

C-05-28

60-3
st 1999)

EC

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

000-ARTESIA

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

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of Work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		5. Lease Serial No. NMNM97117
1b. Type of Well: <input type="checkbox"/> Oil Well <input checked="" 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 MARBOB ENERGY CORPORATION		7. If Unit or CA Agreement, Name and No.
Contact: MELANIE J PARKER E-Mail: LAND2@MARBOB.COM		8. Lease Name and Well No. ROUNDY ROUND FEDERAL 2
3a. Address P O BOX 227 ARTESIA, NM 88211-0227	3b. Phone No. (include area code) Ph: 505-748-3303 Fx: 505-746-2523	9. API Well No. 30-015-33965
4. Location of Well (Report location clearly and in accordance with any State requirements.) At surface NENE 660FNL 990FEL At proposed prod. zone NENE 660FNL 990FEL		10. Field and Pool, or Exploratory HAPPY VALLEY- MORROW
14. Distance in miles and direction from nearest town or post office*		11. Sec., T., R., M., or Blk. and Survey or Area Sec 32 T21S R26E Mer NMP
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 160.00	12. County or Parish EDDY
18. Distance from proposed location to nearest well, drilling, completed, applied for, on this lease, ft.	19. Proposed Depth 11300 MD 11300 TVD	13. State NM
21. Elevations (Show whether DF, KB, RT, GL, etc.) 3260 GL	22. Approximate date work will start 01/31/2005	17. Spacing Unit dedicated to this well 320.00
24. Attachments		20. BLM/BIA Bond No. on file
CARLSBAD CONTROLLED WATER BASIN		23. Estimated duration 21 DAYS

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, shall be attached to this form:

- Well plat certified by a registered surveyor.
- A Drilling Plan.
- A Surface Use Plan (if the location is on National Forest System Lands, the SUPO shall be filed with the appropriate Forest Service Office).
- Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
- Operator certification
- Such other site specific information and/or plans as may be required by the authorized officer.

25. Signature (Electronic Submission)	Name (Printed/Typed) MELANIE J PARKER Ph: 505-748-3303	Date 12/13/2004
Title LAND DEPARTMENT		
Approved by (Signature) /s/ Tony J. Herrell	Name (Printed/Typed) /s/ Tony J. Herrell	Date FEB 11 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 #51836 verified by the BLM Well Information System
For MARBOB ENERGY CORPORATION, sent to the Carlsbad
Committed to AFMSS for processing by LINDA ASKWIG on 12/14/2004 (05LA0185AE)

APPROVAL SUBJECT TO
GENERAL REQUIREMENTS
AND SPECIAL STIPULATIONS
ATTACHED

Witness Surface &
Intermediate Casings

** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED **

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

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

DISTRICT III
1000 Rio Brazos Rd., Artec, 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 78060	Pool Name Happy Valley; Morrow
Property Code 34242	Property Name ROUNDY ROUND FEDERAL	Well Number 2
OGRID No. 14049	Operator Name MARBOB ENERGY CORPORATION	Elevation 3260'

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	32	21-S	26-E		660	NORTH	990	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 320	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 1									
41.28 AC LOT 2									
41.86 AC									

GEODETIC COORDINATES
NAD 27 NME
Y=524424.7 N
X=507517.2 E
LAT.=32°26'30.31" N
LONG.=104°18'32.28" W

3264.2' 3261.6' 990' 600' 3254.3' 3255.2'

OPERATOR CERTIFICATION
I hereby certify the the information contained herein is true and complete to the best of my knowledge and belief.
Signature Melanie J. Parker
Printed Name Melanie J. Parker
Title Land Department
Date December 13, 2004

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.
OCTOBER 5, 2004
Date Surveyed JR
Signature & Seal of Professional Surveyor GARY E. EUDSON
Certificate No. GARY EUDSON 12641

MARBOB ENERGY CORPORATION
DRILLING AND OPERATIONS PROGRAM

Roundy-Round Federal #2
660' FNL & 990' FEL
Section 32, T21S, R26E
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.

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

Yates	350'	Wolfcamp	8380'
Seven Rivers	640'	Strawn	9720'
Reef	960'	Atoka	10200'
Delaware	2070'	Morrow	10775'
Bone Spring	4525'	TD	11300'

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

Reef	960'	Water
Delaware	2070'	Oil
Wolfcamp	8380'	
Strawn	9720'	Gas
Atoka	10200'	
Morrow	10775'	

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 20" casing at 300' 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	
17 1/2"	0 - 300'	13 3/8"	48#	H-40	WITNESS WITNESS
12 1/4"	0 - 1700' / 1760'	9 5/8"	36#	J-55	
8 3/4"	0 - 8900'	7"	23#	P110 & N-80	
6 1/8"	0 - 11300'	4 1/2"	11.6#	P-110 LT&C	

Proposed Cement Program:

- 13 3/8" Surface Casing: Cement w/ 700 sx cmt. Circulate to surface.
- 9 5/8" Intermediate Casing: Cement w/ 900 sx cmt. Circulate to surface.
- 7" Intermediate Casing: Cement w/ 1200 sx cmt. Attempt to tie in to 8 5/8" csg.
- 4 1/2" Production Casing: Cement w/ 700 sx cmt. Attempt to tie in to 7" csg.

