N. M. OIL CONSERVATION COMMISSION CONFIDENTIAL
P. O. Box 1980
HOBBS, NEW MEXICO 88240

Form 3160-3
(July 1992)

SUBMIT IN TRIPLICATE
(Other instructions on reverse side)

FORM APPROVED
OMB NO. 1004-0136
Expires February 28, 1995

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR DEEPEN

5. LEASE DESIGNATION AND SERIAL NO.: NM-57285

1a. TYPE OF WORK: Drill [X] Deepen [ ]

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: N/A

b. TYPE OF WELL: Oil Well [ ] Gas Well [X] Other — Single Zone [ ] Multiple Zone [ ]

7. UNIT AGREEMENT NAME: N/A

2. NAME OF OPERATOR: Mallon Oil Company

8. FARM OR LEASE NAME, WELL NO.: MALLON 33 FEDERAL #2

3. ADDRESS AND TELEPHONE NO.: P.O. Box 3256, Carlsbad, NM 88220 (505) 885-4596

9. API WELL NO.: 30-025-34438

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*)
At surface: 660' FNL AND 1980' FWL (NE NW) UNIT C
At proposed prod. zo: 660' FNL AND 1980' FWL (NE NW) UNIT C

10. FIELD AND POOL, OR WILDCAT: QUAIL RIDGE, MORROW

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: SEC. 33, T19S-R34E

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE *: 34 MILES EAST OF HOBBS, NEW MEXICO

12. COUNTY OR PARISH: LEA COUNTY

13. STATE: NM

15. DISTANCE FROM PROPOSED * LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any): 660'

16. NO. OF ACRES IN LEASE: 560

17. NO. OF ACRES ASSIGNED TO THIS WELL: 320

18. DISTANCE FROM PROPOSED LOCATION* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.: 2640'

19. PROPOSED DEPTH: 13,800'

20. ROTARY OR CABLE TOOLS: ROTARY

21. ELEVATIONS (SHOW WHETHER DF, RT, GR, Etc.): 3685' GR

22. APPROX. DATE WORK WILL START: 6-10-98

23.

SIZE OF HOLE	GRADE, SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
25"	20"	42 LB	40'	READY MIX TO SURFACE
17-1/2"	13-3/8"	48 LB	500'	270 SXS CIRC TO SURFACE
12-1/4"	9-5/8"	36 LB AND 40 LB	5,000'	800 SXS POZ, 200 SXS CLASS "C"
7-7/8"	5-1/2"	17 LB	13,800'	900 SXS CLASS "C" MODIFIED 100 SXS CLASS "C"

WITNESS

CAPITAN CONTROLLED WATER BASIN

MALLON OIL COMPANY PROPOSED TO DRILL TO A DEPTH SUFFICIENT TO TEST THE MORROW FORMATION FOR GAS. IF PRODUCTIVE, 5-1/2" CASING WILL BE CEMENTED AT TD. IF NON PRODUCTIVE, THE WELL WILL BE PLUGGED AND ABANDONED IN A MANNER CONSISTENT WITH FEDERAL REGULATIONS. SPECIFIC PROGRAMS AS PER ON-SHORE OIL AND GAS ORDER NO. 1 ARE OUTLINED IN THE FOLLOWING ATTACHMENTS.

* HAD MALLON CHANGE BOP FROM 3M TO 5M — 6/15/98. LB. DISCUSSED WITH TERRY LINDEMAN

Drilling Program

* Exhibit 1: Blow Out Preventor Equipment/Plan
Exhibit A: Location and Elevation Plat
Exhibit B: Existing Roads / Planned Access Roads
Exhibit C: One Mile Radius Map
Exhibit D: Drilling Site Layout
Exhibit E: Production Facilities
Exhibit F: Hydrogen Sulfide Drilling Plan

APPROVAL SUBJECT TO GENERAL REQUIREMENTS AND SPECIAL STIPULATIONS ATTACHED

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

24.

SIGNED: Terry Lindeman TITLE: Operations Superintendent DATE 4/30/98

(This space for Federal or State office use)

PERMIT NO. _____ APPROVAL DATE _____

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:

APPROVED BY (ORIG. SGD.) JAMES G. PETTENGILL TITLE Acting Assistant Field Office Manager DATE JUN 16 1998

*See Instructions On Reverse Side

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States

CONFIDENTIAL

SPECIAL DRILLING STIPULATIONS

THE FOLLOWING DATA IS REQUIRED ON THE WELL SIGN

OPERATOR'S NAME MALLON OIL COMPANY WELL NO. & NAME #2 MALLON 33 FEDERAL
LOCATION 660' F N L & 1980' F W L SEC. 33, T. 19S., R. 34E.
LEASE NO. NM-57285 COUNTY LEA STATE NEW MEXICO

The special stipulations check marked below are applicable to the above described well and approval of this application to drill is conditioned upon compliance with such stipulations in addition to the General Requirements. The permittee should be familiar with the General Requirements, a copy of which is available from a Bureau of Land Management office. EACH PERMITTEE HAS THE RIGHT OF ADMINISTRATIVE APPEAL TO THESE STIPULATIONS PURSUANT TO TITLE 43 CFR 3165.3 and 3165.4.

This permit is valid for a period of one year from the date of approval or until lease expiration or termination whichever is shorter.

I. SPECIAL ENVIRONMENT REQUIREMENTS

( ) Lesser Prairie Chicken (Stips attached)
( ) San Simon Swale (Stips attached)
( ) Floodplain (Stips attached)
( ) Other

II. ON LEASE - SURFACE REQUIREMENTS PRIOR TO DRILLING

(✓) The BLM will monitor construction of this drill site. Notify the (✓) Carlsbad Resource Area Office at (505) 887-6544 ( ) Hobbs Office at (505) 393-3612, at least 3 working days prior to commencing construction.

(✓) Roads and the drill pad for this well must be surfaced with 6 inches of compacted caliche.

( ) All topsoil and vegetation encountered during the construction of the drill site area will be stockpiled and made available for resurfacing of the disturbed area after completion of the drilling operation. Topsoil on the subject location is approximately ____ inches in depth. Approximately _____ cubic yards of topsoil material will be stockpiled for reclamation.

( ) Other

III. WELL COMPLETION REQUIREMENTS

( ) A Communitization Agreement covering the acreage dedicated to the well must be filed for approval with the BLM. The effective date of the agreement must be prior to any sales.

(✓) Surface Restoration: If the well is a producer, the reserve pit(s) will be backfilled when dry, and cut-and-fill slopes will be reduced to a slope of 3:1 or less. All areas of the pad not necessary for production must be re-contoured to resemble the original contours of the surrounding terrain, and topsoil must be re-distributed and re-seeded with a drill equipped with a depth indicator (set at a depth of 1/2 inch) with the following seed mixture, in pounds of Pure Live Side (PLS), per acre.

( ) A. Seed Mixture 1 (Loamy Site)
Lehmanns Lovegrass (Eragrostis lehmannlana) 1.0
Side Oats Grass (Bouteloua curtipendula) 5.0
Sand Dropseed (Sporobolus cryptandrus) 1.0

( ) B. Seed Mixture 2 (Sandy Sites)
Sand Dropseed (Sporobolus cryptandrus) 1.0
Sand Lovegrass (Eragrostis trichodes) 1.0
Plains Bristlegrass (Setaria magrostachya) 2.0

( ) C. Seed Mixture 3 (Shallow Sites)
Sideoats Grama (Boute curtipendula) 1.0
Lehmanns Lovegrass (Eragrostis lenmannisna) 1.0
or Boar Lovegrass (E. chloromalas)

(✓) D. Seed Mixture 4 ("Gyp" Sites)
Alkali Sacaton (Sporobolus airoides) 1.0
Four-Wing Saltbush (Atriplex canescens) 5.0

Seeding should be done either late in the fall (September 15 - November 15, before freeze up) or early as possible the following spring to take advantage of available ground moisture.

( ) Other

DISTRICT I
P.O. Box 1980, Hobbs, NM 88241-1980

DISTRICT II
P.O. Drawer DD, Artesia, NM 88211-0719

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

DISTRICT IV
P.O. Box 2088, Santa Fe, NM 87504-2088

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-102
Revised February 10, 1994
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

OIL CONSERVATION DIVISION
P.O. Box 2088
Santa Fe, New Mexico 87504-2088

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
30-025-34438	83280	Quail Ridge; Morrow

