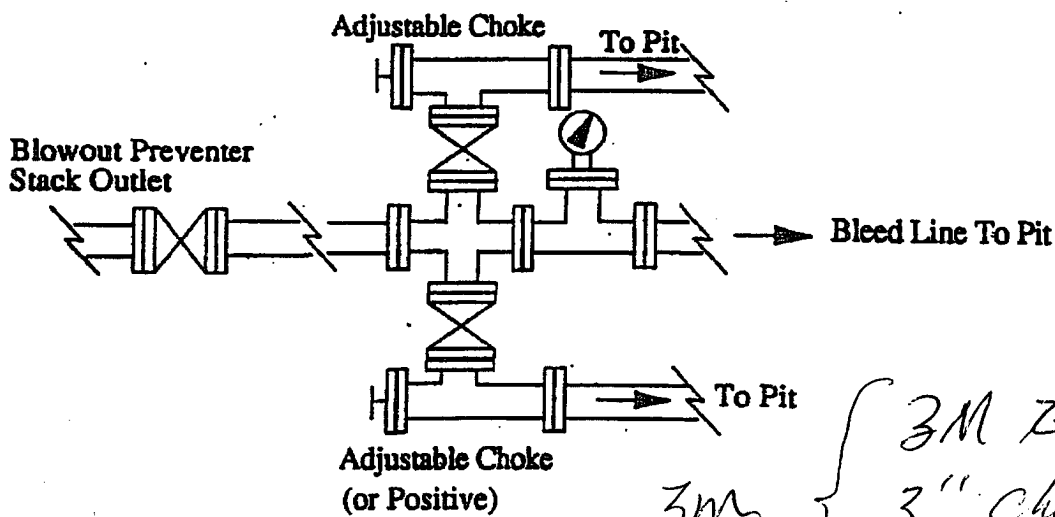
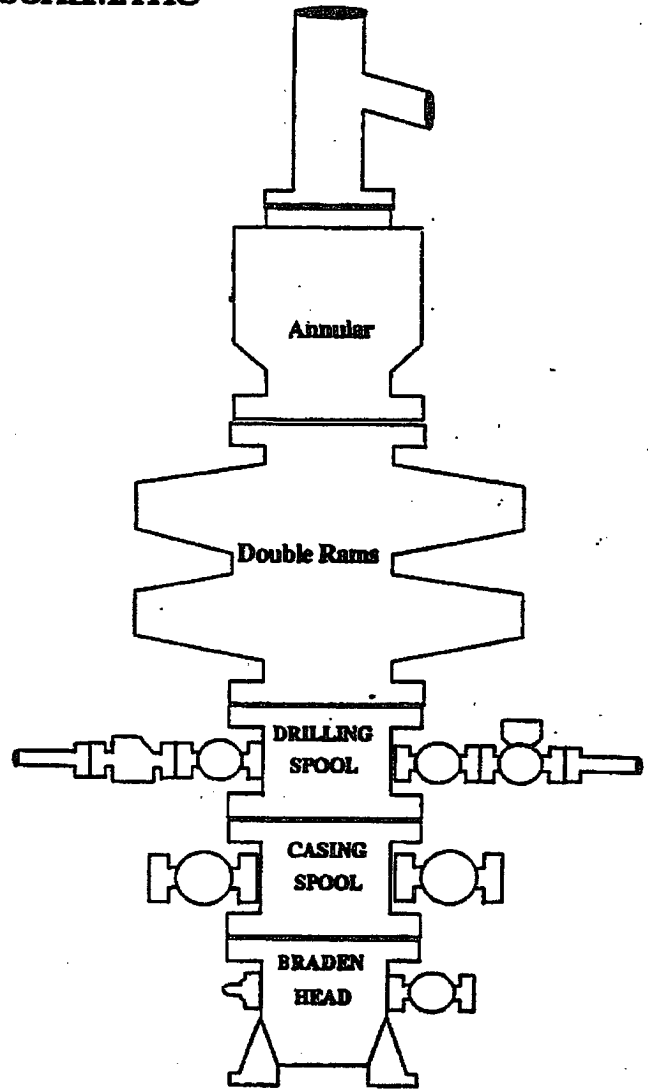
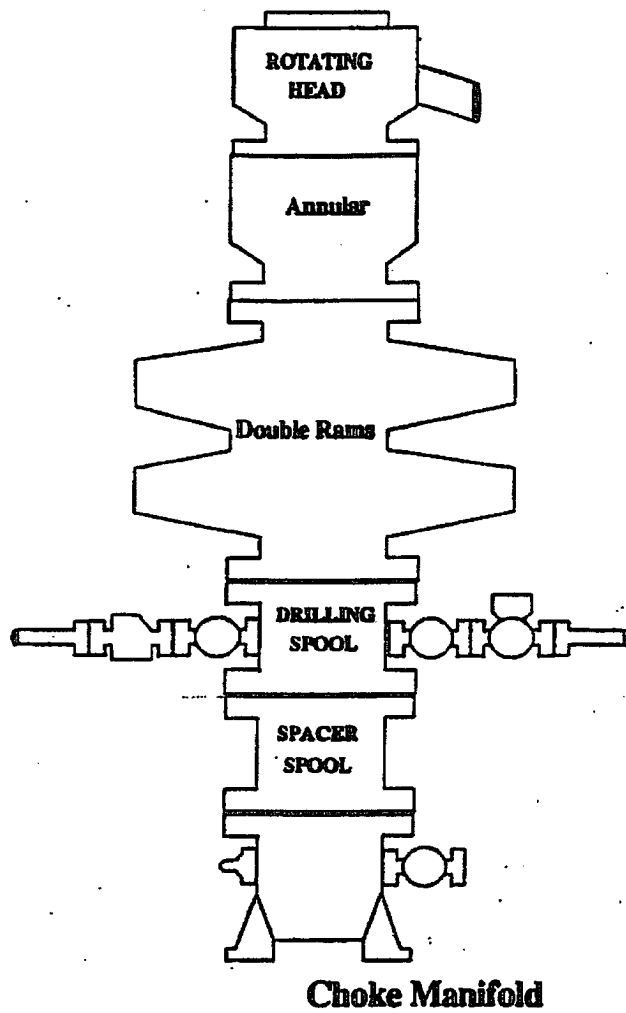
Bond Coverage: Statewide

