

3160-3  
(August 1999)



# OCD-ARTESIA

## UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT

FORM APPROVED  
OMB No. 1004-0136  
Expires November 30, 2000

### APPLICATION FOR PERMIT TO DRILL OR REENTER

F-05-02

1a. Type of Work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. NMNM18230
1b. Type of Well: <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other <input checked="" type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		6. If Indian, Allottee or Tribe Name
2. Name of Operator MACK ENERGY CORPORATION		7. If Unit or CA Agreement, Name and No.
Contact: ROBERT C CHASE E-Mail: jerrys@mackenergycorp.com		8. Lease Name and Well No. READ & STEVENS FEDERAL 2
3a. Address P O BOX 960 ARTESIA, NM 88211-0960	3b. Phone No. (include area code) Ph: 505-748-1288	9. API Well No. 30-015-34061
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface NENE 840FNL 330FEL At proposed prod. zone		10. Field and Pool, or Exploratory Under S. SQUARE LAKE ; QN-GB-SA, Near
14. Distance in miles and direction from nearest town or post office* 7 MILES NORTHWEST OF MALJAMAR		11. Sec., T., R., M., or Blk. and Survey or Area Sec 15 T16S R31E Mer NMP SME: BLM
15. Distance from proposed location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 330	16. No. of Acres in Lease	12. County or Parish EDDY
18. Distance from proposed location to nearest well, drilling, completed, applied for, on this lease, ft. 660	19. Proposed Depth 4000 MD	13. State NM
21. Elevations (Show whether DF, KB, RT, GL, etc.) 4224 GL	22. Approximate date work will start 04/01/2005	17. Spacing Unit dedicated to this well
23. Estimated duration 10 DAYS		20. BLM/BIA Bond No. on file

### 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 (Electronic Submission)	Name (Printed/Typed) JERRY W SHERRELL Ph: 505-748-1288	Date 03/04/2005
Title PRODUCTION CLERK		
Approved by (Signature) /s/ Tony J. Herrell	Name (Printed/Typed) /s/ Tony J. Herrell	Date APR 01 2005
Title FIELD MANAGER	Office CARLSBAD FIELD OFFICE	

Application approval does not warrant or certify 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.

Electronic Submission #54719 verified by the BLM Well Information System  
For MACK ENERGY CORPORATION, sent to the Carlsbad  
Committed to AFMSS for processing by LINDA ASKWIG on 03/07/2005 (05LA0480AE)

Regulated Controlled Water Basin

WITNESS 8 5/8" Cement Job

**APPROVAL SUBJECT TO  
GENERAL REQUIREMENTS AND  
SPECIAL STIPULATIONS  
ATTACHED**

\*\* BLM REVISED \*\* BLM REVISED \*\* BLM REVISED \*\* BLM REVISED \*\* BLM REVISED \*\*

## DISTRICT I

1626 N. FRENCH DR., HOBBS, NM 88240

## DISTRICT II

1901 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 57650	Pool Name Unders. Square Lake; QU-GB-SA, North
Property Code 5717	Property Name READ & STEVENS FEDERAL		Well Number 2
OGRID No. 013837	Operator Name MACK ENERGY CORPORATION		Elevation 4221'

## Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	15	16-S	31-E		840	NORTH	330	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 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

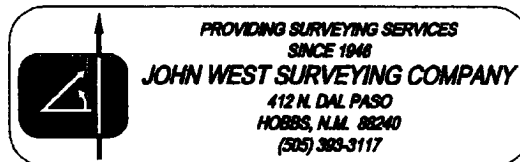
<p>GEODETIC COORDINATES NAD 27 NME</p> <p>Y=701119.2 N X=648442.6 E</p> <p>LAT.=32°55'35.46" N LONG.=103°50'58.39" W</p>	<p>SEE DETAIL</p> <p>4213.3' 4227.2'</p> <p>4214.5' 4234.9'</p> <p>600'</p> <p>600'</p>	<p>SEE DETAIL</p> <p>840'</p> <p>330'</p>	<p><b>OPERATOR CERTIFICATION</b></p> <p>I hereby certify the the information contained herein is true and complete to the best of my knowledge and belief.</p> <p><i>Jerry W. Sherrell</i> Signature</p> <p>Jerry W. Sherrell Printed Name</p> <p>Production Clerk Title</p> <p>3/4/2005 Date</p>
	<p><b>SURVEYOR CERTIFICATION</b></p> <p>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.</p> <p>FEBRUARY 11, 2005</p> <p>Date Surveyed</p> <p>Signature of Seal by Professional Surveyor</p> <p>GARY E. EDSON 2/17/05</p> <p>05.11.0209</p> <p>Certificate No. GARY EDSON 12641</p>		