Property Code	Property Name	Well Number
20068	MALLON 33 FEDERAL	2

OGRID No.	Operator Name	Elevation
13925	MALLON OIL COMPANY	3685

Surface Location

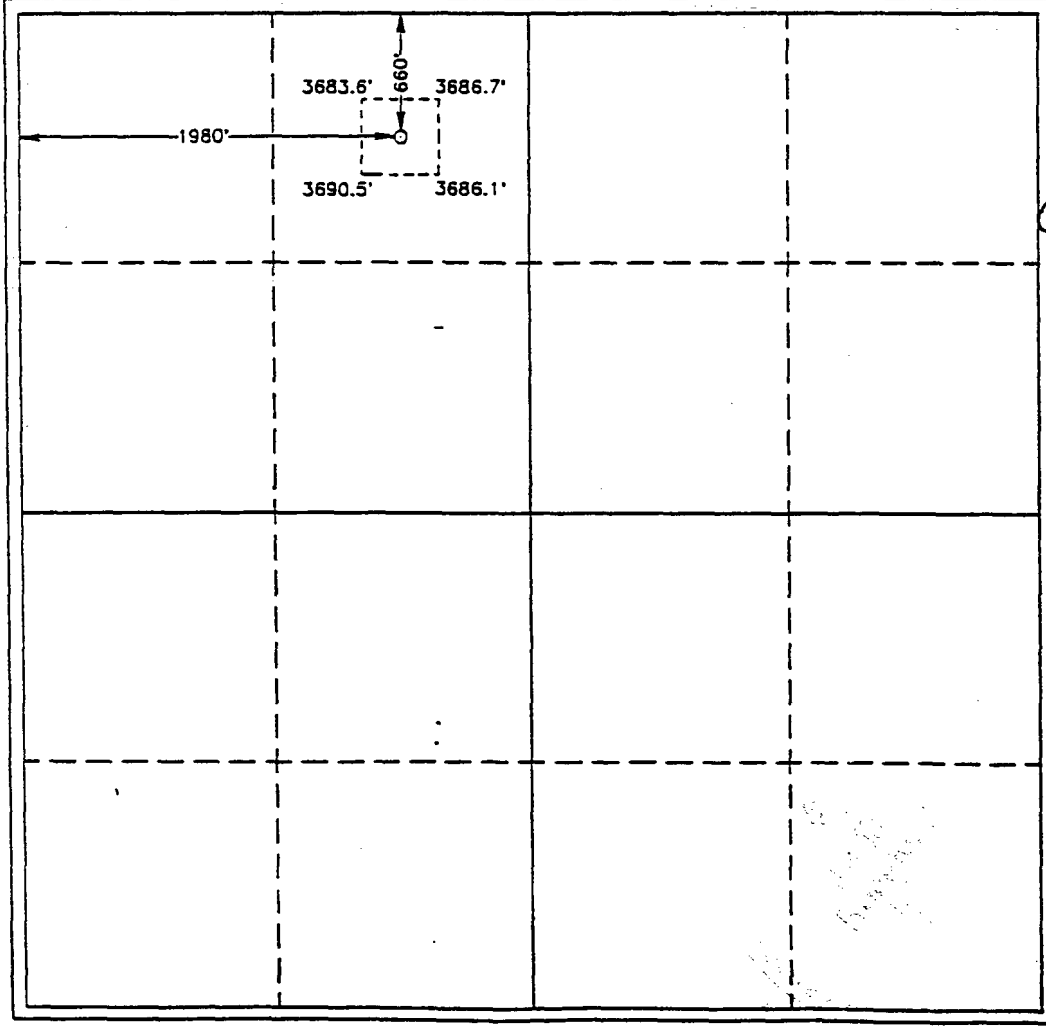
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
C	33	19 S	34 E		660	NORTH	1980	WEST	LEA

Bottom Hole Location If Different From Surface

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

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



OPERATOR CERTIFICATION

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

Signature

Duane C. Winkler
Printed Name

Production Superintendent
Title

11/13/96
Date

SURVEYOR CERTIFICATION

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

NOVEMBER 9, 1996

Date Surveyed JLP

Signature & Seal of Professional Surveyor

RONALD J. EIDSON NEW MEXICO REGISTERED PROFESSIONAL SURVEYOR

Certificate No. GARY L. WEST 676
RONALD J. EIDSON 3239
MARY G. EIDSON 12641

11-13-96

W.O. Num. 96-11-1470

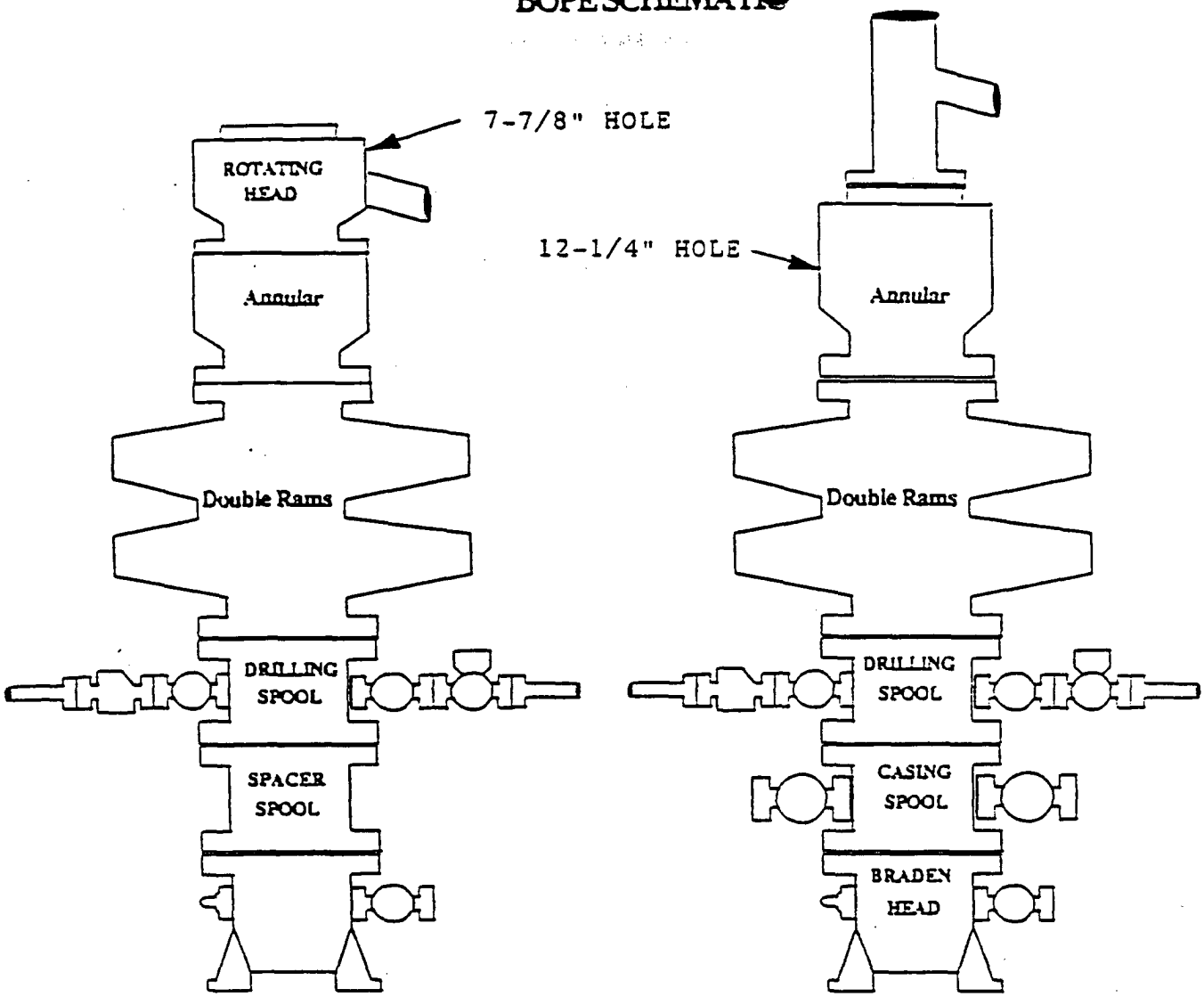
Exhibit A

Attachment to Exhibit #1

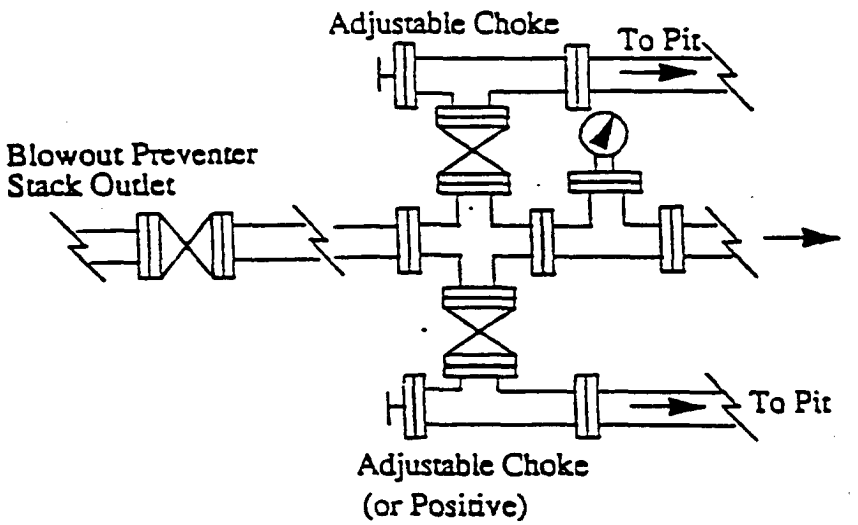
NOTES REGARDING THE BLOWOUT PREVENTERS

1. Drilling nipple to be so constructed that it can be removed without use of a welder through rotary table opening, with minimum ID equal to preventer bore.
2. Wear ring to be properly installed in head.
3. Blow out preventer and all fittings must be in good condition, 3000 psi WP minimum.
4. All fittings to be flanged.
5. Safety valve must be available on rig floor at all times with proper connections, valve to be full bore 3000 psi WP minimum.
6. All choke and fill lines to be securely anchored, especially ends of choke stem.
7. Equipment through which bit must pass shall be at lease as large as the diameter of the casing being drilled through.
8. Kelly cock on kelly.
9. Extension wrenches and hand wheels to be properly installed.
10. Blow out preventer control to be located as close to driller's position as feasible.
11. Blow out preventer closing equipment to include minimum 40 gallon accumulator, two independent sources of pump power on each closing unit installation, and meet all API specifications.

