

ATS-08-688

Form 3160-3
(February 2005)

JUL -7 2008 **OCD-ARTESIA**
OCD-ARTESIA UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

928

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

APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work ☒ DRILL ☐ REENTER		5 Lease Serial No. NMLC#029342E
1b. Type of Well ☒ Oil Well ☐ Gas Well ☐ Other ☒ Single Zone ☐ 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.
3a Address P.O. Box 227, Artesia, NM 88211-0228	3b Phone No. (include area code) 505-748-3303	8 Lease Name and Well No. Thunderroad Federal #7
4 Location of Well (Report location clearly and in accordance with any State requirements *) At surface 330' FNL & 2310' FEL At proposed prod zone Roswell Controlled Water Basin		9 API Well No. 30-015-36419
10 Field and Pool, or Exploratory Loco Hills; Glorieta-Yeso		11 Sec, T R M or Blk and Survey or Area Section 20, T17S - R30E
12 County or Parish Eddy County		13 State NM
14 Distance in miles and direction from nearest town or post office* About 0.5 miles from Loco Hills, NM	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 80.00
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 5930'
20 BLM/BIA Bond No. on file NMB000412	21 Elevations (Show whether DF, KDB, RT, GL, etc) 3655' GL	22 Approximate date work will start* 06/12/2008
23 Estimated duration 15 Days		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. | 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 must be filed with the appropriate Forest Service Office) | 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 05/12/2008
Title Land Department		

Approved by (Signature) /s/ James Stovall	Name (Printed Typed)	Date JUL 2 2008
Title FIELD MANAGER	Office CARLSBAD FIELD OFFICE	

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

Conditions of approval, if any, are attached

APPROVAL FOR TWO YEARS

Title 18 USC Section 1001 and Title 43 USC 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**

NOTE: NEW PIT RULE
19-15-17 NMAC PART 17
A form C-144 must be approved
before starting drilling operations.

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

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: May 12, 2008

Lease #: NMLC 0029342E
Thunderroad Federal #7

Legal Description: Sec. 20-T17S-R30E
Eddy County, New Mexico

Formation(s): Permian

Bond Coverage: Statewide

BLM Bond File #: NMB000412

Nancy Agnew
Nancy Agnew
Land Department

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

State of New Mexico
Energy, Minerals and Natural Resources Department

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

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

Form C-102
Revised October 12, 2005
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 96718	Pool Name Loco Hills; Glorieta-Yeso
Property Code 22057	Property Name THUNDERROAD FEDERAL	Well Number 7
OGRID No. 14049	Operator Name MARBOB ENERGY CORPORATION	Elevation 3655'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
B	20	17-S	30-E		330	NORTH	2310	EAST	EDDY

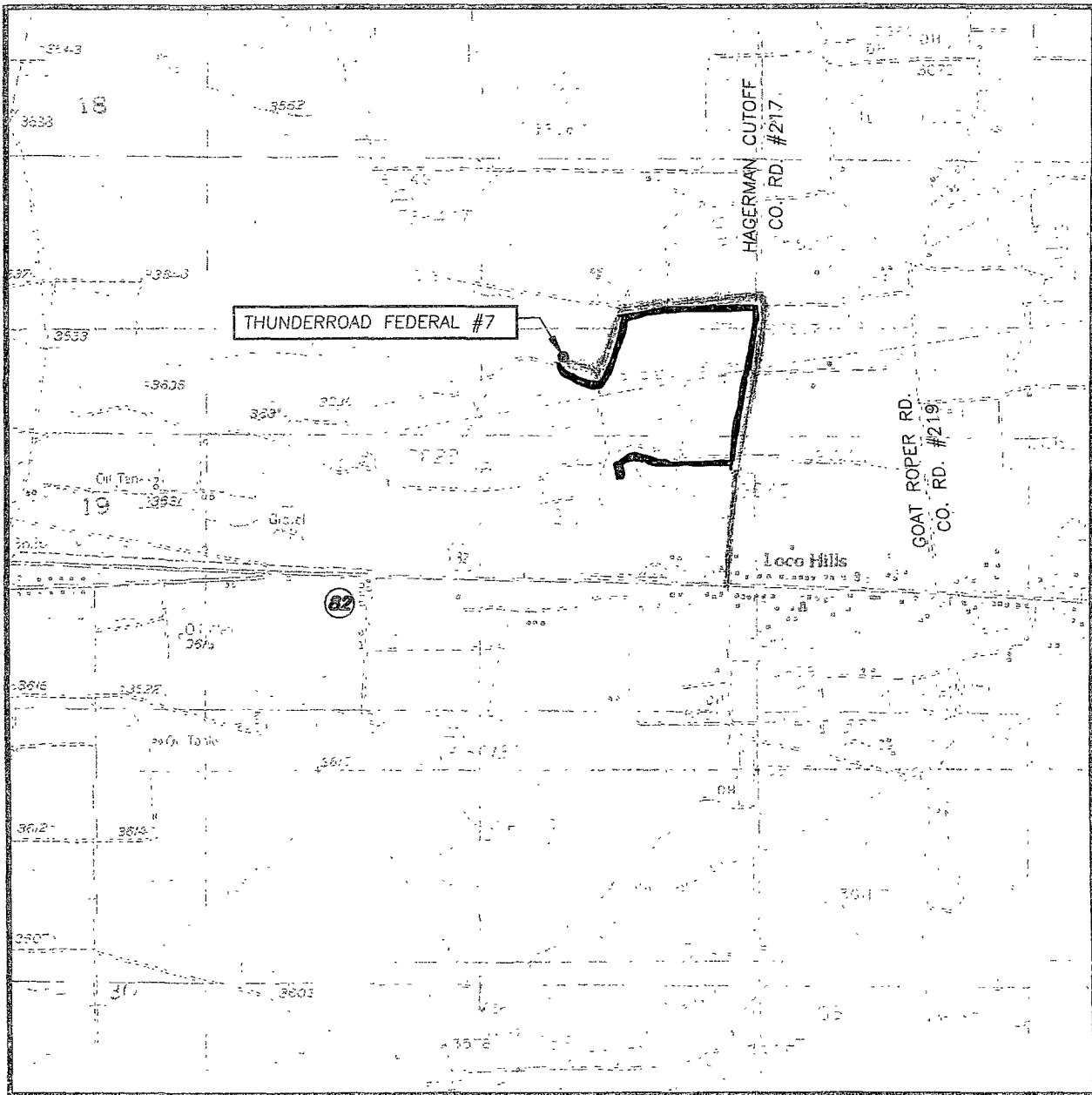
Bottom Hole Location If Different From Surface