BLM Bond File #: 585716

A handwritten signature in black ink, appearing to read 'Dean Chumbley', is written over a horizontal line.

Dean Chumbley  
Land Department

# BOPE SCHEMATIC

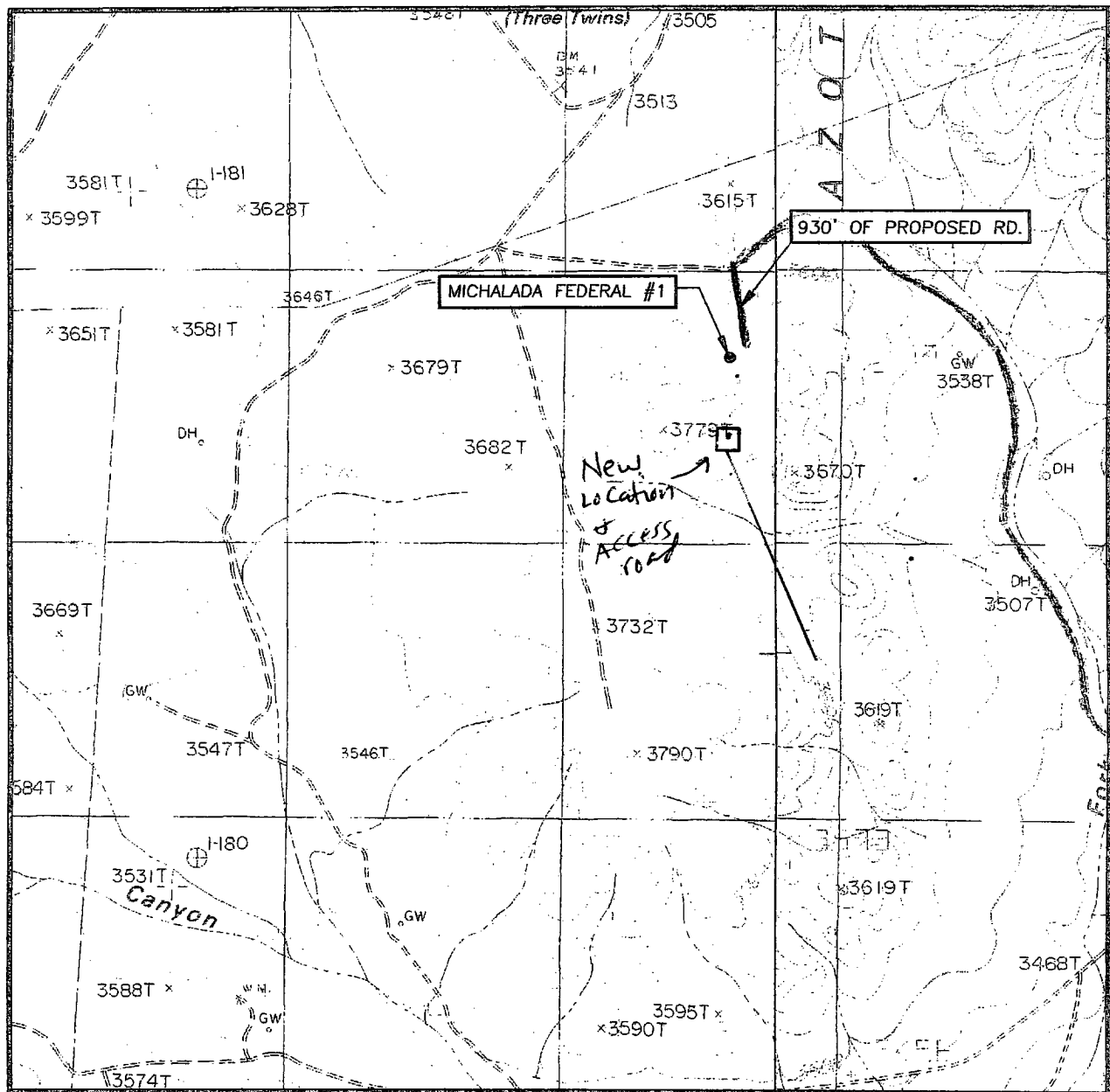


3M  
BOPE

3M Zef:  
3" choke line.  
3" choke valves

Exhibit One

# LOCATION VERIFICATION MAP



SCALE: 1" = 2000'  
 RED-EXISTING ROAD  
 BLUE-PROPOSED ACCESS ROAD

SEC. 3 TWP. 22-S RGE. 25-E

SURVEY N.M.P.M.

COUNTY EDDY

DESCRIPTION 660' FNL & 660' FEL

ELEVATION 3651'

OPERATOR MARBOB ENERGY CORPORATION

LEASE MICHALADA FEDERAL

U.S.G.S. TOPOGRAPHIC MAP  
 AZOTEA PEAK, N.M.

CONTOUR INTERVAL:  
 AZOTEA PEAK, N.M. - 20'  
 CARLSBAD WEST, N.M. - 20'

PROVIDING SURVEYING SERVICES  
 SINCE 1946  
**JOHN WEST SURVEYING COMPANY**  
 412 N. DAL PASO  
 HOBBS, N.M. 88240  
 (505) 353-3117

EXHIBIT TWO

## CONDITIONS OF APPROVAL - DRILLING

Operator's Name: Marbob Energy Corporation

Well Name & No: Michalada Federal No 01

Location: Surface <sup>1780</sup> 660' FNL & 660' FEL, Sec.03, T. 22 S. R. 25 E.

Lease: NMNM 104646

Eddy County, New Mexico

per BHunt 9/20/05 & SN 8/19/05

### I. DRILLING OPERATIONS REQUIREMENTS:

1. The Bureau of Land Management (BLM) is to be notified at the Roswell Field Office, 2909 West Second St., Roswell, NM 88201, (505) 627-0272 for wells in Chaves and Roosevelt Counties; the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220, (505) 361-2822 for wells in Eddy County; and the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240, (505) 393-3612 for wells in Lea County, in sufficient time for a representative to witness:

A. Spudding

B. Cementing casing: 20 inch; 9 5/8 inch; 5 1/2 inch.

C. BOP Tests

2. A Hydrogen Sulfide (H<sub>2</sub>S) Drilling Plan shall be in operations 500 feet or three days prior to drilling into the Top of the ~~Delaware~~ formation at approximately 1900 feet. a zone containing or reasonably expected to contain H<sub>2</sub>S.

3. 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. (JL)

4. Submit a Sundry Notice (Form 3160-5, one original and five copies) for each casing string, describing the casing and cementing operations. Include pertinent information such as; spud date, hole size, casing (size, weight, grade and thread type), cement (type, quantity and top), water zones and problems or hazards encountered. The Sundry shall be submitted within 15 days of completion of each casing string. The reports may be combined into the same Sundry if they fall within the same 15 day time frame.

5. The API No. assigned to the well by NMOCD shall be included on the subsequent report of setting the first casing string.

### II. CASING:

1. The 20 inch shall be set at 300 Feet with cement circulated to the surface. If cement does not circulate to the surface the appropriate BLM office shall be notified and a temperature survey or cement bond log shall be run to verify the top of the cement. Remedial cementing shall be completed prior to drilling out that string.