BOPE SCHEMATIC



Choke Manifold Requirement (3000 psi WP)

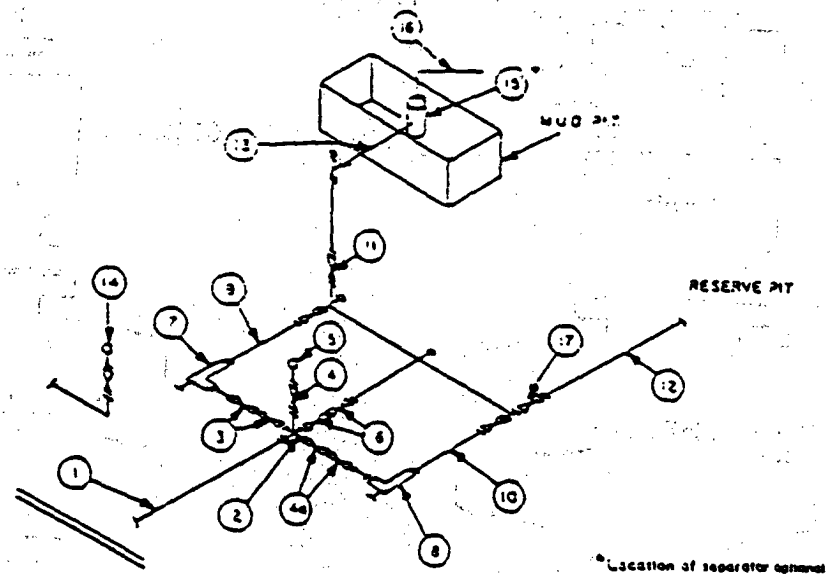


Minimum 4" Nominal choke and kill lines

Exhibit 1

MINIMUM CHOKE MANIFOLD
3,000, 5,000 and 10,000 PSI Working Pressure

3 MWP - 5 MWP - 10 MWP



MINIMUM REQUIREMENTS											
		3,000 MWP			5,000 MWP			10,000 MWP			
No		I D	NOMINAL	RATING	I D.	NOMINAL	RATING	I D	NOMINAL	RATING	
1	Line from drilling spool		3"	3,000		3"	5,000		3"	10,000	
2	Cross 3"x3"x3"x2"			3,000			5,000				
	Cross 3"x3"x3"x3"									10,000	
3	Valves(1) Gate ☐ Plug ☐(2)	3-1/8"		3,000	3-1/8"		5,000	3-1/8"		10,000	
4	Valve Gate ☐ Plug ☐(2)	1-13/16"		3,000	1-13/16"		5,000	1-13/16"		10,000	
4a	Valves(1)	2-1/16"		3,000	2-1/16"		5,000	3-1/8"		10,000	
5	Pressure Gauge			3,000			5,000			10,000	
6	Valves Gate ☐ Plug ☐(2)	3-1/8"		3,000	3-1/8"		5,000	3-1/8"		10,000	
7	Adjustable Choke(3)	2"		3,000	2"		5,000	2"		10,000	
8	Adjustable Choke	1"		3,000	1"		5,000	2"		10,000	
9	Line		3"	3,000		3"	5,000		3"	10,000	
10	Line		2"	3,000		2"	5,000		3"	10,000	
11	Valves Gate ☐ Plug ☐(2)	3-1/8"		3,000	3-1/8"		5,000	3-1/8"		10,000	
12	Lines		3"	1,000		3"	1,000		3"	2,000	
13	Lines		3"	1,000		3"	1,000		3"	2,000	
14	Remote reading compound standpipe pressure gauge			3,000			5,000			10,000	
15	Gas Separator		2"x5'			2"x5'			2"x5'		
16	Line		4"	1,000		4"	1,000		4"	2,000	
17	Valves Gate ☐ Plug ☐(2)	3-1/8"		3,000	3-1/8"		5,000	3-1/8"		10,000	

(1) Only one required in Class 3M.

(2) Gate valves only shall be used for Class 10M.

(3) Remote operated hydraulic choke required on 5,000 psi and 10,000 psi for drilling.

EQUIPMENT SPECIFICATIONS AND INSTALLATION INSTRUCTIONS

1. All connections in choke manifold shall be welded, studded, flanged or Cameron clamp of comparable rating.
2. All flanges shall be API 6B or 6BX and ring gaskets shall be API RX or BX. Use only BX for 10 MWP.
3. All lines shall be securely anchored.
4. Chokes shall be equipped with tungsten carbide seats and needles, and replacements shall be available.
5. Choke manifold pressure and standpipe pressure gauges shall be available at the choke manifold to assist in regulating chokes. As an alternate with automatic chokes, a choke manifold pressure gauge shall be located on the rig floor in conjunction with the standpipe pressure gauge.
6. Line from drilling spool to choke manifold should be as straight as possible. Lines downstream from chokes shall make turns by large bends or 90° bends using bull plugged tees.

Exhibit 1

RESERVE PIT CONSTRUCTION STANDARDS

The reserve pit shall be constructed entirely in cut material and lined with 6 mil plastic.

Mineral material extracted during construction of the reserve pit may be used for development of the pad and access road as needed. Removal of any additional material on location must be purchased from BLM.

Reclamation: Reclamation of this type of deep pit will consist of pushing the pit walls into the pit when sufficiently dry to support track equipment. The pit liner is NOT TO BE RUPTURED to facilitate drying; a ten month period after completion of the well is allowed for drying of the pit contents.

The pit area must be contoured to the natural terrain with all contaminated drilling mud buried with at least 3 feet of clean soil. The reclaimed area will then be seeded as specified in this permit.

OPTIONAL PIT CONSTRUCTION STANDARDS

The reserve pit may be constructed in predominantly fill material if:

1) Lined as specified above and,

2) A borrow/caliche/gravel pit can be constructed immediately adjacent to the reserve pit and is capable of containing all reserve pit contents. The mineral material removed in the process can be used for pad and access road construction. However, a material sales contract must be purchased from BLM prior to removal of the material.

Reclamation of the reserve pit consists of bulldozing all reserve pit contents and contaminants into the borrow pit and covering with a minimum of 3 feet of clean soil material. The entire area must be recontoured, all trash removed, and reseeded as specified in this permit.

CULTURAL

Whether or not an archaeological survey has been completed and notwithstanding that operations are being conducted as approved, the lessee/operator/grantee shall notify the BLM immediately if previously unidentified cultural resources are observed during surface disturbing operations. From the time of the observation, the lessee/operator/grantee shall avoid operations that will result in disturbance to these cultural resources until directed to proceed by BLM.

TRASH PIT STIPS

All trash, junk and other waste material shall be contained in trash cages or bins to prevent scattering and will be removed and deposited in an approved sanitary landfill. Burial on site is not permitted.

DRILLING PROGRAM

Attached to Form 3160-3
Mallon Oil Company
Mallon 33 Federal No. 2
NE NW 660' FNL and 1980' FWL Unit C
Sec. 33, T19S-R34E
Lea County, New Mexico
Lease Number: NM-57285

1. Geologic Name of Surface Formation : Quaternary Alluvium

2. Estimated Tops of Important Geologic Markers

Quaternary Alluvium	Surface	San Andres	5157'
Rustler	1658'	Delaware	6070'
Top of Salt	1687'	Bone Springs	8136'
Base of Salt	3232'	Wolfcamp	10,861'
Yates	3423'	Strawn	12,164'
7 Rivers	3785'	Atoka	12,416'
Queen	4463'	Morrow	12,747'
Grayburg	4925'	TD	13,800'

3. The Estimated Depths of Anticipated Fresh Water, Oil or Gas:

Quaternary Alluvium	300'	Fresh water
Bone Springs	8400'	Oil
Morrow	13,500'	Gas

No other formations are expected to give up oil, gas, or fresh water in measurable quantities. The surface fresh water sands will be protected by setting 13-3/8" casing at 500' and circulating cement back to surface. Potash will be protected by setting 9-5/8" casing at 5000' 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 cementing stage tool into the 5-1/2" production casing which will be run to TD.

3. DRAINAGE

Drainage control shall be ensured over the entire road through the use of borrow ditches, outsloping, insloping, natural rolling topography, lead-off (turnout) ditches, culverts, and/or drainage dips.

A. All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval for lead-off ditches shall be determined according to the following table, but may be amended depending upon existing soil types and centerline road slope (in %):

SPACING INTERVAL FOR TURNOUT DITCHES

Percent slope	Spacing interval
0% - 4%	400' - 150'
4% - 6%	250' - 125'
6% - 8%	200' - 100'
8% - 10%	150' - 75'

A typical lead-off ditch has a minimum depth of 1 foot below and a berm 6 inches above natural ground level. The berm will be on the down-slope side of the lead-off ditch. The ditch end will tie into vegetation whenever possible.

For this road the spacing interval for lead-off ditches shall be at

/✓/ 400 foot intervals.

/__/ ____ foot intervals.

/__/ locations staked in the field as per spacing intervals above.

/__/ locations delineated on the attached map.

B. Culvert pipes shall be used for cross drains where drainage dips or low water crossings are not feasible. The minimum culvert diameter must be 18 inches. Any culvert pipe installed shall be of sufficient diameter to pass the anticipated flow of water. Culvert location and required diameter are shown on the attached map (Further details can be obtained from the Roswell District Office or the appropriate Resource Area Office).

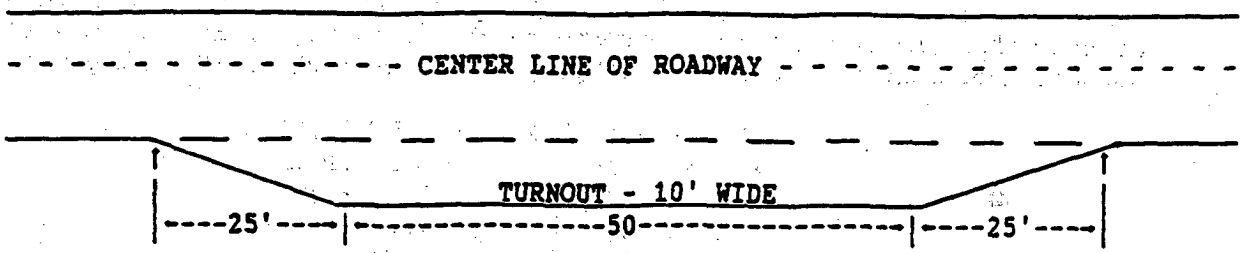
C. On road slopes exceeding 2%, drainage dips shall drain water into an adjacent lead-off ditch. Drainage dip location and spacing shall be determined by the formula:

$$\text{spacing interval} = \frac{400'}{\text{road slope in \%}} + 100'$$

Example: 4% slope: spacing interval = $\frac{400}{4}$ + 100 = 200 feet

4. TURNOUTS

Unless otherwise approved by the Authorized Officer, vehicle turnouts will be required. Turnouts will be located at 2000-foot intervals, or the turnouts will be intervisible, whichever is less. Turnouts will conform to the following diagram:



STANDARD TURNOUT - PLAN VIEW

5. SURFACING

Surfacing of the road or those portions identified on the attached map may, at the direction of the Authorized Officer, be required, if necessary, to maintain traffic within the right-of-way with caliche, gravel, or other surfacing material which shall be approved by the Authorized Officer. When surfacing is required, surfacing materials will be compacted to a minimum thickness of six inches with caliche material. The width of surfacing shall be no less than the driving surface. Prior to using any mineral materials from an existing or proposed Federal source, authorization must be obtained from the Authorized Officer.