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

SEE DETAIL 330' 2310' 3654.1' 3661.3' 3651.7' 3656.9' 600' 600' GEODETIC COORDINATES NAD 27 NME Y=664475.0 N X=604677.0 E LAT.=32.826265° N LONG.=103.992569° W	OPERATOR CERTIFICATION I hereby certify that the information herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division. <i>William Miller</i> 5/9/08 Signature Date William Miller Printed Name SURVEYOR CERTIFICATION I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief DATE SURVEYED: APR 5, 2008 SIGNATURE & SEAL OF PROFESSIONAL SURVEYOR: 3239 Certificate No. GARY EIDSON 12641 RONALD J. EIDSON 3239
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LOCATION VERIFICATION MAP



SCALE: 1" = 2000'

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

SEC. 20 TWP. 17-S RGE. 30-E

SURVEY N.M.P.M.

COUNTY EDDY STATE NEW MEXICO

DESCRIPTION 330' FNL & 2310' FEL

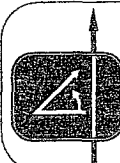
ELEVATION 3655'

OPERATOR MARBOB ENERGY CORPORATION

LEASE THUNDERROAD FEDERAL

U.S.G.S. TOPOGRAPHIC MAP
 LOCO HILLS, N.M.

Existing Roads
Proposed Flowline



PROVIDING SURVEYING SERVICES
 SINCE 1946
JOHN WEST SURVEYING COMPANY
 412 N. DAL PASO
 HOBBS, N.M. 88240
 (505) 393-3117

Exhibit #2

[illegible]

MARBOB ENERGY CORPORATION
DRILLING AND OPERATIONS PROGRAM

Thunderroad Federal #7
330' FNL & 2310' FEL,
Section 20, T17S, R30E
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. Geological surface formation: Permian
2. The estimated tops of geologic markers are as follows:

Rustler	380'	San Andres	2746'
Top Salt	465'	Glorieta	4180'
Bottom Salt	1097'	Tubb	5777'
Yates	1180'	TD	5930'
Queen	2054'		

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

Yates	1180'	Oil
Queen	2054'	Oil
San Andres	2746'	Oil
Glorieta	4180'	Oil

No other formations are expected to give up oil, gas, or fresh water in measurable quantities. The surface fresh water sands will be protected by setting 8 5/8" casing at 400' and circulating cement back to surface. All intervals will be isolated by setting 5 1/2" casing to total depth and circulating cement above the base of the 8 5/8" casing.

4. Proposed Casing Program:

Hole Size	Interval	OD Casing	New or Used	Wt	Collar	Grade	Collapse Design Factor	Burst Design Factor	Tension Design Factor
12 1/4"	0' - 400'	8 5/8"	New	24#	STC	J-55	1.125	1.125	1.6
7 7/8"	400' - 5930'	5 1/2"	New	17#	LTC	J-55	1.125	1.125	1.6

5. Proposed Cement Program:

- b. 8 5/8" Surf Cement to surface with 300 sk "C" wt 14.8 ppg yield 1.34.
- c. 5 1/2" Prod Cement to surface with 550 sk "H" Lite wt 12.6 yield 1.93
Tail in with 300 sk "H" yield 1.67 wt 13.0 ppg

SEE CCA The above cement volumes could be revised pending the caliper measurement from the open hole logs. The top of cement is designed to reach approximately 200' above the 8 5/8" casing shoe. If cement does not circulate on surface casing and TOC is less than 100' then ready mix will be used to bring cement to surface. If cement top is more than 100' from surface 1" pipe will be run to TOC and cement pumped to surface. No temperature survey or bond log will be required. **All casing is new and API approved.**

6. Minimum Specifications for Pressure Control:

SEE CCA Nipple up on 8 5/8" casing with a 2M system and test to 1000# with rig pumps.