This is a detailed topographic map of the Read & Stevens Federal #2 area. The map features a grid system with coordinates ranging from 4177 to 4403T. Key features include:

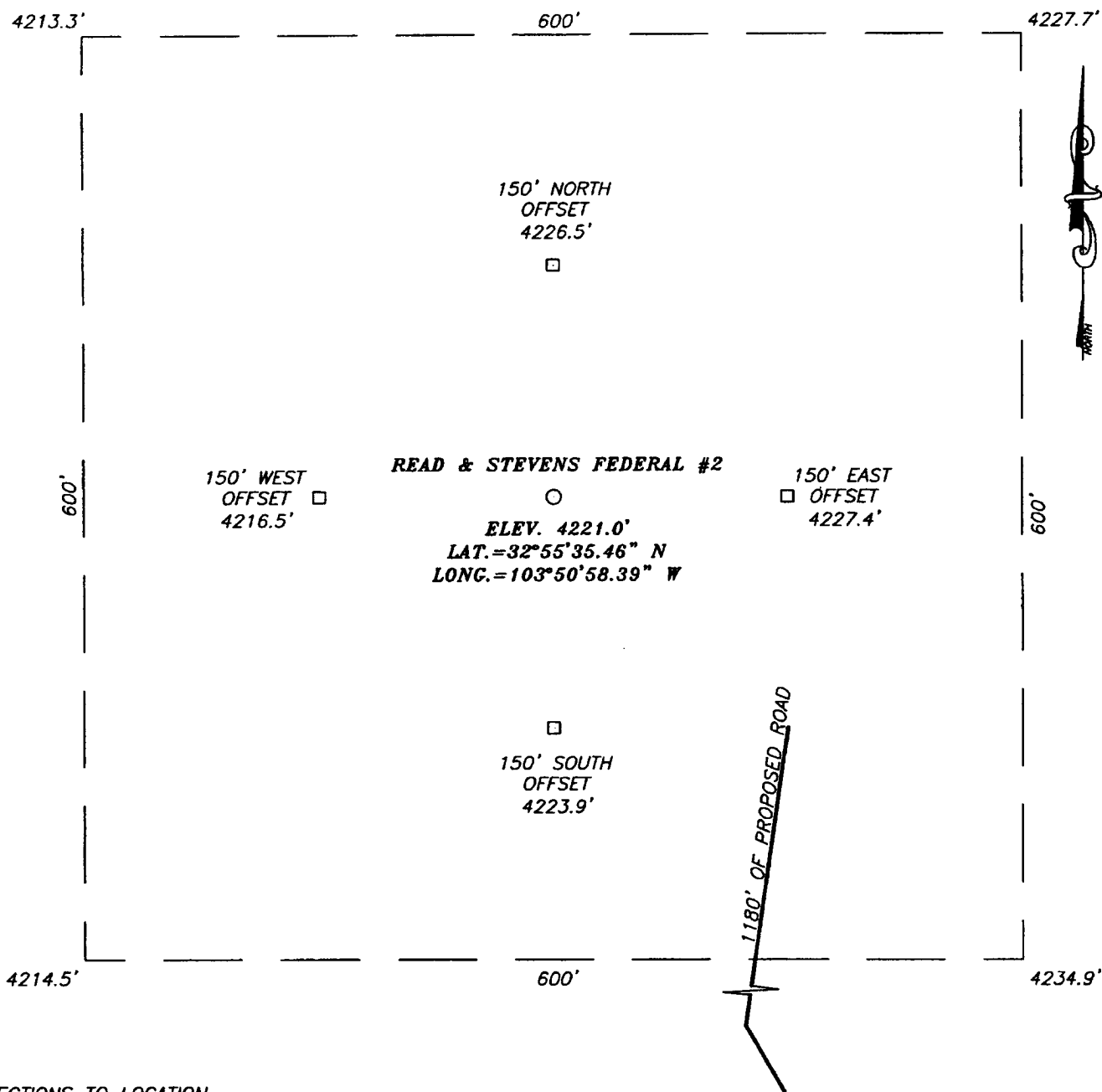
- Water Bodies:** A large river, labeled "R. D. G. E.", flows through the center of the map. Other smaller water features include "PUMPING STA." and "AQUEDUCT".
- Infrastructure:** A prominent "1180' OF ACCESS ROAD" is highlighted in a box. Other infrastructure includes a "RADIO TOWER" and a "PUMPING STA.".
- Landmarks:** The "READ & STEVENS FEDERAL #2" area is clearly marked. Other landmarks include "BM" (Benchmark) and "CH" (Contour).
- Topography:** The map shows various contour lines and elevations, with specific points marked as 4198T, 4152, 4130, 4166, 4190, 4396, 4397, 4398, 4399, 4394, 4396, 4397, 4398, 4399, 4400, 4401, 4402, 4403, 4404, 4405, 4406, 4407, 4408, 4409, 4410, 4411, 4412, 4413, 4414, 4415, 4416, 4417, 4418, 4419, 4420, 4421, 4422, 4423, 4424, 4425, 4426, 4427, 4428, 4429, 4430, 4431, 4432, 4433, 4434, 4435, 4436, 4437, 4438, 4439, 4440, 4441, 4442, 4443, 4444, 4445, 4446, 4447, 4448, 4449, 4450, 4451, 4452, 4453, 4454, 4455, 4456, 4457, 4458, 4459, 4460, 4461, 4462, 4463, 4464, 4465, 4466, 4467, 4468, 4469, 4470, 4471, 4472, 4473, 4474, 4475, 4476, 4477, 4478, 4479, 4480, 4481, 4482, 4483, 4484, 4485, 4486, 4487, 4488, 4489, 4490, 4491, 4492, 4493, 4494, 4495, 4496, 4497, 4498, 4499, 4500.