6. CATTLEGUARDS

Where used, all cattleguard grids and foundation designs and construction shall meet the American Association of State Highway and Transportation Officials (AASHTO) Load Rating H-20, although AASHTO U-80 rated grids shall be required where heavy loads (exceeding H-20 loading), are anticipated (See BLM standard drawings for cattleguards). Cattleguard grid length shall not be less than 8 feet and width of not less than 14 feet. A wire gate (16-foot minimum width) will be provided on one side of the cattleguard unless requested otherwise by the surface user.

7. MAINTENANCE

The holder shall maintain the road in a safe, usable condition. A maintenance program shall include, but not be limited to blading, ditching, culvert installation, culvert cleaning, drainage installation, cattleguard maintenance, and surfacing.

8. PUBLIC ACCESS

Public access along this road will not be restricted by the holder without specific written approval being granted by the Authorized Officer. Gates or cattleguards on public lands will not be locked or closed to public use unless closure is specifically determined to be necessary and is authorized in writing by the Authorized Officer.

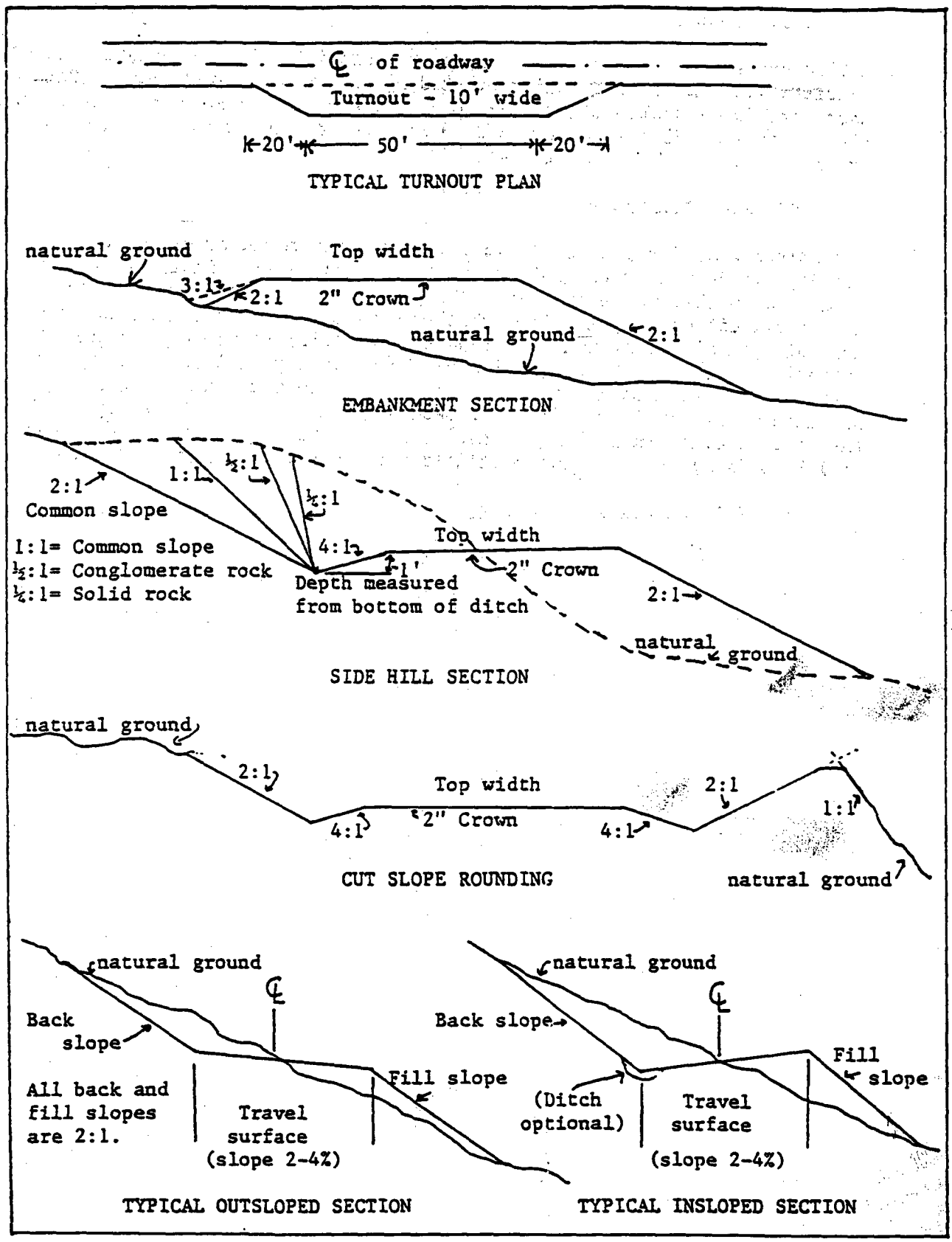
9. CULTURAL RESOURCES

Any cultural and/or paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on the holder's behalf, on public or Federal land shall be immediately reported to the authorized officer. The 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 actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to the proper mitigation measures will be made by the authorized officer after consulting with the holder.

10. SPECIAL STIPULATIONS: None

FIGURE 1: CROSS SECTIONS AND PLANS FOR TYPICAL ROAD CONSTRUCTION REPRESENTATIVE OF BLM RESOURCE, AND HIGHER CLASS, ROADS.

(Travel way, top width, driving surface, and travel surface are synonomous.)



CONDITIONS OF APPROVAL - DRILL

Operator's Name: Mallon Oil Company
Well No. 2 - Mallon 33 Federal
Location: 660' FNL & 1980' FWL sec. 33, T. 19 S., R. 34 E.
Lease: NM-57285

.....

I. DRILLING OPERATIONS REQUIREMENTS: CAPITAN CONTROLLED WATER BASIN

The Bureau of Land Management (BLM) is to be notified at (505) 393-3612 in sufficient time for a representative to witness:

1. Spudding

2. Cementing casing: 13-3/8 inch 9-5/8 inch 5-1/2 inch

3. Include the API No. assigned to well by NMOCD on the subsequent report of setting the first casing string.

II. CASING:

1. 13-3/8 inch surface casing should be set at 500 feet, below usable water and circulate cement to the surface. If cement does not circulate to the surface this BLM office shall be notified and a temperature survey or cement bond log shall be run to verify the top of the cement. Remedial cementing shall be completed prior to drilling out that string.

2. Minimum required fill of cement behind the 9-5/8 inch intermediate casing is to circulate to surface.

3. Minimum required fill of cement behind the 5-1/2 inch production casing is sufficient to tie back 200 feet into 9-5/8 inch intermediate casing set at 5000 feet.

III. PRESSURE CONTROL:

1. Before drilling below the 13-3/8 inch surface casing, the blowout preventer assembly shall consist of a minimum of One Annular Preventer or Two Ram-Type Preventers and a Kelly Cock/Stabbing Valve

2. Minimum working pressure of the blowout preventer and related equipment (BOPE) shall be 3000 psi.

3. After setting the 9-5/8 inch intermediate casing string and before drilling into the Delaware formation, the BOPE shall be tested as described in Onshore Order No. 2. Any equipment failing to test satisfactorily shall be repaired or replaced.

4. The results of the test will be reported to the BLM Hobbs Office at 414 West Taylor, Hobbs, New Mexico 88240.

IV. OTHER:

1. A Hydrogen Sulfide Contingency Plan should be activated prior to drilling in the Delaware formation. A copy of the plan shall be posted at the drilling site.

2. A Communitization Agreement covering the acreage dedicated to this well must be filed for approval with the BLM. The effective date of the agreement shall be prior to any sales.

3. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval of this office.

EXHIBIT A

BLM Serial Number: NM-57285

Company Reference: #2 MALLON 33 FEDERAL

STANDARD STIPULATIONS FOR PERMANENT RESOURCE ROADS
THE ROSWELL DISTRICT, BLM

The holder/grantee/permittee shall hereafter be identified as the holder in these stipulations. The Authorized Officer is the person who approves the Application for Permit to Drill (APD) and/or Right-of-Way (ROW).

GENERAL REQUIREMENTS

The holder shall minimize disturbance to existing fences and other improvements on public domain surface. 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 make a documented good-faith effort to 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.

Holder agrees to comply with the following stipulations:

1. ROAD WIDTH AND GRADE

The road will have a driving surface of 14 feet (all roads shall have a minimum driving surface of 12 feet, unless local conditions dictate a different width). The maximum grade is 10 percent unless the box below is checked. Maximum width of surface disturbance from construction will be 30 feet.

/__/ Those segments of road where grade is in excess of 10% for more than 300 feet shall be designed by a professional engineer.