5. Pressure Control Equipment: See Exhibit 1.
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	8.4 - 9.2	32 - 36	N.C.
300 - 1700 1760'	Brine Fresh	9.9 - 10.2	28 - 32	N.C.
1700 - 8900'	Fresh Wtr	8.4 - 8.6	28 - 32	N.C.
8900 - 11300'	Cut Brine	8.7 - 9.5	28 - 34	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 Csg 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.

MARBOB ENERGY CORPORATION
MULTI-POINT SURFACE USE AND OPERATIONS PLAN

Roundy-Round Federal #2
660' FNL & 990' FEL
Section 32, T21S, R26E
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 the intersection of State Hwy 524 and County Road 427 (Jones Road), go northwest on State Hwy 524 for approximately 2.85 miles to a proposed road survey at ROW fence. Proposed location is approximately 212' northeast.

2. PLANNED ACCESS ROAD:

A new access road of 2583' 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.

- F. The proposed access road as shown in Exhibit 2 has been centerline flagged by John West Engineering.

3. LOCATION OF EXISTING AND/OR PROPOSED FACILITIES:

- A. Marbob Energy Corporation proposes a collection facility, if well is productive, to be located on Roundy-Round Federal #2 well pad.

4. METHODS OF HANDLING WASTE DISPOSAL:

- A. Drill cuttings will be disposed of in the lined pit.
- B. Drilling fluids will be allowed to evaporate in the lined pit until the pit is dry.
- C. Water produced during completion may be disposed into the lined reserve pit.
- D. All trash and debris will be removed from the wellsite within 30 days after finishing drilling 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. The reserve pit will be lined with high quality plastic sheeting.

6. PLANS FOR RESTORATION:

- A. After finishing drilling 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. Reserve pit will be fenced until they have dried and been leveled.
- C. 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 private surface. A surface agreement will complete before construction begins.

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 (505)748-3303
Cell (505)748-5988

B. Through Drilling Operations

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

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.

Date

Melanie J. Parker
Land Department

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 (H₂S).
- B. The proper use and maintenance of personal protective equipment and life support systems.
- C. The proper use of H₂S 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 H₂S 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 H₂S Drilling Operations Plan and the Public Protection Plan.

There will be an initial training session just prior to encountering a known or probable H₂S zone (within 3 days or 500 feet) and weekly H₂S and well control drills for all personnel in each crew. The initial training session shall include a review of the site specific H₂S Drilling Operations Plan and the Public Protection Plan. This plan shall be available at the well site. All personnel will be required to carry documentation that they have received the proper training.

II. H₂S SAFETY EQUIPMENT AND SYSTEMS

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

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. H₂S detection and monitoring equipment:

2 - portable H₂S monitor positioned on location for best coverage and response. These units have warning lights and audible sirens when H₂S levels of 20 ppm are reached.

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 H₂S circulated to the surface.

A mud-gas separator will be utilized.

F. Metallurgy:

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

G. Communication:

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

W A R N I N G

**YOU ARE ENTERING AN H₂S 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: December 13, 2004

Lease #: NM 96834
Roundy-Round Federal

Legal Description: Section 32: E/2
Township 21S – Range 26E
Eddy County, New Mexico