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 2000 psi WP rating.

7. **Estimated BHP:** 2466.88 psi

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

Depth	Type System	Mud Weight	Viscosity (sec)	Waterloss (cc)
0' - 400'	Fresh Water	8.4	29	N.C.
400' - 5930'	Brine	9.9 - 10.0	29	N.C.

The necessary mud products for weight addition and fluid loss control will be on location at all times.

9. Auxiliary Well Control and Monitoring Equipment:

- a. A Kelly cock will be in the drill string at all times.
- b. A full opening drill pipe stabbing valve having the appropriate connections will be on the rig floor at all times.
- c. Hydrogen Sulfide detection equipment will be in operation after drilling out the 8 5/8" casing shoe until the 5 1/2" casing is cemented. Breathing equipment will be on location upon drilling the 8 5/8" shoe until total depth is reached.

10. Testing, Logging and Coring Program:

- a. Drill stem tests will be based on geological sample shows.
- b. The open hole electrical logging program will be:
 - i. Total Depth to Intermediate Casing: Dual Laterolog-Micro Laterolog and Gamma Ray. Compensated Neutron – Z Density log with Gamma Ray and Caliper.
 - ii. Total Depth to Surface: Compensated Neutron with Gamma Ray
 - iii. No coring program is planned
 - iv. Additional testing will be initiated subsequent to setting the 5 1/2" production casing. Specific intervals will be targeted based on log evaluation, geological sample shows and drill stem tests.

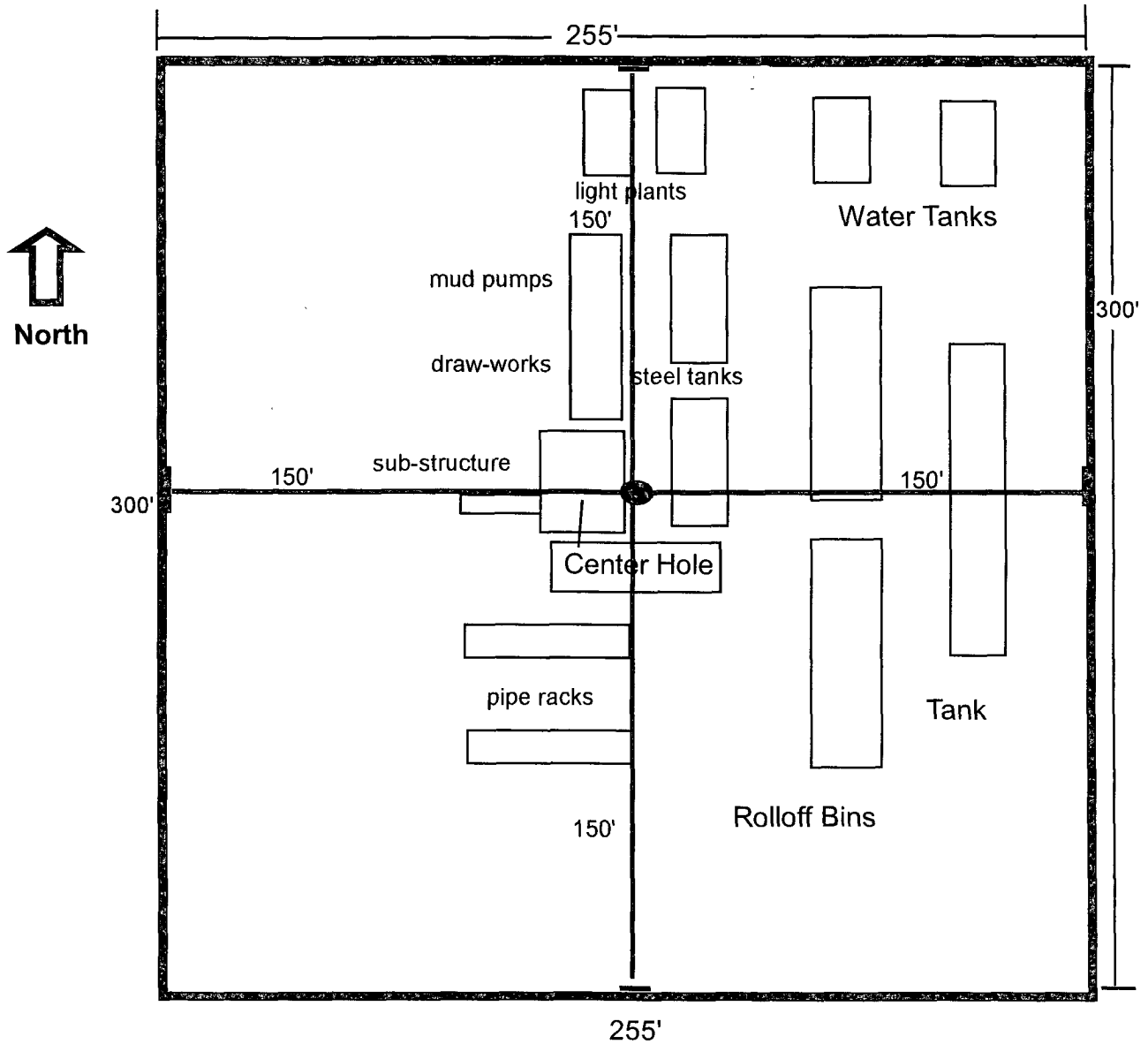
11. Potential Hazards:

- a. No abnormal pressures or temperatures are expected. There is no known presence of H₂S in this area. If H₂S is encountered the operator will comply with the provisions of Onshore Oil and Gas Order No. 6. No lost circulation is expected to occur. All personnel will be familiar with all aspects of safe operation of equipment being used to drill this well. Estimated BHP: 2466.88 psi. Estimated BHT: 120°. No H₂S is anticipated to be encountered.

12. Anticipated starting date and Duration of Operations:

- a. Road and location construction will begin after the BLM has approved the APD. Anticipated spud date will be as possible after BLM approval and as soon as a rig will be available. Move in operations and drilling is expected to take 15 days.

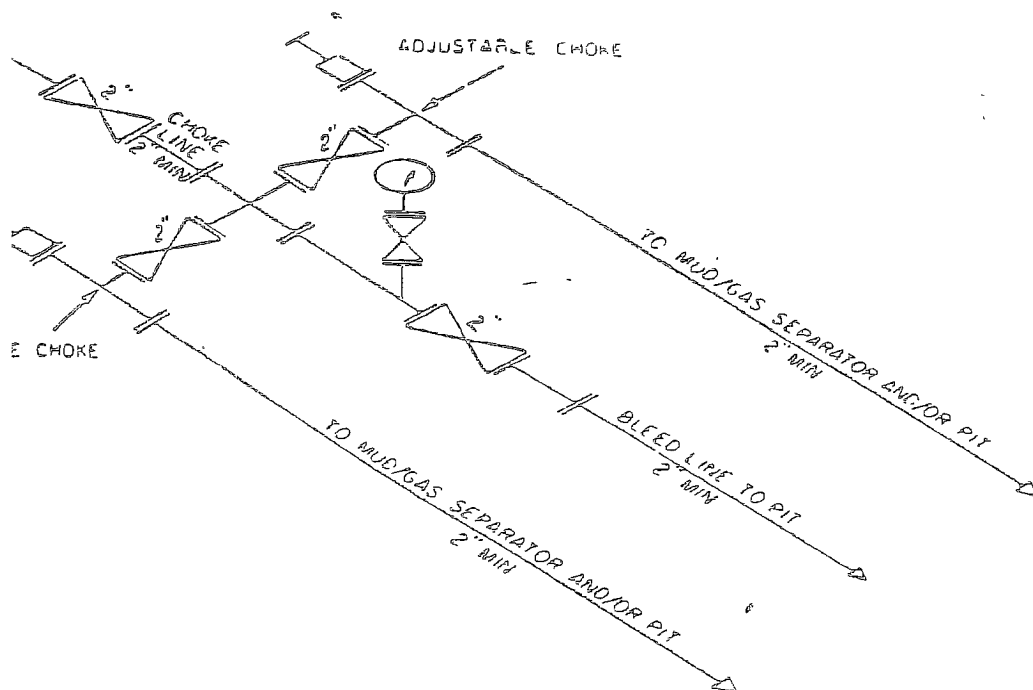
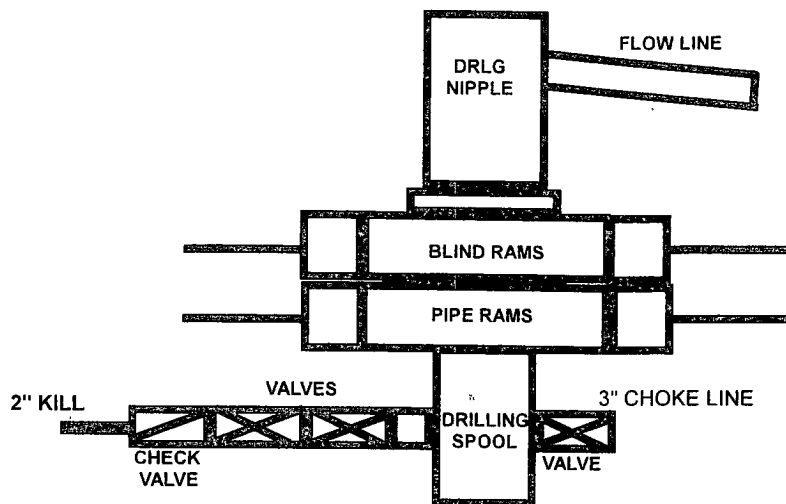
Well Site Lay-Out Plat



**Thunderroad Federal #7
330' FNL & 2310' FEL,
Section 20, T17S, R30E
Eddy County, New Mexico**

EXHIBIT THREE

2M SYSTEM



A CHOKE MANIFOLD EQUIPMENT — CONFIGURATION OF CHOKEES

MAY VARY

Exhibit One

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

Thunderroad Federal #7
NEW WELL DRILL
330' FNL & 2310' FEL
SECTION 20-T17S-R30E
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.**

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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

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

Calculation for the 500 ppm ROE:

1,000 ppm + = .001
100 ppm + = .0001
10 ppm + = .00001

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

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.