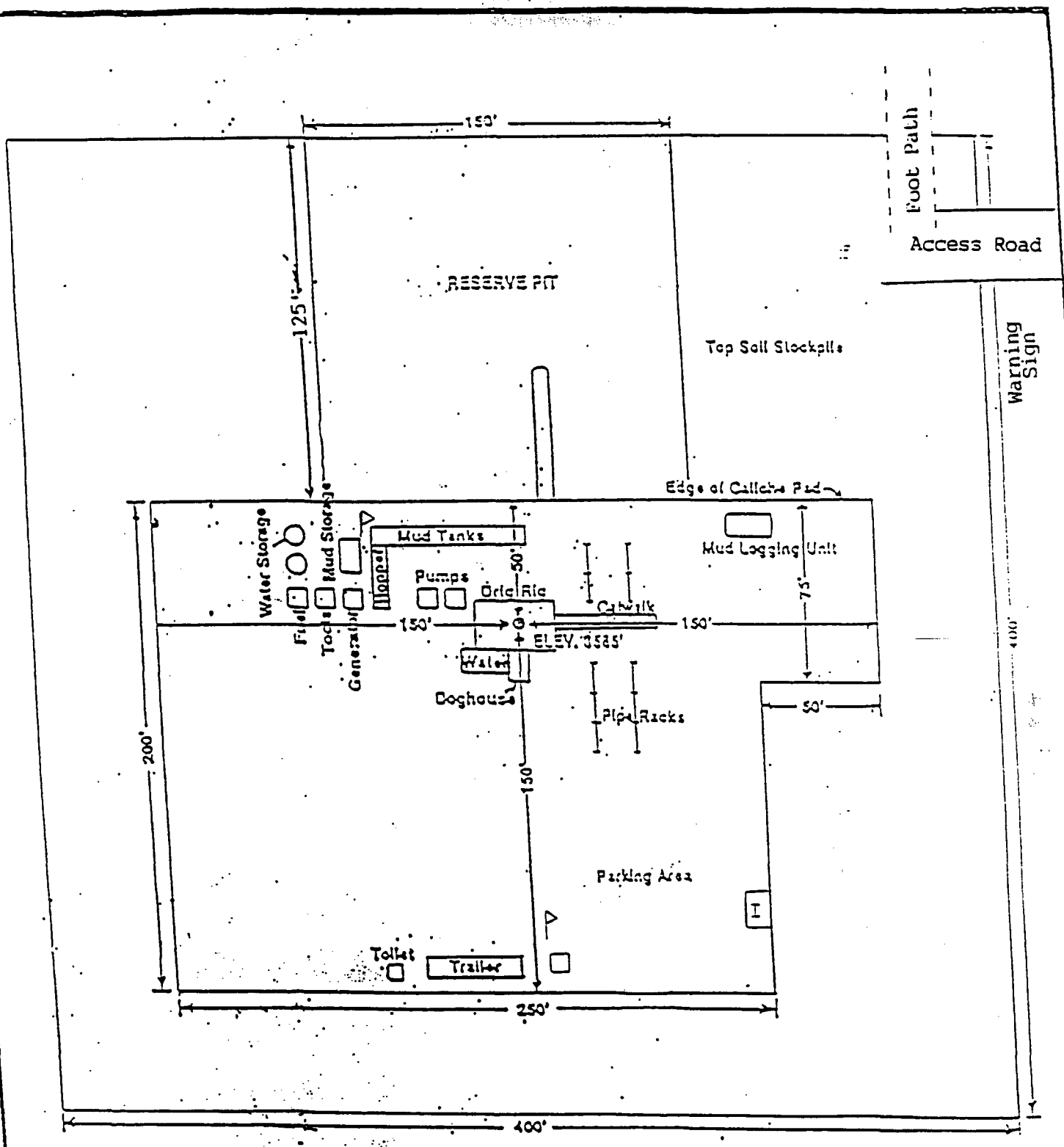
2. CROWNING AND DITCHING

Crowning with materials on site and ditching on one side of the road on the uphill side will be required. The road cross-section will conform to the cross section diagrams in Figure 1. If conditions dictate, ditching may be required for both sides of the road; if local conditions permit, a flat-bladed road may be considered (if these conditions exist, check the appropriate box below). The crown shall have a grade of approximately 2% (i.e., 1" crown on a 12' wide road).

/X/ Ditching will be required on both sides of the roadway as shown on the attached map or as staked in the field.

/__/ Flat-blading is authorized on segment(s) delineated on the attached map.

Prevail Wind Direction: Northwest



△ H_2S Monitors with alarms at the bell nipple and shale shaker

Wind Direction Indicators

□ Safe briefing areas with Caution signs and protective breathing equipment, min. 150 feet from wellhead, (I) designates primary area.

Exhibit F

WARNING

YOU ARE ENTERING AN H_2S 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. CHECK WITH A MALLON OIL COMPANY REPRESENTIVE AT MAIN OFFICE

MALLON OIL COMPANY

1-505-885-4596

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:

1. The hazards and characteristics of hydrogen sulfide (H_2S).
2. The proper use and maintenance of personal protective equipment and life support systems.
3. The proper use of H_2S detectors, alarms, warning systems, briefing areas, evacuation procedures, and prevailing winds.
4. The proper techniques for first aid and rescue procedures.

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

1. The effects of H_2S on metal components. If high tensile tubulars are to be used, personnel will be trained in their special maintenance requirements.
2. Corrective action and shut-in procedures when drilling or reworking a well and blowout prevention and well control procedures.
3. The contents and requirements of the H_2S Drilling Operations Plan and the Public Protection Plan.

There will be an initial training session just prior to encountering a known or probable H_2S zone (within 3 days or 500 feet) and weekly H_2S and well control drills for all personnel in each crew. The initial training session shall include a review of the site specific H_2S Drilling Operations Plan and the Public Protection Plan. This plan shall be available at the well site. All personnel will be required to carry documentation that they have received the proper training.

II. H_2S SAFETY EQUIPMENT AND SYSTEMS

Note: All H_2S safety equipment and systems will be installed, tested, and operational when drilling reaches a depth of 500 feet above, or three days prior to penetrating the first zone containing or reasonably expected to contain H_2S.

1. Well Control Equipment:
   A. Choke manifold with a minimum of one remote choke.
   B. Blind rams and pipe rams to accommodate all pipe sizes with properly sized closing unit.

2. Protective equipment for essential personnel:

   A. Mark II Surviveair 30-minute units located in the dog house and at briefing areas, as indicated on well site diagram.

3. H_2S detection and monitoring equipment:

   A. 2 - portable H_2S monitors positioned on location for best coverage and response. These units have warning lights and audible sirens when H_2S levels of 20 ppm are reached.

4. Visual warning systems:

   A. Wind direction indicators as shown on well site diagram.

   B. 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.

5. Mud Program:

   A. The mud program has been designed to minimize the volume of H_2S circulated to the surface. Proper mud weight, safe drilling practices, and the use of H_2S scavengers will minimize hazards when penetrating H_2S bearing zones.

6. Metallurgy:

   A. All drill strings, casings, tubing, wellhead, blowout preventers, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H_2S service.

   B. All elastomers used for packing and seals shall be H_2S trim.

7. Communication

   A. Cellular telephone communications in company vehicles.

8. Well Testing:

   A. Drill stem testing will be performed with a minimum number of personnel in the immediate vicinity which are necessary to safely and adequately conduct the test. The drill stem testing will be conducted during daylight hours and formation fluids will not be flowed to the surface. All drill stem testing operations conducted in an H_2S environment will use the closed chamber method of testing.