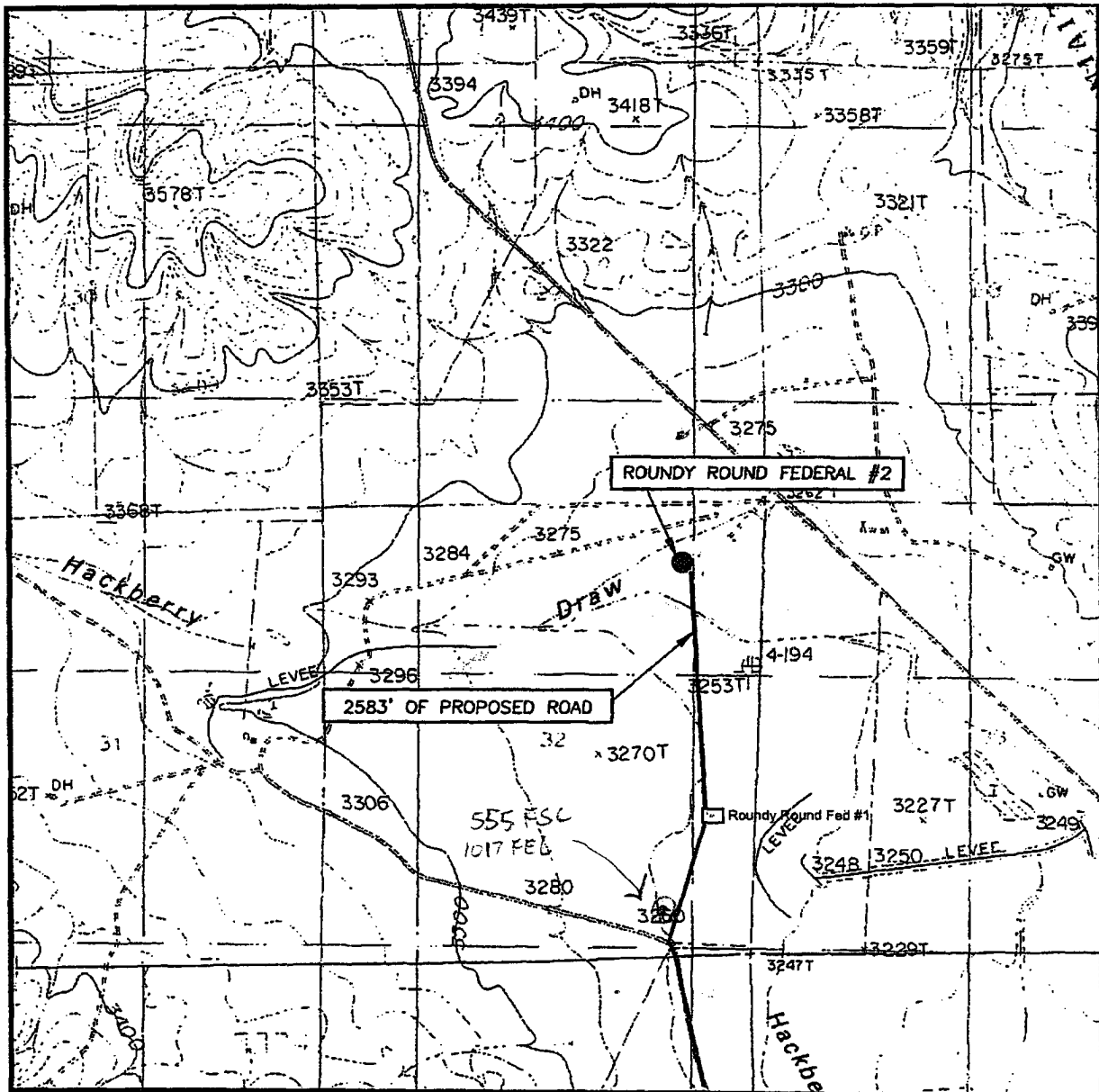
Formation(s): Morrow

Bond Coverage: Statewide

BLM Bond File #: 585716

Melanie J. Parker
Land Department

LOCATION VERIFICATION MAP



SCALE: 1" = 2000'

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

SEC. 32 TWP. 21-S RGE. 26-E

SURVEY N.M.P.M.

COUNTY EDDY

DESCRIPTION 660' FNL & 990' FEL

ELEVATION 3260'

OPERATOR MARBOB ENERGY CORPORATION

LEASE ROUNDY ROUND FEDERAL

U.S.G.S. TOPOGRAPHIC MAP
CARLSBAD WEST, N.M.

— Access Road
— Proposed Access Road

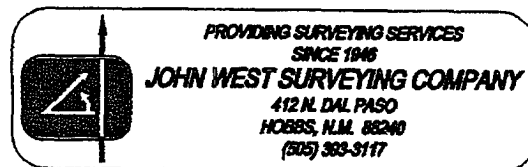
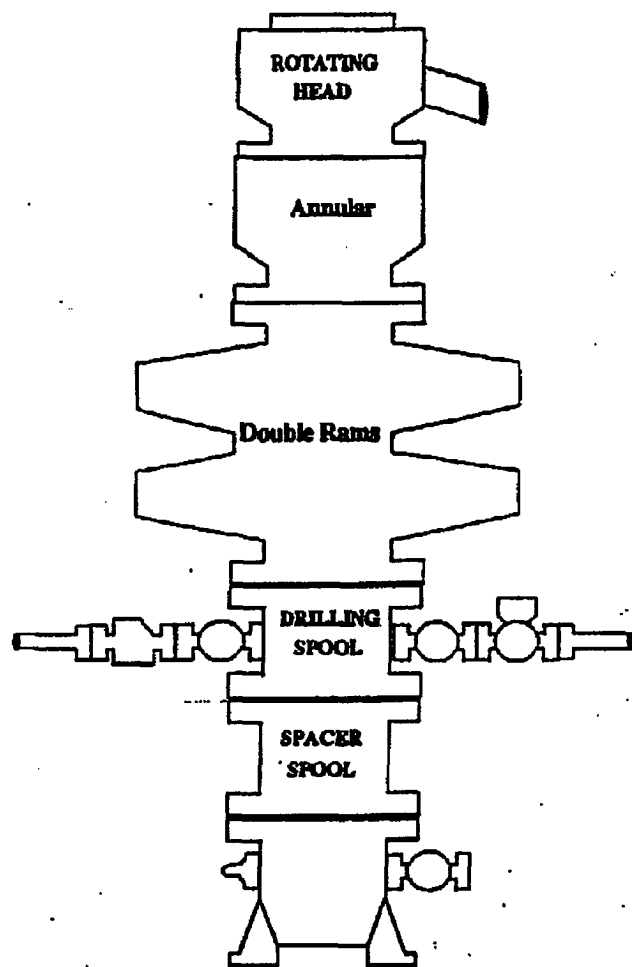