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.

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.

Marbob Energy has conducted a review to determine if an H₂S contingency plan is required for the above referenced well. We were able to conclude that any potential hazardous volume would be minimal. H₂S concentrations of wells in this area from surface to TD are low enough; therefore we do not believe that an H₂S Contingency Plan would be necessary.

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

MARBOB ENERGY CORPORATION
MULTI-POINT SURFACE USE AND OPERATIONS PLAN

Thunderroad Federal #7
330' FNL & 2310' FEL,
Section 20, T17S, R30E
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:

- a. The well site and elevation plat for the proposed well are reflected on the well site layout; Form C-102. The well was staked by John West Surveying Company.
- b. 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. Right of way using this proposed route is being requested if necessary.
- c. Routine grading and maintenance of existing roads will be conducted as necessary to maintain their condition as long as any operations continue on this lease.

DIRECTIONS:

From the intersection of U.S. Hwy #82 and co. rd. #217(Hagerman cutoff), go north on co. rd. #217 approx. 0.7 miles. Turn left and go west approx. 0.3 miles. Turn left and go south approx. 750 feet. Turn right and go west approx. 500 feet. This location is approx. 70 feet north.

2. PLANNED ACCESS ROAD:

There is an access road of running on the northeastern corner of the well pad.

3. LOCATION OF EXISTING AND/OR PROPOSED FACILITIES:

- A. In the event the well is found productive, the Thunder Road Federal #1 tank battery would be utilized and the necessary production equipment will be installed at the well site. A Site Facilities Diagram will be submitted upon completion of facility.
- B. All flowlines will adhere to API standards
- C. If electricity is needed, power will be obtained from Central Valley Electric. Central Valley Electric will apply for ROW for their power lines.
- D. If the well is productive, rehabilitation plans are as follows:
 - i. The original topsoil from the well site will be returned to the location. The drill site will then be contoured as close as possible to the original state.

4. LOCATION AND TYPES OF WATER SUPPLY:

This location will be drilled using a combination of water mud systems (outlined in the Drilling Program). The water will be obtained from commercial water stations in the area and hauled to location by transport truck using the existing and proposed roads shown in Exhibit #2. On occasion, water will be obtained from a pre-existing water well, running a pump directly to the drill rig. In these cases where a poly pipeline is used to transport water for drilling purposes, the existing and proposed road shown in Exhibit "2" will be utilized.

5. CONSTRUCTION MATERIALS:

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

6. METHODS OF HANDLING WASTE MATERIAL:

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

7. ANCILLARY FACILITIES:

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

8. WELLSITE LAYOUT:

- a. Exhibit 3 shows the proposed well site layout with dimensions of the pad layout.
- b. This exhibit indicates proposed location of reserve and sump pits if utilized and living facilities.
- c. Mud pits in the active circulating system will be steel pits and a closed loop system will be utilized.

9. PLANS FOR SURFACE RECLAMATION:

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

10. SURFACE OWNERSHIP:

The surface is owned by the US Government and is administered by the Bureau of Land Management. The surface is multiple use with the primary uses of the region for the grazing of livestock and the production of oil and gas. The proposed road routes and the surface location will be restored as directed by the BLM.

11. OTHER INFORMATION:

- a. The area surrounding the well site is grassland. The topsoil is very sandy in nature. The vegetation is moderately sparse with native prairie grass, some mesquite bushes and shinnery oak. No wildlife was observed but it is likely that deer, rabbits, coyotes, and rodents traverse the area.
- b. There is no permanent or live water in the general proximity of the location.
- c. There are no dwellings within 2 miles of location.

- d. A Cultural Resources Examination will be completed by Boone Archeological and forwarded to the BLM office in Carlsbad, New Mexico.

12. 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

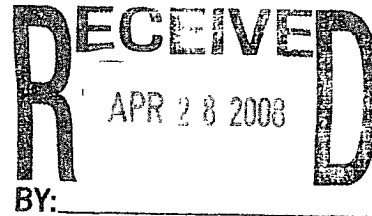
CERTIFICATION:

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.

5/12/08
Date

Marbob Energy Corporation

WSM
William Miller
Land Department



April 22, 2008

COG
Fasken Center, Tower II
550 West Texas Ave., Ste. 1300
Midland, TX 79701

ATTN: Brent Robertson
Senior Landman

RE: Encroachment Request
Section 20: T17S- R30E
Eddy County, New Mexico

Dear Mr. Robertson:

Marbob Energy Corporation is in the process of reapplying our ThunderRoad Federal No. 7 at a location of 330' FNL and 2310' FEL in the above referenced lands. COG has a southeast/northwest Water Pipeline approximately 50' north of our proposed center hole location. We plan to v-door the location west, which would have the least amount of impact to your right of way. The BLM has required us to obtain a written waiver from COG to allow construction over your pipeline. Therefore, we would respectfully request execution of this waiver and returning one copy to our office.