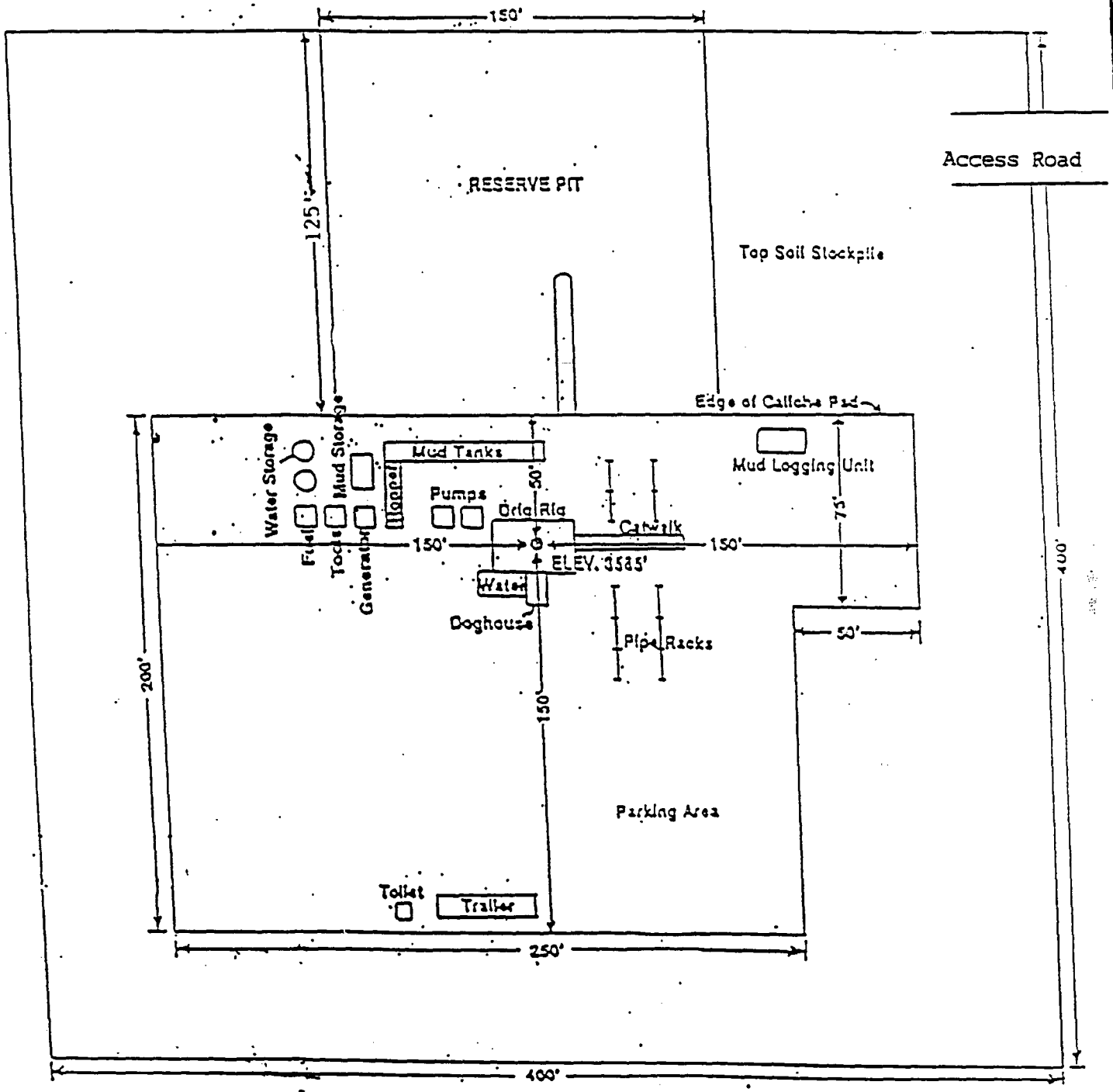

150'
Access Road
RESERVE PIT
125'
Top Soil Stockpile
Edge of Caliche Pad
Water Storage
Fuel
Tools
Mud Storage
Generator
Hopper
Mud Tanks
50'
Pumps
Drlg Rig
Catwalk
Mud Logging Unit
75'
150'
150'
ELEV. 3585'
Water
Doghouse
Pipe Racks
50'
200'
150'
Parking Area
Toilet
Trailer
250'
400'
400'

Exhibit D

MALLON OIL COMPANY

ENGINEERING CHART

SHEET NO. OF

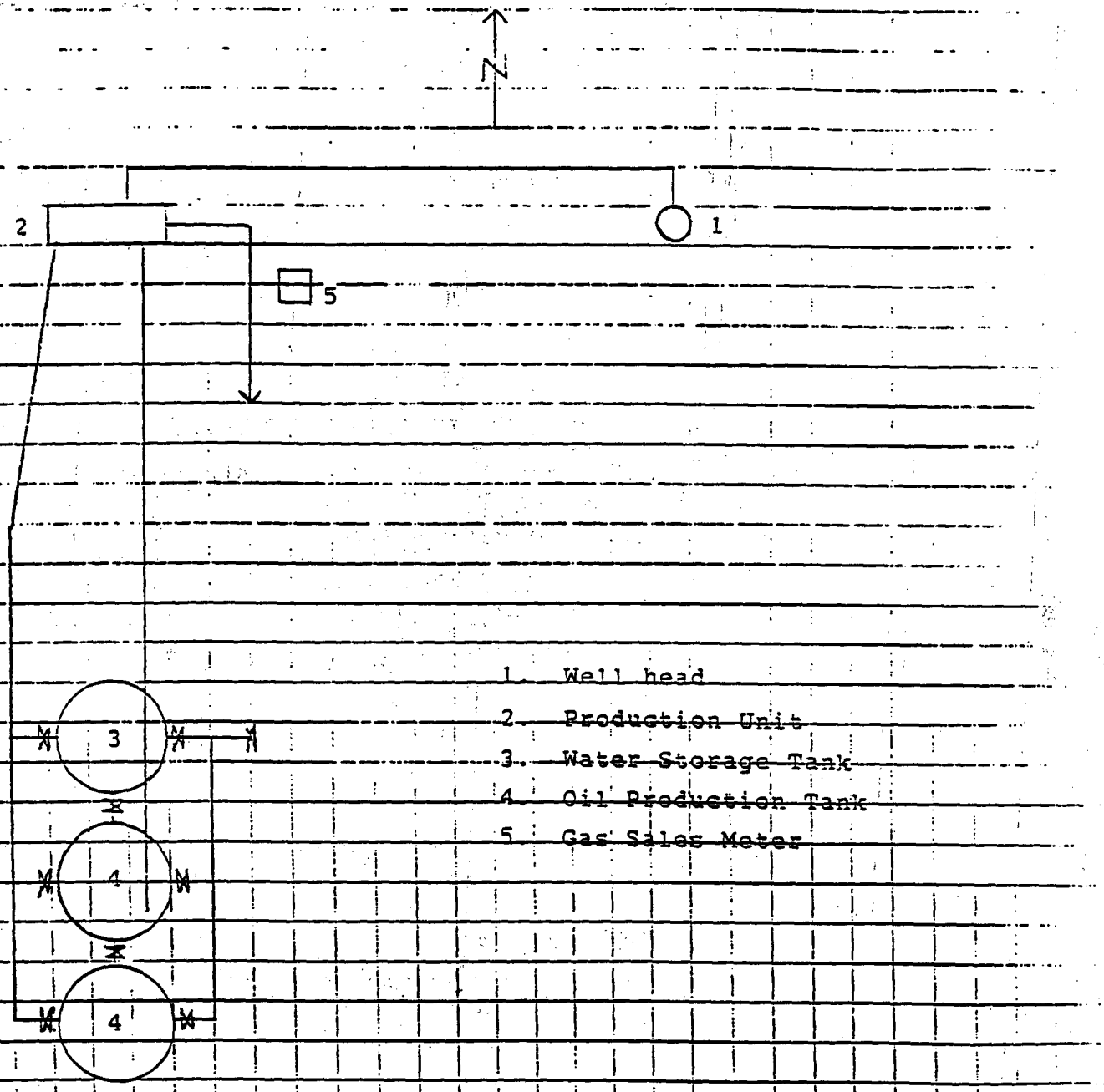
FILE

APPN

DATE

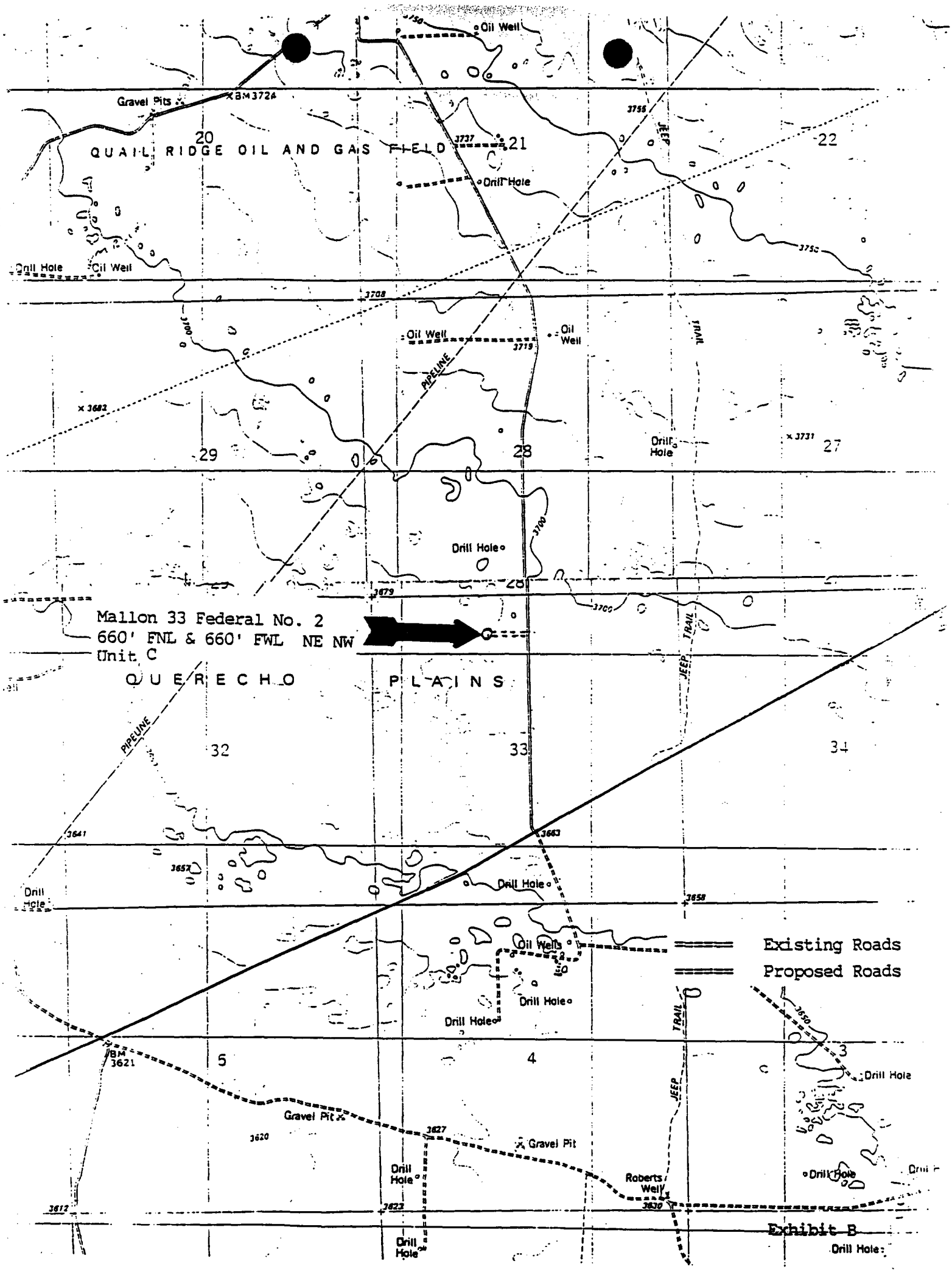
BY

SUBJECT Production Facility Layout



1. Well head
2. Production Unit
3. Water Storage Tank
4. Oil Production Tank
5. Gas Sales Meter

Exhibit E


Oil Well
Gravel Pits
BM 3724
QUAIL RIDGE OIL AND GAS FIELD
20
21
22
Drill Hole
Oil Well
Oil Well
Oil Well
PIPELINE
TRAIL
29
28
27
Drill Hole
Drill Hole
Mallon 33 Federal No. 2
660' FNL & 660' FWL NE NW
Unit C
QUERECHO PLAINS
32
33
34
PIPELINE
TRAIL
JEEP
Drill Hole
Drill Hole
Oil Wells
Drill Hole
Drill Hole
Existing Roads
Proposed Roads
BM 3621
5
4
3
Drill Hole
JEEP
TRAIL
Gravel Pit
Gravel Pit
Drill Hole
Roberts Well 1
Drill Hole
Drill Hole
Drill Hole
Exhibit B