CONTOUR INTERVAL: 10'  
SUPPLEMENTAL CONTOUR: 5'  
ILLINOIS CAMP, N.M.

U.S.G.S. TOPOGRAPHIC MAP  
MALJAMAR NE, N.M.

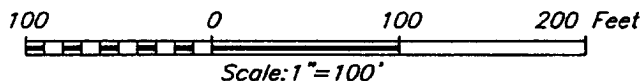


**SECTION 15, TOWNSHIP 16 SOUTH, RANGE 31 EAST, N.M.P.M.,**  
**EDDY COUNTY, NEW MEXICO**



**DIRECTIONS TO LOCATION**

FROM THE INTERSECTION OF OLD HWY. #31 & CO. RD. #255 (ARES RD) GO WEST ON CO. RD. #255 APPROX. 4.0 MILES. TURN LEFT AND GO SOUTH 0.2 MILES. TURN LEFT AND GO EAST 0.1 MILES. TURN RIGHT AND GO SOUTH-SOUTHEAST 1.7 MILES TO A ROAD INTERSECTION. TURN LEFT AND GO NORTH 0.6 MILES TO A PROPOSED ROAD SURVEY. FOLLOW ROAD SURVEY FOR 1180' TO THIS LOCATION.



**MACK ENERGY CORPORATION**

READ & STEVENS FEDERAL #2 WELL  
 LOCATED 840 FEET FROM THE NORTH LINE  
 AND 330 FEET FROM THE EAST LINE OF SECTION 15,  
 TOWNSHIP 16 SOUTH, RANGE 31 EAST, N.M.P.M.,  
 EDDY COUNTY, NEW MEXICO.