Please do not hesitate to contact me should you have any questions, I have attached a plat to aid in your review. Thank you for your assistance with this matter.

Sincerely,

William Miller
William Miller
Landman

** Subject to Conditional
Letter Agreement dated
May 8, 2008.*

* COG approves the construction of the ThunderRoad
Federal No. 7 over COG's Water Pipeline.

By: *Brent Robertson*

Name: BRENT ROBERTSON

Date: 5/8/2008



May 8, 2008

Marbob Energy Corporation
P.O. Box 227
Artesia, NM 88211-0227
Attention: William Miller

**Re: Request for Waiver
Thunder Road Federal No. 7 Well
330' FNL & 2310' FEL
Section 20, T17S-R30E
Eddy County, New Mexico**

Dear William:

Please be advised that COG Oil & Gas LP and its general partner COG Operating LLC ("COG") hereby agree to grant a waiver to Marbob Energy Corporation ("Marbob") for the construction of the above captioned well location ("the location") on the condition that Marbob shall be solely responsible and liable for any damages that may occur to the COG SWD Pipeline, including but not limited to any environmental liability, as a result of or arising from the construction of the location or operations conducted in connection with the drilling, completion, recompletion, workover, daily operation and plugging and abandonment of the above captioned well. Further, Marbob shall immediately notify COG of any damages that occur to the SWD Pipeline as a result of operations conducted on the captioned well and after consulting with COG, take immediate steps to affect all necessary repairs to the SWD Pipeline caused by such operations. Prior to construction of the location and continuing through drilling and completion operations conducted on the captioned well, Marbob agrees to flag that portion of the SWD Pipeline that crosses the location so as to minimize the likelihood of causing damage to the SWD Pipeline.

For purposes of providing notice of any damages caused to the SWD Pipeline resulting from the operations on the captioned well described above, please contact:

COG Operating LLC
Erick Nelson (Operations Engineer)
575-748-0230 (office)
432-238-7591 (cell)

If Marbob is in agreement, please so indicate by having the proper authority execute one copy of this letter in the space provided below and returning to my attention at the letterhead address.

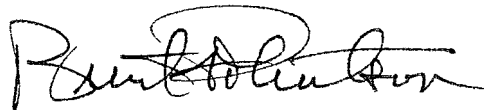
Marbob Energy Corporation

May 8, 2008

Page No. 2

If you have any questions, please let me know.

Sincerely,
COG Oil & Gas LP
By COG Operating LLC



Brent Robertson
Senior Landman

Br/

Accepted and Agreed this 12th day of May, 2008.
Marbob Energy Corporation

By: Dean Chumley

Title: LAND MANAGER

PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Marbob Energy Corporation
LEASE NO.:	NMLC029342E
WELL NAME & NO.:	Thunderroad Federal No. 7
SURFACE HOLE FOOTAGE:	330' FSL & 2310' FEL
BOTTOM HOLE FOOTAGE	Same
LOCATION:	Section 20, T. 17 S., R 30 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**
 - Lesser Prairie Chicken
- ☐ **Construction**
 - Notification
 - Topsoil
 - Reserve Pit
 - Federal Mineral Material Pits
 - Well Pads
 - Roads
- ☐ **Road Section Diagram**
- ☒ **Drilling**
- ☒ **Production (Post Drilling)**
 - Pipelines
- ☐ **Reserve Pit Closure/Interim Reclamation**
- ☐ **Final Abandonment/Reclamation**

I. GENERAL PROVISIONS

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

II. PERMIT EXPIRATION

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD. (Filing of a Sundry Notice is required for this 60 day extension.)

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

Any cultural and/or paleontological resource discovered by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery shall be made by the Authorized Officer to determine the appropriate actions that shall be required to prevent the loss of significant cultural or scientific values of the discovery. The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery. Any unauthorized collection or disturbance of cultural or paleontological resources may result in a shutdown order by the Authorized Officer.

IV. NOXIOUS WEEDS

The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

V. SPECIAL REQUIREMENT(S)

Timing Limitation Stipulation/Condition of Approval for Lesser Prairie-Chicken: Oil and gas activities including 3-D geophysical exploration, and drilling will not be allowed in lesser prairie-chicken habitat during the period from March 1 through June 15 annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, geophysical exploration other than 3-D operations, and pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Additionally, no new drilling will be allowed within up to 200 meters of leks known at the time of permitting. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 ft. from the source of the noise.

VI. CONSTRUCTION

A. NOTIFICATION

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (505) 234-5972 at least 3 working days prior to commencing construction of the access road and/or well pad.

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

B. TOPSOIL

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

C. RESERVE PIT

Closed loop system; tanks are required for drilling operations. Pits are not allowed.

The operator shall properly dispose of drilling contents at an authorized disposal site.

D. FEDERAL MINERAL MATERIALS PIT

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

Payment shall be made to the BLM prior to removal of any additional federal mineral materials from any site other than the reserve pit. Call the Carlsbad Field Office at (505) 234-5972.

E. WELL PAD SURFACING

Surfacing of the well pad is not required.