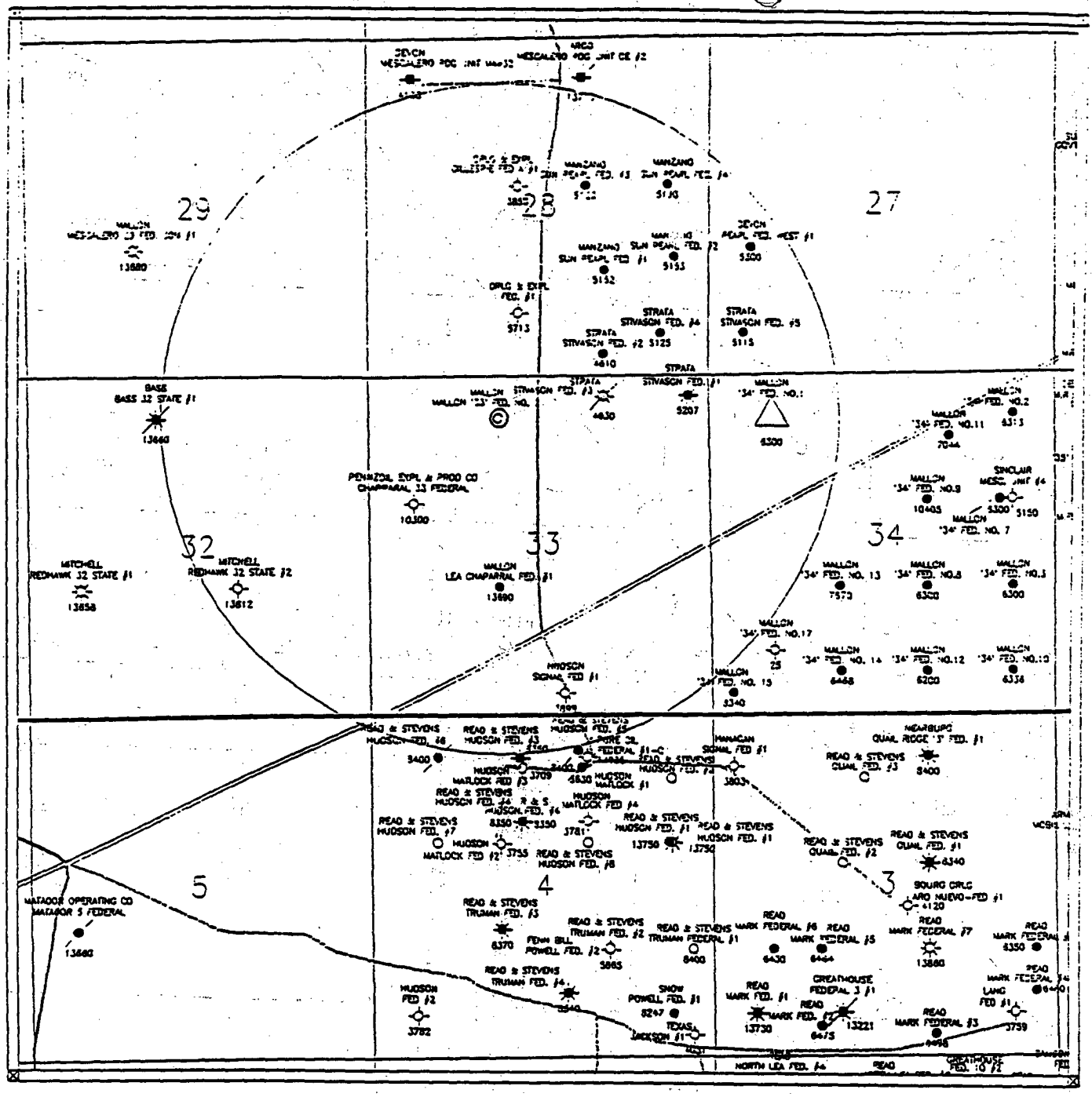

29
28
27
32
33
34
5
4
3
MALLON OIL COMPANY
Mallon '33' Federal No. 2
One Mile Radius Map
Lea County, New Mexico
660'fnl, 1980'fwl
T19S R34E
11/14/96
N
Scale 1:28000.
0.1 0. 0.1 0.2 0.3 0.4 0.5 miles

Exhibit C

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 currently exist; that the statements made in this plan are to the best of my knowledge, true and correct; and the work associated with the operations proposed herein will be performed by Mallon Oil Company and its contractors and subcontractors in conformity with this plan and the terms and conditions 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: 4-30-98

Signed: _____

Terry Lindeman
Operations Superintendent

MINIMUM BLOWOUT PREVENTER REQUIREMENTS

3,000 psi Working Pressure

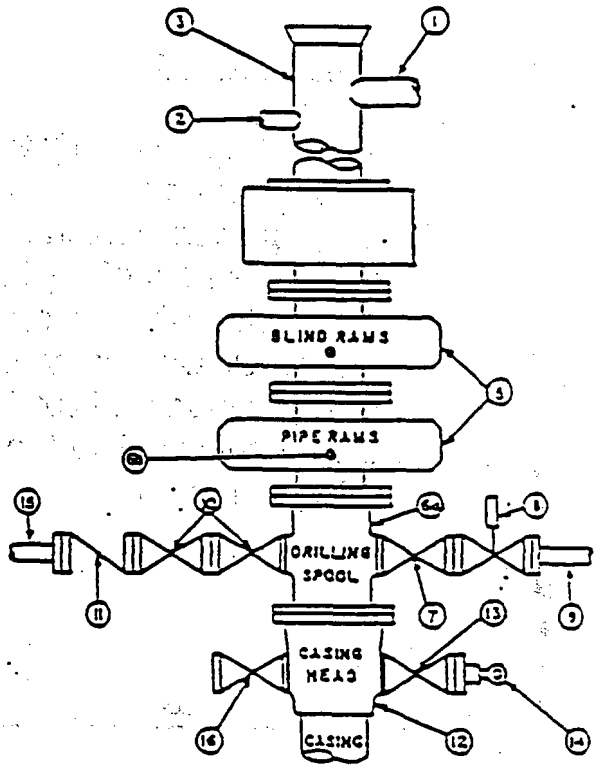
3 MWP

STACK REQUIREMENTS

No.	Item	Min. I.D.	Min. Nominal
1	Flowline		
2	Fill up line		2"
3	Drilling nipple		
	. ..		
5	Two single or one dual hydraulically operated rams		
6a	Drilling spool with 2" min. kill line and 3" min choke line outlets		
	—or—		
6b	2" min. kill line and 3" min. choke line outlets in ram. (Alternate to 6a above.)		
7	Valve Gate ☐ Plug ☐	3-1/8"	
8	Gate valve—power operated	3-1/8"	
9	Line to choke manifold		3"
10	Valves Gate ☐ Plug ☐	2-1/16"	
11	Check valve	2-1/16"	
12	Casing head		
13	Valve Gate ☐ Plug ☐	1-13/16"	
14	Pressure gauge with needle valve		
15	Kill line to rig mud pump manifold		2"

OPTIONAL			
16	Flanged valve	1-13/16"	

CONFIGURATION A



CONTRACTOR'S OPTION TO FURNISH:

1. All equipment and connections above bradenhead or casinghead. Working pressure of preventers to be 3,000 psi, minimum.
2. Automatic accumulator (80 gallon, minimum) capable of closing BOP in 30 seconds or less and, holding them closed against full rated working pressure.
3. BOP controls, to be located near drillers position.
4. Kelly equipped with Kelly cock.
5. Inside blowout preventer or its equivalent on derrick floor at all times with proper threads to fit pipe being used.
6. Kelly saver-sub equipped with rubber casing protector at all times.
7. Plug type blowout preventer tester.
8. Extra set pipe rams to fit drill pipe in use on location at all times.
9. Type RX ring gaskets in place of Type R.

MEC TO FURNISH:

1. Bradenhead or casinghead and side valves.
2. Wear bushing, if required.

GENERAL NOTES:

1. Deviations from this drawing may be made only with the express permission of MEC's Drilling Manager.
2. All connections, valves, fittings, piping, etc., subject to well or pump pressure must be flanged (suitable clamp connections acceptable) and have minimum working pressure equal to rated working pressure of preventers up through choke. Valves must be full opening and suitable for high pressure mud service.
3. Controls to be of standard design and each marked, showing opening and closing position.
4. Chokes will be positioned so as not to hamper or delay changing of choke beans. Replaceable parts for adjustable choke, other bean sizes, retainers, and choke wrenches to be conveniently located for immediate use.
5. All valves to be equipped with handwheels or handles ready for immediate use.
6. Choke lines must be suitably anchored.
7. Handwheels and extensions to be connected and ready for use.
8. Valves adjacent to drilling spool to be kept open. Use outside valves except for emergency.
9. All seamless steel control piping (3000 psi working pressure) to have flexible joints to avoid stress. Hoses will be permitted.
10. Casinghead connections shall not be used except in case of emergency.
11. Do not use kill line for routine fill-up operations.

Exhibit 1

10. Plans for Restoration of the Surface:

    A. Upon completion of the proposed operations, if the well is to be abandoned, the caliche will be removed from the location, road and returned to the pit from which it was taken. The pit area, after allowing to dry, will be broken out and leveled. The original top soil will be returned to the entire location which will be leveled and contoured to as nearly the original topography as possible.