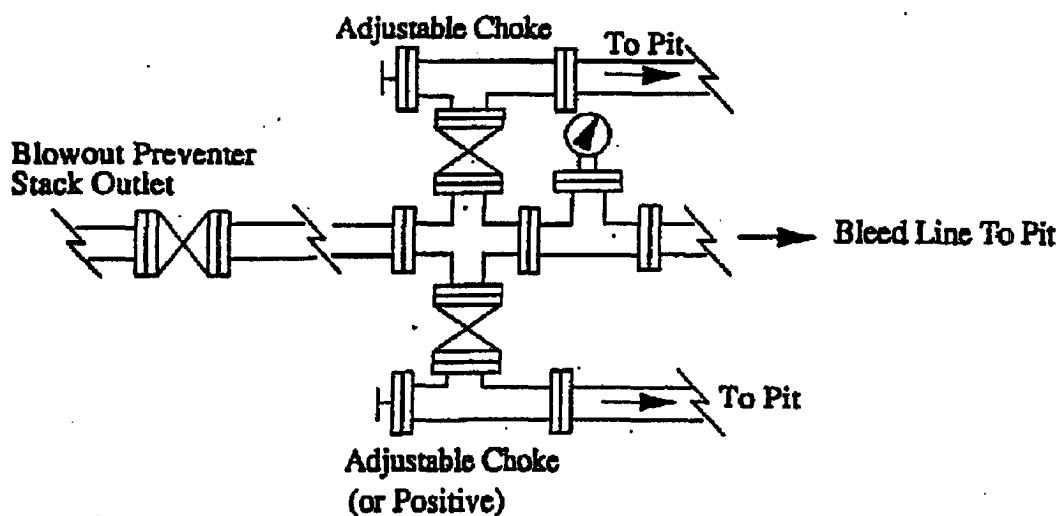
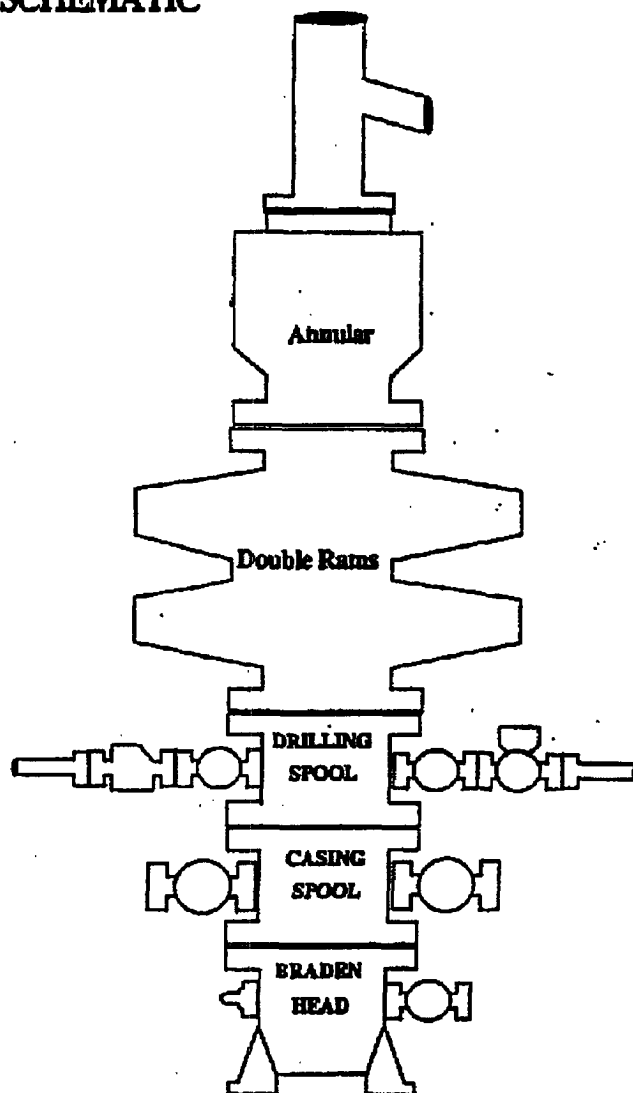
Exhibit Two