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

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

F. ON LEASE ACCESS ROADS

Road Width

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

Surfacing

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

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

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

Crowning

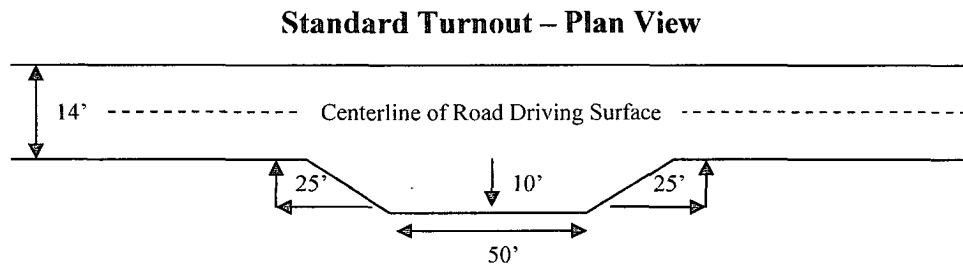
Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

Ditching

Ditching shall be required on both sides of the road.

Turnouts

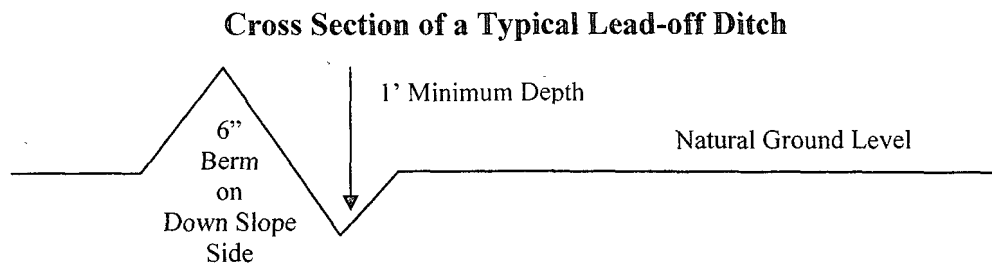
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall be constructed on all blind curves. Turnouts shall conform to the following diagram:



Drainage

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outsliping and insliping, 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:

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

Culvert Installations

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

Cattleguards

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

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

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

Fence Requirement

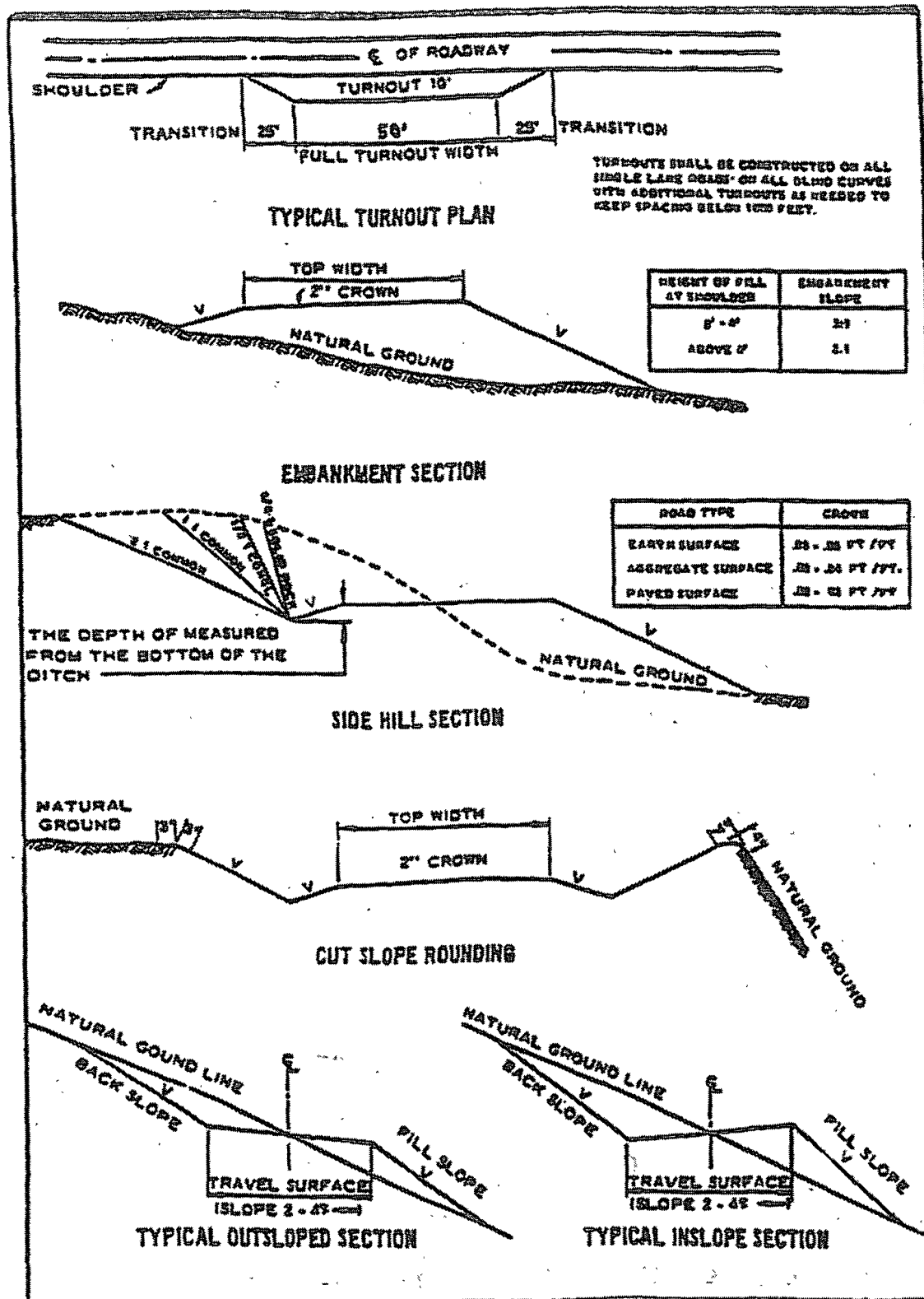
Where entry is required across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting.