Survey Date: 2/11/05	Sheet 1 of 1 Sheets
W.O. Number: 05.11.0209	Dr By: LA
Date: 2/17/05	Disk: CD#4
05110209	Scale: 1"=100'

PROVIDING SURVEYING SERVICES  
 SINCE 1948  
**JOHN WEST SURVEYING COMPANY**  
 412 N. DAL PASO  
 HOBBS, N.M. 88240  
 (505) 393-3117

Attached to Form 3160-3  
Mack Energy Corporation  
Read & Stevens #2  
840 FNL & 330 FEL  
NE/4 NE/4, Sec 15 T16S R31E  
Eddy County, NM

## DRILLING PROGRAM

### 1. Geologic Name of Surface Formation

Quaternary

### 2. Estimated Tops of Important Geologic Markers:

Quaternary	Surface
Top of Salt	800'
Base of Salt	1800'
Yates	2080'
Queen	3010'
San Andres	3800'

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

Water Sand	150'	Fresh Water
Grayburg	3500'	Oil/Gas
San Andres	3800'	Oil/Gas

No other formations are expected to give up oil, gas or fresh water in measurable quantities. Setting 13 3/8" casing to 400' and circulating cement back to surface will protect the surface fresh water sand. Salt Section will be protected by setting 8 5/8" casing to 2500' 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 cementing 5 1/2" production casing, which will be run at TD.

### 4. Casing Program:

Hole Size	Interval	OD Casing	Weight, Grade, Jt, Cond., Type
17 1/2"	0-400'	13 3/8"	48#, H-40, ST&C, New, R-3
12 1/4"	0-2500'	8 5/8"	32#, J-55, ST&C, New, R-3
7 7/8"	0-TD	5 1/2"	17#, L-80, LT&C, New, R-3

Attached to Form 3160-3  
Mack Energy Corporation  
Read & Stevens #2  
840 FNL & 330 FEL  
NE/4 NE/4, Sec 15 T16S R31E  
Eddy County, NM

**5. Cement Program:**

13 3/8" Surface Casing: Circulate to Surface with Class C w/2% CaCl<sub>2</sub>.

8 5/8 Intermediate Casing: Circulate to Surface with Class C W/2% CaCl<sub>2</sub>.

5 1/2" Production Casing: Cement Casing with Class C w/6# Salt & 2/10 of 1% CFR-3 per sack. We will run a hole caliper and run sufficient cement to circulate to surface.

**6. Minimum Specifications for Pressure Control:**

The blowout preventer equipment (BOP) shown in Exhibit #9 will consist of a double ram-type (The blowout preventer equipment (BOP) shown in Exhibit #9 will consist of a double ram-type (2000 psi WP) preventer. This unit will be hydraulically operated and the ram type preventer will be equipped with blind rams on top of 4 1/2" drill pipe rams on bottom. The BOP will be nipped up on the 13 3/8" surface casing and tested to 2000# by a 3<sup>rd</sup> party. The BOP will then be nipped up on the 8 5/8" intermediate casing and tested by a 3<sup>rd</sup> party to 2000 psi and used continuously until TD is reached. All BOP's and accessory equipment will be tested to 2000 psi before drilling out of intermediate 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. Other accessories to the BOP equipment (Exhibit #10) will include a Kelly cock and floor safety valve and choke lines and choke manifold (Exhibit #11) with 2000 psi WP rating. clude a Kelly cock and floor safety valve and choke lines and choke manifold (Exhibit #11) with 2000 psi WP rating.

**7. Types and Characteristics of the Proposed Mud System:**

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

DEPTH	TYPE	WEIGHT	VISCOSITY	WATERLOSS
0-400'	Fresh Water	8.5	28	N.C.
400-2500'	Brine	10	30	N.C.
2500'-TD	Cut Brine	9.1	29	N.C.

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

**8. Auxiliary Well Control and Monitoring Equipment:**

A. Kelly cock will be kept in the drill string at all times.

Attached to Form 3160-3  
Mack Energy Corporation  
Read & Stevens #2  
840 FNL & 330 FEL  
NE/4 NE/4, Sec 15 T16S R31E  
Eddy County, NM

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

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

- A. The electric logging program will consist of GR-Dual Laterolog, Spectral Density, Dual Spaced Neutron, CSNG Log and will be ran from T.D. to 8 5/8 casing shoe.
- B. Drill Stem test is not anticipated.
- 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.

**10. Abnormal Conditions, Pressures, Temperatures and Potential Hazards:**

No abnormal pressures or temperatures are anticipated. The estimated bottom hole at TD is 110 degrees and estimated maximum bottom hole pressure is 2300 psig. Low levels of Hydrogen sulfide have been monitors in producing wells in the area, so H2S may be present while drilling of the well a plan is attached to the Drilling program. No major loss of circulation zones has been reported in offsetting wells.