— floodplain

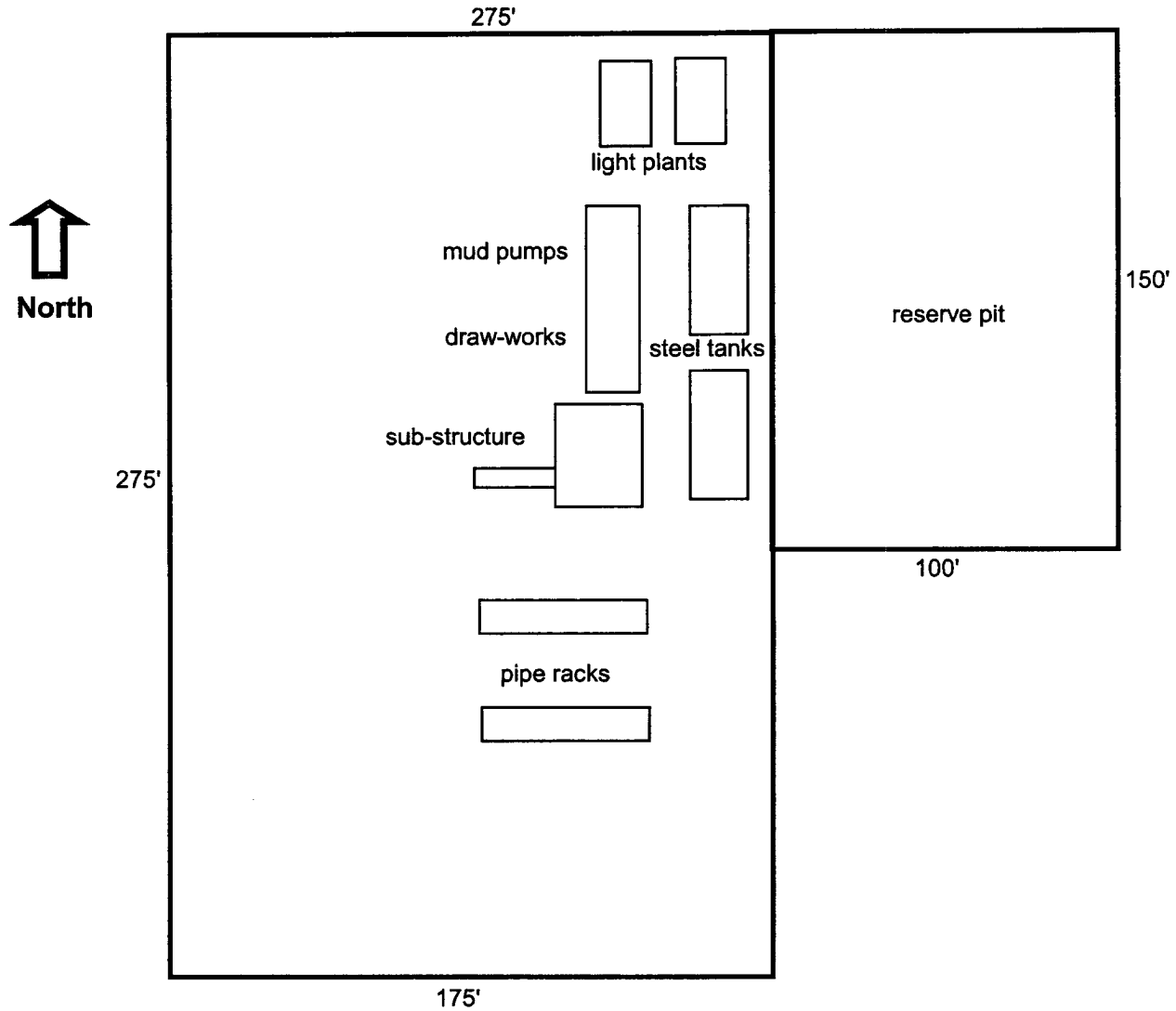
BOPE SCHEMATIC



Choke Manifold



Well Site Lay-Out Plat



Roundy-Round Federal No. 2
660' FNL & 990' FEL, Unit A
Section 32-T21S-R26E
Eddy County, New Mexico

EXHIBIT THREE



marbob
energy corporation

February 21, 2005

Oil Conservation Division
1301 West Grand Ave.
Artesia, NM 88210

Attention: Mr. Bryan Arrant

Re: BOP Testing
Roundy-Round Federal #2
660' FNL & 990' FEL
Section 32, T21S, R26E
Eddy County, New Mexico

Dear Bryan:

Marbob Energy's plans the following BOP testing procedures: We will test the BOP with an independent tester when nipped up on the 9 5/8" casing. Then daily we will function test BOP's by exercising pipe rams and we will test blind rams on trips. We will record the tests on daily IADC sheets.

If you have questions or need further information, please call.

Sincerely,

Sheryl Baker
Drilling Superintendent

SB/mp

MARBOB ENERGY CORPORATION
HYDROGEN SULFIDE (H₂S) CONTINGENCY PLAN
FOR DRILLING/COMPLETING/WORKOVER/FACILITY
WITH THE EXPECTATION OF H₂S IN EXCESS OF 100 PPM

ROUNDY-ROUND FEDERAL #2
NEW WELL DRILL
660' FNL & 990' FEL
SECTION 32-T21S-R26E
EDDY COUNTY, NEW MEXICO

**This well/facility is not expected to have H₂S, but
due to the sensitive location, the following is
submitted as requested.**

TABLE OF CONTENTS

General Emergency Plan	Page 1
Emergency Procedure for Uncontrolled Release of H ₂ S	Page 1
Emergency Numbers for Notification	Page 2
Location Map	Page 3
Protection of the General (ROE) Radius of Exposure	Page 4
Public Evacuation Plan	Page 4
Procedure for Igniting an Uncontrollable Condition	Page 5
Required Emergency Equipment	Page 5 & 6
Using Self-Contained Breathing Air Equipment (SCBA)	Page 6
Rescue & First Aid for Victims of H ₂ S Poisoning	Page 7
H ₂ S Toxic Effects	Page 8
H ₂ S Physical Effects	Page 8

GENERAL H₂S EMERGENCY ACTIONS

In the event of an H₂S emergency, the following plan will be initiated:

- 1) All personnel will immediately evacuate to an up-wind and if possible up-hill "safe area".
- 2) If for any reason a person must enter the hazardous area, they must wear a SCBA (self contained breathing apparatus).
- 3) Always use the "buddy system".
- 4) Isolate the well/problem if possible.
- 5) Account for all personnel.
- 6) Display the proper colors warning all unsuspecting personnel of the danger at hand.
- 7) Contact the company representative as soon as possible if not at the location (use the enclosed call list as instructed).

At this point the company representative will evaluate the situation and coordinate the necessary duties to bring the situation under control, and if necessary, the notification of emergency response agencies and residents.

EMERGENCY PROCEDURES FOR AN UNCONTROLLABLE RELEASE OF H₂S

- 1) All personnel will don the self contained breathing apparatus.
- 2) Remove all personnel to the "safe area" (always use the "buddy system").
- 3) Contact company representative if not on location.
- 4) Set in motion the steps to protect and/or remove the general public to any upwind "safe area". Maintain strict security and safety procedures while dealing with the source.
- 5) No entry to any unauthorized personnel.
- 6) Notify the appropriate agencies:
City Police – City streets
State Police – State Roads
County Sheriff – County Roads
- 7) Call the NMOCD.

If at this time the supervising person determines the release of H₂S cannot be contained to the site location and the general public is in harms way, he will immediately notify public safety personnel.