    All trash, garbage will be hauled away in order to leave the location in an aesthetically pleasing condition.

    B. The disturbed area will be re-vegetated as recommended by the BLM.

    C. Three sides of the reserve pit will be fenced prior to and during drilling operations. At the time that the rig is removed the reserve pit will be fenced on the rig (fourth) side and flagged to prevent livestock or wildlife from being entrapped. The fencing and flagging will remain in place until the pit area is cleaned-up and leveled. No oil will be left on the surface of the fluid in the pit. The entire reserve pit will be flagged until the fluid has completely evaporated.

11. Surface Ownership:

    The well site and lease is located entirely on Federal Surface.

12. Other information:

    A. The top soil is sandy. The vegetation is native yucca, and prickly pear.

    B. There is no permanent or live water in the immediate area.

    C. Residences and other structures: No residences in the immediate area.

    D. Land use: Cattle grazing

    E. Surface ownership: The proposed well site and access road is on Federal surface and minerals.

    F. There is no evidence of any archaeological, historical or cultural sites in the area. An archaeological survey has been conducted by Desert West Archaeological Service, Carlsbad, New Mexico. The reports have been submitted to the appropriate government agencies.

13. Operations representative:

A. The field representative responsible for ensuring compliance with the approved surface use and operations plan is:

Duane C. Winkler
Mallon Oil Company
PO. Box 3256
Carlsbad, NM 88220
Office Phone: (505) 885-4596
Home Phone: (505) 885-3148

5. Location and Type of Water Supply:

The well will be drilled with a combination brine and fresh water mud system as outlined in the drilling program. The water will be obtained from commercial water stations in the area and hauled to the location by transport truck over the existing and proposed access roads shown in Exhibit "B". If a commercial fresh water source is nearby, fasline may be laid along existing roads and fresh water pumped to the well. No water well will be drilled on the location.

6. Source of Construction Materials:

All caliche required for construction of the drill pad and the proposed new access road (approximately 2500 cubic yards) will be obtained from a BLM-approved caliche pit. All roads and pads will be constructed of 6" of rolled and compacted caliche.

7. Methods of Handling Waste Disposal:

A. Drill cuttings not retained for evaluation purposes will be disposed into the reserve pit.

B. Drilling fluids will be contained in steel mud tanks. The reserve pit will contain any excess drilling fluid or flow from the well during drilling, cementing, and completion operations. The reserve pit will be an earthen pit, approximately 200' x 100' x 6' deep and fenced on three sides prior to drilling. It will be fenced on the fourth side immediately following rig removal. The reserve pit will be plastic-lined (5-7 mil thickness) to minimize loss of drilling fluids and saturation of the ground with brine water.

C. Water produced from the well during completion may be disposed into the reserve pit or a steel tank (depending on the rates). After the well is permanently placed on production, produced water will be collected in tanks (fiberglass or steel) until hauled by transport to an approved disposal system; produced oil will be collected in steel tanks until sold.

D. A portable chemical toilet will be provided on the location for human waste during the drilling and completion operations.

E Garbage and trash produced during drilling or completion operations will be contained in portable trash basket and hauled to approved disposal facilities. All water and fluids will be disposed of into the reserve pit. Salts and other chemicals produced during drilling or testing will be disposed into the reserve pit. No toxic waste or hazardous chemicals will be produced by this operation.

F. After the rig is moved out and the well is either completed or abandoned, all waste materials will be cleaned up within 30 days. No adverse materials will be left on the location. The reserve pit will be completely fenced and flagged and kept closed until it has dried. When the reserve pit is dry enough to breakout and fill and, as weather permits, the unused portion of the well site will be leveled and re-seeded as per BLM specifications. Only that part of the pad required for production facilities will be kept in use. In the event of a dry hole, only a dry-hole marker will remain.

8. Ancillary Facilities:

No airstrip, campsite, or other facilities will be built as a result of the operations on this well.

9. Well site layout:

A. Exhibit "D" shows the relative location and dimensions of the well pad, reserve pits, and location of major rig components are shown. Top soil, if available, will be stockpiled per BLM specifications as determined at the on site-inspection. Because the pad is almost level no major cuts will be required.

B. Exhibit "D" shows the planned orientation for the rig and associated drilling equipment, reserve pit, pipe racks, turn-around and parking areas, and access road. No permanent living facilities are planned but a temporary foreman/toolpusher's trailer will be on location during the drilling operations.

C. The reserve pit will be lined with a high-quality plastic sheeting (5-7 mil thickness).

(D) A mud logging unit complete with H2S detector will be continuously monitoring drilling penetration rate and hydrocarbon shows from 5000; to TD.

8. Testing, Logging and Coring Program:

(A) Drill stem tests will be run on the basis of drilling shows.

(B) The electric logging program will consist of GR-Dual Laterolog-MSFL and GR-Sonic from TD to intermediate casing and GR-Compensated-Neutron-Density from TD to surface. Selected SW cores will be taken in zones of interest.

(C) No conventional coring is anticipated.

(D) Further testing procedures will be determined after the 5-1/2" production casing has been cemented at TD based on drill shows, log evaluation and drill stem test results.

9. Abnormal Conditions, Pressures, Temperatures, & Potential Hazards:

No abnormal pressures or temperatures are anticipated. The estimated bottom hole temperature (BHT) at TD is 195° F and estimated maximum bottom hole pressure (BHP) is 5000 psig. No hydrogen sulfide or other hazardous gases or fluids have been encountered, reported or are known to exist at this depth in this area. No major loss circulation zones have been reported in offsetting wells.

10. Anticipated Starting Date and Duration of Operations:

Road and location work will not begin until approval has been received from the BLM. The anticipated spud date is April 1, 1997. Once commenced, the drilling operation should be finished in approximately 40 days. If the well is productive, an additional 30 days will be required for completion and testing before a decision is made to install permanent facilities.

Multi-Point Surface Use and Operation Plan

Attached to Form 3160-3
Mallon Oil Company
Mallon 33 Federal No. 2
NE NW 660' FNL and 1980' FWL Unit C
Sec. 33, T19S-R34E
Lea County, New Mexico
Lease Number: NM-57285

1. Existing Roads:

   A. The well site and elevation plat for the proposed well is shown in Exhibit "A". It was staked by John West Engineering, Hobbs, NM.

   B. All roads to the location are shown in Exhibit "B". The existing roads are illustrated in pink and are adequate for travel during drilling and production operations. Upgrading of the road prior to drilling will be done where necessary as determined during the on-site inspection.

   C. Directions to location: Go west 34 miles from Hobbs, New Mexico on Hwy. 62/180. Turn northwest on lease road and go 1.0 mile. Turn east and travel 1/4 mile to location.

   D. 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.

2. Proposed Access Road:

   Exhibit "B" shows the 697' of new access road to be constructed and is illustrated in yellow. The road will be constructed as follows:

   A. The maximum width of the running surface will be 15'. 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 on-site inspection.

   B. The average grade will be less than 1%.

   C. No turnouts are planned.

   D. No culverts, cattle guard, gates, low-water crossings, or fence cuts are necessary.

4. Proposed Casing Program:

Hole Size	Interval	Casing OD	Casing weight grade. Jt.. Type Cond
25"	0'-40'	20"	Conductor, 0.25" wall thickness
17-1/2"	0'-500'	13-3/8"	48# H40 STC
12-1/4"	500'-5000'	9-5/8"	500'-2500' 9-5/8" 36# K-55 STC 2500'-5000' 9-5/8" 40# S80 STC
7-7/8"	5000'-TD	5-1/2"	0'-2800' 5-1/2" 17# N80 Butt 2800'-9000' 5-1/2" 17# N80 LTC 9000'-TD 5-1/2" 17# S95 LTC

Cement Program:

20" Conductor casing:	Cemented with ready-mix to surface
13-3/8" Surface casing:	Lead Slurry: 270 sks 35:65 Poz + 6% gel + 1/2# Celloseal + 2% CaCl2 Tail: 200 sks Class C + 1/4# Celloseal + 2% CaCl2
9-5/8" Intermediate casing:	Lead Slurry: 800 sks 35:65 Poz + 6% gel + 1/4# Celloseal + 2% CaCl2. Tail: 200 sks Class C +1/4# Celloseal + 2% CaCl2
5-/2" Production casing:	930 sks Super C modified + 15# Poz A + 11# BA-90 + 8# gilsonite + .44# FL-52 + .44# FL-25 This cement slurry is designed to bring TOC to 5000'

5. Minimum Specifications for Pressure Control:

The blowout preventer equipment (BOP) shown in Exhibit #1 will consist of a double ram-type (3000 psi WP) preventer and a bag-type (hydril) preventer (3000 psi WP). Both units will be hydraulically operated and the ram-type preventer will be equipped with blind rams on top and 4-1/2" drill pipe rams on bottom. Both BOPs will be nippled up on 13-3/8" surface casing and used continuously until TD is reached. All BOPs and accessory equipment will be tested to 1000 psi before drilling out of surface casing. Before drilling out of intermediate casing, the ram-type BOP and accessory equipment will be tested to 3000 psi and the hydril to 70% or rated working pressure (2100 psi). 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 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 3000 psi WP rating.

6. Types and Characteristics of the Proposed Mud System:

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

Depth	Type	Weight (ppg)	Viscosity (sec)	Water loss (cc)
0'-500'	Fresh Water (spud)	8.5	40-45	N.C.
500'-5000'	Brine Water	10.0	30	N.C.
5000'-TD	Cut Brine/Brine Water	8.8-10.0	32-34	10-12 cc

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

7. Auxiliary Well Control and Monitoring Equipment:

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

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

(C) An electronic pit-volume-totalizer system will be used continuously below 8000' to monitor the mud and pump system. The drilling fluids system will also be visually monitored at all times.