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

Road and location work will not begin until approval has been received from the BLM. The anticipated spud date is April 1, 2005. Once commenced, the drilling operation should be finished in approximately 10 days. If the well is productive, an additional 30 days will be required for completion and testing before a decision is made to install permanent facilities.

Attached to Form 3160-3  
Mack Energy Corporation  
Read & Stevens #2  
840 FNL & 330 FEL  
NE/4 NE/4, Sec 15 T16S R31E  
Eddy County, NM

**9. Well Site Layout:**

- A. The drill pad layout, with elevations staked by John West Engineering, is shown in Exhibit #6. Dimensions of the pad and pits are shown. Topsoil, if available, will be stockpiled per BLM specifications. Because the pad is almost level no major cuts will be required.
- B. Diagram below shows the proposed orientation of reserve pit, working pit. There is a possibility that the pits will be moved around depending on Caliche in the area. No permanent living facilities are planned, but a temporary foreman/toolpusher's trailer will be on location during the drilling operations.
- C. The reserve pit will be lined with high quality plastic sheeting (12-mil thickness).

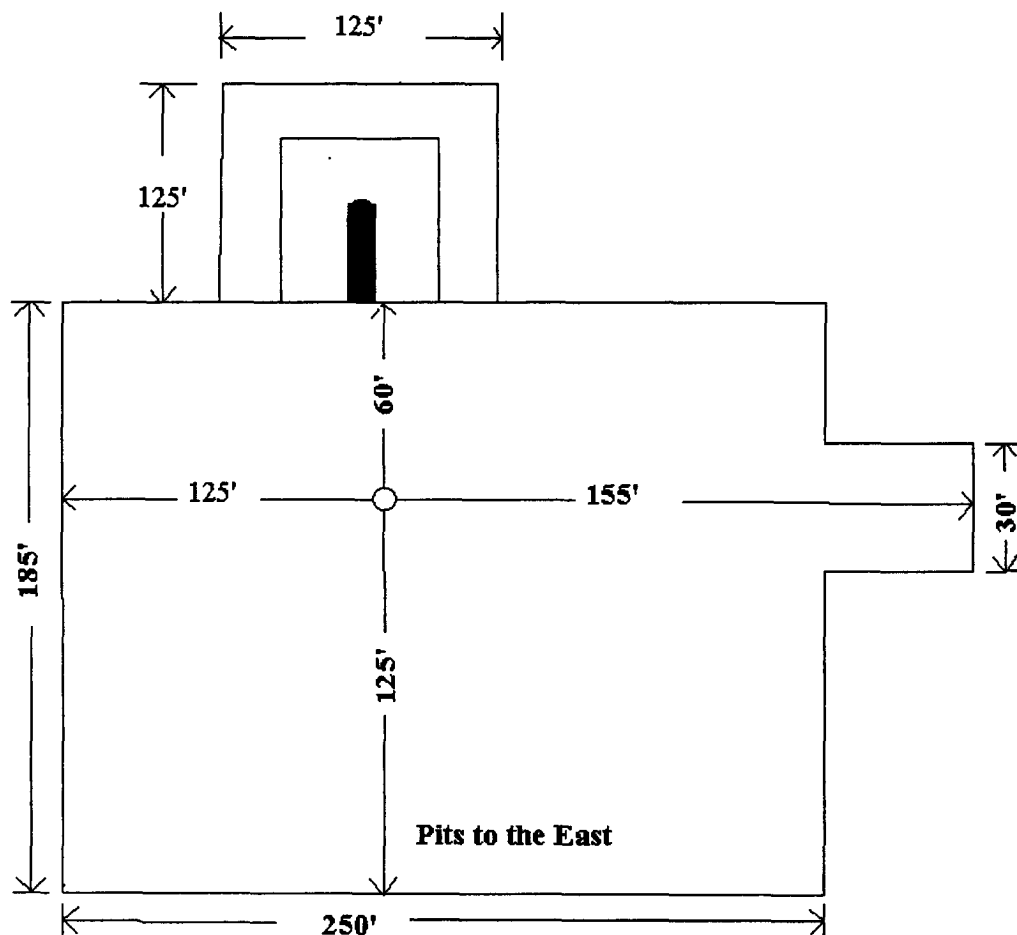


Exhibit #6



## **Mack Energy Corporation**

### **Hydrogen Sulfide Drilling Operation Plan**

#### **I. HYDROGEN SULFIDE TRAINING**

All personnel, whether regularly assigned, contracted, or employed on an unscheduled basis, will receive training from a qualified instructor in the following areas prior to commencing drilling operations on this well:

1. The hazards and characteristics of hydrogen sulfide (H<sub>2</sub>S)
2. The proper use and maintenance of personal protective equipment and life support systems.
3. The proper use of H<sub>2</sub>S 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 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.
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 H<sub>2</sub>S Drilling Operations Plan and 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. The concentrations of H<sub>2</sub>S of wells in this area from surface to TD are low enough that a contingency plan is not required.

## **II. H2S SAFETY EQUIPMENT AND SYSTEMS**

Note: All H2S safety equipment and systems will be installed, tested, and operational when drilling reaches a depth of 500 feet above, or three days prior to penetrating the first zone containing or reasonable expected to contain H2S.

### **1. Well Control Equipment:**

- A. Flare line.
- B. Choke manifold.
- C. Blind rams and pipe rams to accommodate all pipe sizes with properly sized closing unit.
- D. Auxiliary equipment may include if applicable: annular preventer & rotating head.

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

- A. Mark II Survive air 30-minute units located in the doghouse and at briefing areas, as indicated on well site diagram.

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

- A. 1 portable H2S monitors positioned on location for best coverage and response. These units have warning lights and audible sirens when H2S levels of 20 PPM are reached.

### **4. Visual warning systems:**

- A. Wind direction indicators as shown on well site diagram (Exhibit #8).
- B. Caution/Danger signs (Exhibit #7) shall be posted on roads providing direct access to location. Signs will be painted a high visibility yellow with black lettering of sufficient size to be readable at a reasonable distance from the immediate location. Bilingual signs will be used, when appropriate. See example attached.

### **5. Mud program:**

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

**6. Metallurgy:**

- A. All drill strings, casings, tubing, wellhead, blowout preventer, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H<sub>2</sub>S service.
- B. All elastomers used for packing and seals shall be H<sub>2</sub>S trim.

**7. Communication:**

- A. Radio communications in company vehicles including cellular telephone and 2-way radio.
- B. Land line (telephone) communication at Office.

**8. Well testing:**

- A. Drill stem testing will be performed with a minimum number of personnel in the immediate vicinity, which are necessary to safely and adequately conduct the test. The drill stem testing will be conducted during daylight hours and formation fluids will not be flowed to the surface. All drill-stem-testing operations conducted in an H<sub>2</sub>S environment will use the closed chamber method of testing.
- B. There will be no drill stem testing.

**EXHIBIT #7**

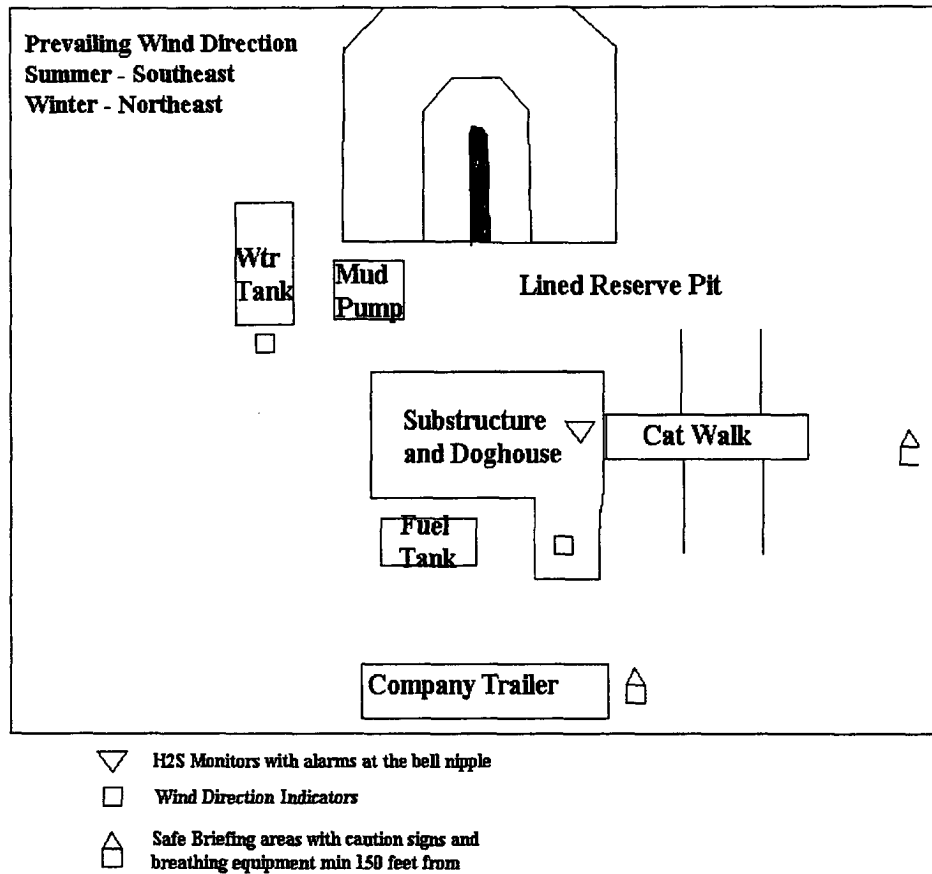
**WARNING**  
**YOU ARE ENTERING AN H<sub>2</sub>S**  
**AUTHORIZED PERSONNEL ONLY**