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

Public Access

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

Figure 1 – Cross Sections and Plans For Typical Road Sections



VII. DRILLING

A. DRILLING OPERATIONS REQUIREMENTS

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

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

☒ **Eddy County**

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

1. **A Hydrogen Sulfide (H₂S) Drilling Plan should be activated 500 feet prior to drilling into the Yates Formation. If Hydrogen Sulfide is encountered, please report measured amounts and formations to the BLM.**
2. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.

B. CASING

Changes to the approved APD casing and cement program require submitting a sundry and receiving approval prior to work. Failure to obtain approval prior to work will result in an Incident of Non-Compliance being issued.

Centralizers required on surface casing as per Onshore Order 2.III.B.1.f

Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string.

No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer

**Possible lost circulation in Grayburg & San Andres
Possible H₂O/brine flows in Salado & Artesia Group**

1. The 8-5/8 inch surface casing shall be set at approximately 400 feet (a minimum of 25 feet into the Rustler Anhydrite and above the salt) and cemented to the surface.
 - a. For the surface casing: If cement does not circulate to the surface, the appropriate BLM office shall be notified and a tag with 1" will be performed at four positions 90 degrees apart to verify cement depth. BLM Petroleum Engineer Technician to witness tags. If depth is greater than 100' or water is standing in the annulus, remedial cementing will be done. If no water and TOC tag is less than 100', when 100% excess cement of the annulus volume was run on the primary job, ready-mix can be used to bring cement to surface.
 - b. Wait on cement (WOC) time for a primary cement job will be a minimum 18 hours for a water basin, 24 hours in the potash area, or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement).
 - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
 - d. If cement falls back, remedial cementing will be done prior to drilling out that string.
2. The minimum required fill of cement behind the 5-1/2 inch production casing is:
 - ☒ Cement to surface. If cement does not circulate, contact the appropriate BLM office.
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. 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.
 - e. **No variance granted on BOP/BOPE test when running only two casing strings.**

D. DRILL STEM TEST

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

LB 6/16/08

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

B. PIPELINES

STANDARD STIPULATIONS FOR SURFACE INSTALLED PIPELINES

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

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

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

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

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

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

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

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

5. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil, salt water, or other pollutant should be discharged from the pipeline system, impacting Federal lands, the control and total removal, disposal, and cleaning up of such oil, salt water, or other pollutant, wherever found, shall be the responsibility of the holder, regardless of fault. Upon failure of the holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages resulting therefrom, on the Federal lands, the Authorized Officer may take such measures as he deems necessary to control and clean up the discharge and restore the area, including, where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the holder. Such action by the Authorized Officer shall not relieve the holder

of any responsibility as provided herein.

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

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

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

9. The pipeline shall be buried with a minimum of 24 inches under all roads, "two-tracks," and trails. Burial of the pipe will continue for 20 feet on each side of each crossing. The condition of the road, upon completion of construction, shall be returned to at least its former state with no bumps or dips remaining in the road surface.

10. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

11. In those areas where erosion control structures are required to stabilize soil conditions, the holder will install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound resource management practices.

12. Excluding the pipe, all above-ground structures not subject to safety requirement shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be a color which simulates "Standard Environmental Colors" – **Shale Green**, Munsell Soil Color No. 5Y 4/2; designated by the Rocky Mountain Five State Interagency Committee.

13. The pipeline will be identified by signs at the point of origin and completion of the right-of-way and at all road crossings. At a minimum, signs will state the holder's name, BLM serial number, and the product being transported. Signs will be maintained in a legible condition for the life of the pipeline.

14. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway.

15. Any cultural and/or paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the authorized officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the authorized officer. An evaluation of the discovery will be made by the authorized officer to determine appropriate cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the authorized officer after consulting with the holder.

IX. INTERIM RECLAMATION & RESERVE PIT CLOSURE

A. INTERIM RECLAMATION

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

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

At the time reserve pits are to be reclaimed, operators should work with BLM surface management specialists to devise the best strategies to reduce the size of the location. Any reductions should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

Seed Mixture for LPC Sand/Shinnery Sites

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

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

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

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

**Four-winged Saltbush 5lbs/A

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

*Pounds of pure live seed:

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

X. FINAL ABANDONMENT & REHABILITATION REQUIREMENTS

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

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