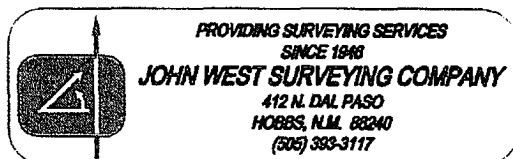
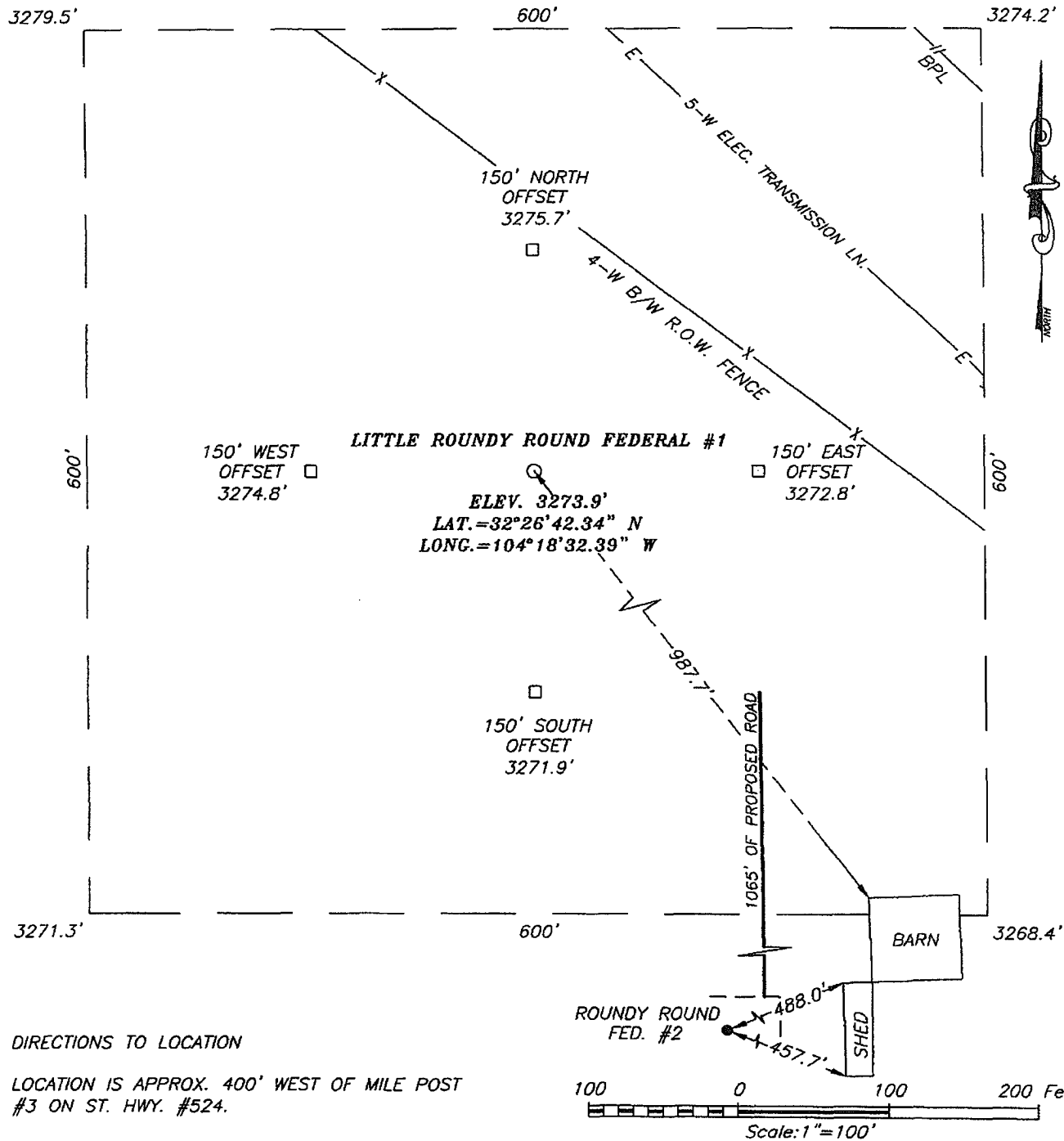
EMERGENCY CALL LIST

	<u>Office</u>	<u>Mobile</u>	<u>Home</u>
Marbob Energy Corp.	505-748-3303		
Sheryl Baker	505-748-3303	505-748-5489	505-748-2396
Johnny C. Gray	505-748-3303	505-748-5983	505-885-3879
Raye Miller	505-748-3303	505-513-0176	505-746-9577
Dean Chumbley	505-748-3303	505-748-5988	505-748-2426

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

State Police	505-748-9718
Eddy County Sheriff	505-746-2701
Emergency Medical Services (Ambulance)	911 or 505-746-2701
Eddy County Emergency Management (Harry Burgess)	505-887-9511
State Emergency Response Center (SERC)	505-476-9620
Carlsbad Police Department	505-885-2111
Carlsbad Fire Department	505-885-3125
New Mexico Oil Conservation Division	505-748-1283
Indian Fire & Safety	800-530-8693
Halliburton Services	800-844-8451

SECTION 29, TOWNSHIP 21 SOUTH, RANGE 26 EAST, N.M.P.M.,
 EDDY COUNTY, NEW MEXICO



MARBOB ENERGY CORPORATION

LITTLE ROUNDY ROUND FEDERAL #1 WELL
 LOCATED 555 FEET FROM THE SOUTH LINE
 AND 1017 FEET FROM THE EAST LINE OF SECTION 29,
 TOWNSHIP 21 SOUTH, RANGE 26 EAST, N.M.P.M.,
 EDDY COUNTY, NEW MEXICO.