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

**MACK ENERGY CORPORATION**

**1-505-748-1288**

**DRILLING LOCATION H<sub>2</sub>S SAFTY EQUIPMENT**  
**Exhibit # 8**

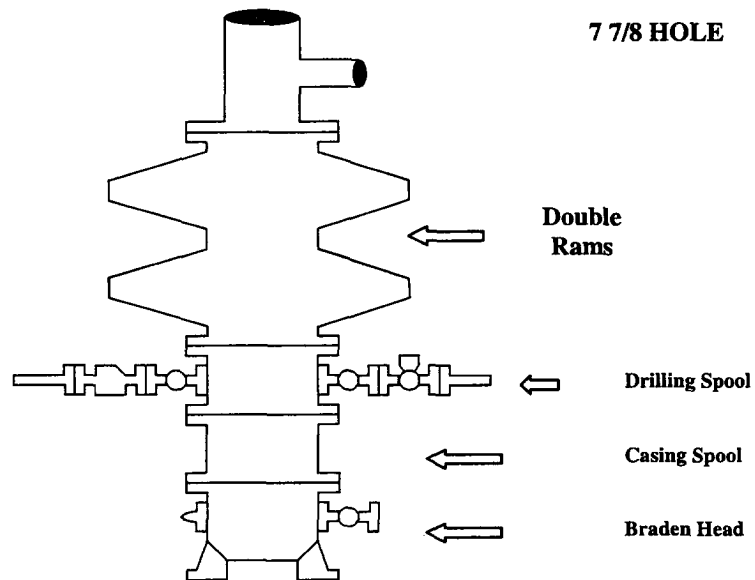


**Attachment to Exhibit #9**  
**NOTES REGARDING THE BLOWOUT PREVENTERS**  
**Read & Stevens Federal #2**  
**Eddy County, New Mexico**

1. Drilling nipple to be so constructed that it can be removed without use of a welder through rotary table opening, with minimum I.D. equal to preventer bore.
2. Wear ring to be properly installed in head.
3. Blow out preventer and all fittings must be in good condition, 2000 psi WP minimum.
4. All fittings to be flanged.
5. Safety valve must be available on rig floor at all times with proper connections, valve to be full 2000 psi WP minimum.
6. All choke and fill lines to be securely anchored especially ends of choke lines.
7. Equipment through which bit must pass shall be at least as large as the diameter of the casing being drilled through.
8. Kelly cock on Kelly.
9. Extension wrenches and hands wheels to be properly installed.
10. Blow out preventer control to be located as close to driller's position as feasible.
11. Blow out preventer closing equipment to include minimum 40-gallon accumulator, two independent sources of pump power on each closing unit installation all API specifications.

# Mack Energy Corporation

## Exhibit #9 BOPE Schematic



### Choke Manifold Requirement (2000 psi WP) No Annular Required