2. The minimum required fill of cement behind the 9 5/8 inch Intermediate casing is to circulate to surface.

3. The minimum required fill of cement behind the 5 1/2 inch Production casing is to place TOC at least 200 feet above any potential H-C bearing formations (i.e. at approximately 4000 feet), estimated Top of Bone Springs is 4200 feet. Circulate to surface. (JL)

### III. PRESSURE CONTROL:

1. All BOP systems and related equipment shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2. The BOP and related equipment shall be installed and operational before drilling below the 13 5/8 inch casing shoe and shall be tested as described in Onshore Order No. 2. Any equipment failing to test satisfactorily shall be repaired or replaced.

**(III Cont):**

2. Minimum working pressure of the blowout preventer and related equipment (BOPE) shall be 3M psi.
3. The appropriate BLM office shall be notified in sufficient time for a representative to witness the test.
  - The test shall be done by an independent service company
  - The results of the test shall be reported to the appropriate BLM office.
  - Testing fluid must be water or an appropriate clear liquid suitable for sub-freezing temperatures.
  - Use of drilling mud for testing is not permitted since it can mask small leaks.
  - Testing must be done in safe workman-like manner. Hard line connections shall be required.
  - Both low pressure and high pressure testing of BOPE is required.

**Conditions of Approval  
for  
Marbob Energy Corp.  
Lease No. NM- 104646**

**1980 FNL & 660 FEL, Section 03, T. 22 S., R. 25 E.**

**Surface Mitigation**

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

1. All above ground facilities, structures, appurtenances, and pipelines will be painted a non-reflective (Flat) Shale Green.
2. All tanks will be bermed sufficiently to contain all fluids. Bermed areas will be lined with a permanent 12 mil lining.
3. If the well is a producer and after one year there no plans to drill additional wells from the same location the location will be reclaimed back to the anchors according to standard reclamation procedures.

**Subsurface Mitigation**

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

1. Rotary drilling techniques in cave or karst areas will include the use of fresh water as a circulating medium in zones where caves or karst are expected (at a minimum of 1,500 feet). Below those zones, the operator may use whatever drilling fluid is approved in the drilling plan.
2. All casing will meet or exceed National Association of Corrosion Engineers specifications pertaining to the geology of the location and be run to American Petroleum Institute and BLM standards.
3. A cave protection casing will be required. The cave-protection casing string would be set at least the deepest known cave-bearing zone as determined by drilling or at the top of the Lamar Limestone if present. (See attached diagram as an example)
4. All casing strings will be cemented to the surface.
5. **Regardless of the type of drilling machinery used, if a bit drops of four feet or more and circulation losses greater than 75 percent occur simultaneously while drilling in any cave-bearing zone, drilling operations will immediately stop and the BLM will be notified by the Operator. In the event that such an incident occurs contact Jim Goodbar at 505 234-5929 or 505 236-1016 after hours and Jim Amos at (505) 234-5909 or 706-2775. The BLM will assess the consequences of the situation and work with Operator on corrective actions to resolve the problem. If corrective actions fail, the well will be plugged.**

**Any corrective actions proposed to resolve problems related to bit drops or lost circulation will require BLM concurrence prior to implementation. A decision on how to proceed will be reached within 24 hours of notification.**

6. Any blasting will be a phased and time delayed.

7. Upon well abandonment the well bore will be cemented completely from the bottom of the cave bearing zone to the surface.

### **Monitoring Production Operations**

1. Annual pressure tests will be performed by the Operator on all casing annuli. If the test results indicated a casing failure, remedial actions approved by the BLM will be undertaken to correct the problem.

### **Record Keeping**

1. The Operator will track customary drilling activities, including the rate of penetration, pump pressure, weight on bit, bit drops, percent of mud returns, and presence of absence of cuttings returning to the surface. As part of customary record keeping, each detectable void or sudden increase in the rate of penetration not attributable to a change in the formation type should be documented and evaluated as it is encountered.
2. The BLM may review data held by companies on wells drilled in cave or karst areas, to gain information about impacts to caves and karst. This information will be used to categorize lost-circulation zones on the basis of depth, relative volume, and severity, and to evaluate and compare the relative success or failure of different remedies attempted to combat lost-circulation problems while drilling and cementing casing in these zones. This information also will be used to update information about the occurrence of cave and karst features. Information concerning cave resources gathered during drilling will be submitted and be retained by the BLM in accordance with The Carlsbad Field Office Cave Management Plan and the regulations implementing the Federal Cave Resources Protection Act.



# WELLBORE SCHEMATIC

## "CAVE PROTECTION"