Survey Date: 12/16/04	Sheet 1 of 1 Sheets
W.O. Number: 04.11.1725	Dr By: J.R.
Date: 12/21/04	Disk: CD#10
04111725	Scale: 1"=100'

PROTECTION OF THE GENERAL PUBLIC/ROE

In the event greater than 100 ppg H₂S is present, the ROE (Radius of Exposure) calculations will be done to determine if the following is warranted:

- 100 ppm at any public area (any place not associated with this site)
- 500 ppm at any public road (any road which the general public may travel)
- 100 ppm radius of 3000' will be assumed if there is insufficient data to do the calculations, and there is a reasonable expectation that H₂S could be present in concentrations greater than 100 ppm in the gas mixture.

Calculation for the 100 ppm ROE:

$$X = [(1.589)(\text{concentration})(Q)] (0.6258)$$

(H₂S concentrations in decimal form)
10,000 ppm + = .01
1,000 ppm + = .001

Calculation for the 500 ppm ROE:

$$X = [(0.4546)(\text{concentration})(Q)] (0.6258)$$

100 ppm + = .0001
10 ppm + = .00001

EXAMPLE: If a well/facility has been determined to have 150 ppm H₂S in the gas mixture and the well/facility is producing at a gas rate of 200 MCFD then:

ROE for 100 ppm $X = [(1.589)(.00010)(200,000)] (0.6258)$
 $X = 8.8'$

ROE for 500 ppm $X = [(0.4546)(.00050)(200,000)] (0.6258)$
 $X = 10.9'$

These calculations will be forwarded to the appropriate NMOCD district office when applicable.

PUBLIC EVACUATION PLAN

When the supervisor has determined that the general public will be involved, the following plan will be implemented.

- 1) Notification of the emergency response agencies of the hazardous condition and implement evacuation procedures.
- 2) A trained person in H₂S safety shall monitor with detection equipment the H₂S concentration, wind and area of exposure. This person will determine the outer perimeter of the hazardous area. The extent of the evacuation area will be determined from the data being collected. Monitoring shall continue until the situation has been resolved. All monitoring equipment shall be UL approved for use in Class I Groups A, B, C & D, Division I hazardous locations. All monitors will have a minimum capability of measuring H₂S, oxygen, and flammable values.
- 3) Law enforcement shall be notified to set up necessary barriers and maintain such for the duration of the situation as well as aid in the evacuation procedure.
- 4) The company representative shall stay in communication with all agencies throughout the duration of the situation and inform such agencies when the situation has been contained and the effected area is safe to enter.

PROCEDURE FOR IGNITING AN UNCONTROLLABLE CONDITION

The decision to ignite a well should be a last resort and one, if not both, of the following pertain:

- 1) Human life and/or property are in danger.
- 2) There is no hope of bringing the situation under control with the prevailing conditions at the site.

INSTRUCTIONS FOR IGNITION

- 1) Two people are required. They must be equipped with positive pressure, self contained breathing apparatus and a "D"-ring style, full body, OSHA approved safety harness. Non-flammable rope will be attached.
- 2) One of the people will be a qualified safety person who will test the atmosphere for H₂S, oxygen and LFL. The other person will be the company representative.
- 3) Ignite up-wind from a distance no closer than necessary. Make sure that where you ignite from has the maximum escape avenue available. A 25 mm flare gun shall be used, with a +-500' range to ignite the gas.
- 4) Prior to ignition, make a final check for combustible gases.
- 5) Following ignition, continue with the emergency actions and procedures as before.

REQUIRED EMERGENCY EQUIPMENT

- 1) Breathing Apparatus
 - Rescue Packs (SCBA) – 1 unit shall be placed at each breathing area, 2 shall be stored in the safety trailer.
 - Work/Escape Packs – 4 packs shall be stored on the rig floor with sufficient air hose not to restrict work activity.
 - Emergency Escape Packs – 4 packs shall be stored in the doghouse for emergency evacuation.
- 2) Signage and Flagging
 - One Color Code Condition Sign will be placed at the entrance to the site reflecting the possible conditions at the site.
 - A Colored Condition flag will be on display reflecting the condition at the site at that time.
- 3) Briefing Area
 - Two perpendicular areas will be designated by signs and readily accessible.

- 4) Wind Socks
 - Two windsocks will be placed in strategic locations, visible from all angles.
- 5) H₂S Detectors and Alarm
 - The stationary detector with three (3) sensors will be placed in the upper dog house if equipped, set to visually alarm @ 10 ppm and audible alarm @ 15 ppm. Calibrate a minimum of every 30 days or as needed. The three sensors will be placed in the following places: (Gas sample tubes will be stored in the safety trailer)
 - Rig floor
 - Bell nipple
 - End of flow line or where well bore fluid is being discharged
- 6) Auxiliary Rescue Equipment
 - Stretcher
 - Two OSHA full body harnesses
 - 100' of 5/8" OSHA approved rope
 - One 20 lb. Class ABC fire extinguisher
 - Communication via cell phones on location and vehicles on location

USING SELF-CONTAINED BREATHING AIR EQUIPMENT (SCBA)

- 1) SCBA should be worn when any of the following are performed:
 - Working near the top or on top of a tank.
 - Disconnecting any line where H₂S can reasonably be expected.
 - Sampling air in the area to determine if toxic concentrations of H₂S exist.
 - Working in areas where over 10 ppm of H₂S has been detected.
 - At any time there is a doubt of the level of H₂S in the area.
- 2) All personnel shall be trained in the use of SCBA prior to working in a potentially hazardous location.
- 3) Facial hair and standard eyeglasses are not allowed with SCBA.
- 4) Contact lenses are never allowed with SCBA.
- 5) Air quality shall be continuously checked during the entire operation.
- 6) After each use, the SCBA unit shall be cleaned, disinfected, serviced and inspected.
- 7) All SCBA shall be inspected monthly.

RESCUE & FIRST AID FOR VICTIMS OF H₂S POISONING

- Do not panic.
- Remain calm & think.
- Get on the breathing apparatus.
- Remove the victim to the safe breathing area as quickly as possible, upwind and uphill from source or cross wind to achieve upwind.
- Notify emergency response personnel.
- Provide artificial respiration and/or CPR as necessary.
- Remove all contaminated clothing to avoid further exposure.
- A minimum of two (2) personnel on location shall be trained in CPR and First Aid.

H₂S TOXIC EFFECTS

H₂S is extremely toxic. The acceptable ceiling for eight hours of exposure is 10 ppm, which is .001% by volume. H₂S is approximately 20% heavier than air (Sp.Gr=1.19 / Air=1) and colorless. It forms an explosive mixture with air between 4.3% and 46.0%. By volume hydrogen sulfide (H₂S) is almost as toxic as hydrogen cyanide and is 5-6 times more toxic than carbon monoxide.

Various Gases

Common Name	Chemical Abbrev.	Sp. Gr.	Threshold Limits	Hazardous Limits	Lethal Concentration
Hydrogen Sulfide	H ₂ S	1.19	10 ppm 15 ppm	100 ppm/hr	600 ppm
Hydrogen Cyanide	HCN	0.94	10 ppm	150 ppm/hr	300 ppm
Sulfur Dioxide	SO ₂	2.21	2 ppm	N/A	1000 ppm
Chlorine	CL ₂	2.45	1 ppm	4 ppm/hr	1000 ppm
Carbon Monoxide	CO	0.97	50 ppm	400 ppm/hr	1000 ppm
Carbon Dioxide	CO ₂	1.52	5000 ppm	5%	10%
Methane	CH ₄	0.55	90,000	Combustible @ 5%	N/A

- 1 Threshold limit – Concentrations at which it is believed that all workers may be repeatedly exposed, day after day, without adverse effects
- 2 Hazardous limit – Concentration that may cause death
- 3 Lethal concentration – Concentration that will cause death with short-term exposure
- 4 Threshold limit – 10 ppm – NIOSH guide to chemical hazards
- 5 Short-term threshold limit

PHYSICAL EFFECTS OF HYDROGEN SULFIDE (H₂S)

CONCENTRATIONS		PHYSICAL EFFECTS
.001%	10 ppm	Obvious and unpleasant odor. Safe for 8 hr. exposure
.005%	50 ppm	Can cause some flu-like symptoms and can cause pneumonia
.01%	100 ppm	Kills the sense of smell in 3-15 minutes. May irritate eyes and throat
.02%	200 ppm	Kills the sense of smell rapidly. Severely irritates eyes and throat. Severe flu-like symptoms after 4 or more hrs. May cause lung damage and/or death.
.06%	600 ppm	Loss of consciousness quickly, death will result if not rescued promptly.



NEW MEXICO ENERGY, MINERALS and NATURAL RESOURCES DEPARTMENT

BILL RICHARDSON

Governor

Joanna Prukop

Cabinet Secretary

Mark E. Fesmire, P.E.

Director

Oil Conservation Division

February 15, 2005
Marbob Energy Corporation
P.O. Box 227
Artesia, NM 88211-0227
Attn: Melanie Parker

**RE: Marbob Energy Corporation: Roundy-Round Federal # 2, located in Unit A
(660' FNL & 990' FEL) of Section 32, Township 21 South Range 26 East Eddy County,
New Mexico.**

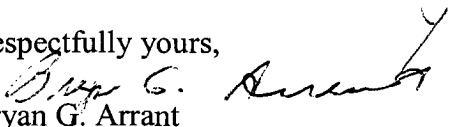
Dear Mrs. Parker,

In regards to conditions for approval of the above captioned well, the New Mexico Oil Conservation Division (NMOCD) will require the following:

This is for Marbob Energy Corporation to take samples from the flow line of the drilling mud every 100' in order to determine the chloride levels from the surface casing setting depth of @ 300' to the projected 9 5/8" intermediate casing setting depth of @ 1760'. Please note that we are aware that lost circulation in drilling of the reef may occur and the collection of samples may not be possible at times. In addition, Marbob Energy Corporation is to drill said well with a 'fresh water mud' system from surface to the setting depth of @ 1760' as stated in your APD.

The results of this data are to be submitted to the NMOCD and the Bureau of Land Management. Please call our office if you have any questions regarding this matter.

Respectfully yours,


Bryan G. Arrant
PES

CC: Tim Gum-District Supervisor-Artesia
Bureau of Land Management
Well File