

ATS-08-955
fm

OCD-ARTESIA

AUG 11 2009

Form 3160-3
(April 2004)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

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

5 Lease Serial No
NMNM-120349

6 If Indian, Allottee or Tribe Name

7 If Unit or CA Agreement, Name and No

8, Lease Name and Well No.
Elf Federal #1

9 API Well No.
30-015-25047

10 Field and Pool, or Exploratory
Dog Canyon; San Andres

11 Sec., T. R. M. or Blk. and Survey or Area

Sec. 24 T16S R27E

12 County or Parish
Eddy

13 State
NM

1a Type of work- ☐ DRILL ☒ REENTER

1b Type of Well ☒ Oil Well ☐ Gas Well ☐ Other ☐ Single Zone ☐ Multiple Zone

2 Name of Operator
Mack Energy Corporation

3a Address
P.O. Box 960 Artesia, NM 88211-0960

3b. Phone No. (include area code)
(575) 748-1288

4 Location of Well (Report location clearly and in accordance with any State requirements*)

At surface 660 FSL & 1980 FWL
At proposed prod. zone

14 Distance in miles and direction from nearest town or post office*
11 miles northeast of Artesia, 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
800

17 Spacing Unit dedicated to this well
40 acres

18 Distance from proposed*
location to nearest well, drilling, completed,
applied for, on this lease, ft. N/A

19. Proposed Depth
2800'

20 BLM/BIA Bond No. on file
NMB000286

21 Elevations (Show whether DF, KDB, RT, GL, etc.)
3537' GL

22 Approximate date work will start*
9/1/08

23 Estimated duration
3 days

24. Attachments

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

- 1 Well plat certified by a registered surveyor
- 2 A Drilling Plan.
3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO shall be filed with the appropriate Forest Service Office)

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

25 Signature *Jerry W. Sherrell*

Name (Printed/Typed)
Jerry W. Sherrell

Date
7/31/08

Title
Production Clerk

Approved by *Isi Don Peterson*

Name (Printed/Typed)
Isi Don Peterson

Date
AUG - 5 2009

FOR
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 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make, to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction

*(Instructions on page 2)

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

MR

Roswell Controlled Water Basin

APPROVAL SUBJECT TO
GENERAL REQUIREMENTS
AND SPECIAL STIPULATIONS
ATTACHED

District I
1625 N French Dr, Hobbs, NM 88240
District II
811 South First, Artesia, NM 88210
District III
1000 Rio Brazos Rd, Aztec, NM 87410
District IV
2040 South Pacheco, Santa Fe, NM 87505

State of New Mexico
EnerRy, Minerals & Natural Resources

Form C-102
Revised March 17, 1999

OIL CONSERVATION DIVISION
2040 South Pacheco
Santa Fe, NM 87505

Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-015-25047		Pool Code 17960	Pool Name Dog Canyon; San Andres
Property Code 30000	Property Name Elf Federal		Well Number 1
OGRID No 013837	Operator Name Mack Energy Corporation		Elevation 3537' GL

HI Surface Location

UL or lot no	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
N	24	16S	27E		660	South	1980	West	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 XL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

16				<p>OPERATOR CERTIFICATION</p> <p><i>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></p>		
				<p>Signature <i>Jerry W. Sherrell</i></p> <p>Printed Name Jerry W. Sherrell</p>		
				<p>Title Production Clerk</p>		
				<p>Date 7/31/08</p>		
				<p>"SURVEYOR CERTIFICATION"</p> <p><i>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</i></p>		
				<p>Date of Survey</p>		
				<p>Signature and Seal of Professional Surveyer</p>		
				<p>Certificate Number</p>		

See Old plat.

NEW MEXICO OIL CONSERVATION COMMISSION
WELL LOCATION AND ACREAGE DEDICATION PLAT

Form C-102
Supersedes C-128
Effective 1-1-65

All distances must be from the outer boundaries of the Section

Operator HARVEY E. YATES CO.		Lease ANDERSON 24 FEDERAL		Well No 1
Unit Letter N	Section 24	Township 16S	Range 27E	County EDDY
Actual Footage Location of Well: 660 feet from the SOUTH line and 1980 feet from the WEST line				
Ground Level Elev. 3536.9	Producing Formation Morrow	Pool Wildcat	Dedicated Acreage. 320 Acres	

- 1 Outline the acreage dedicated to the subject well by colored pencil or hatchure marks on the plat below.
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).
3. If more than one lease of different ownership is dedicated to the well, have the interests of all owners been consolidated by communitization, unitization, force-pooling, etc?

☒ Yes ☐ No If answer is "yes," type of consolidation Communitization

If answer is "no," list the owners and tract descriptions which have actually been consolidated. (Use reverse side of this form if necessary.)

No allowable will be assigned to the well until all interests have been consolidated (by communitization, unitization, forced-pooling, or otherwise) or until a non-standard unit, eliminating such interests, has been approved by the Commission.

R. L Peterson Bruce Anderson		Hanson Oil Company et al	
NM-17216		Cal-Mon Oil Co. LG-5415	
1980'		660'	

CERTIFICATION

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

Ray F. Nokes

Name
Ray F. Nokes
Position

Reservoir Engineer
Company

Harvey E. Yates Company
Date

September 18, 1984

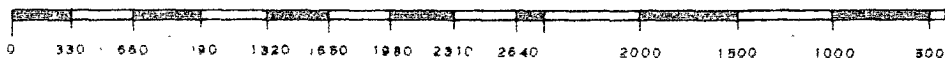
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

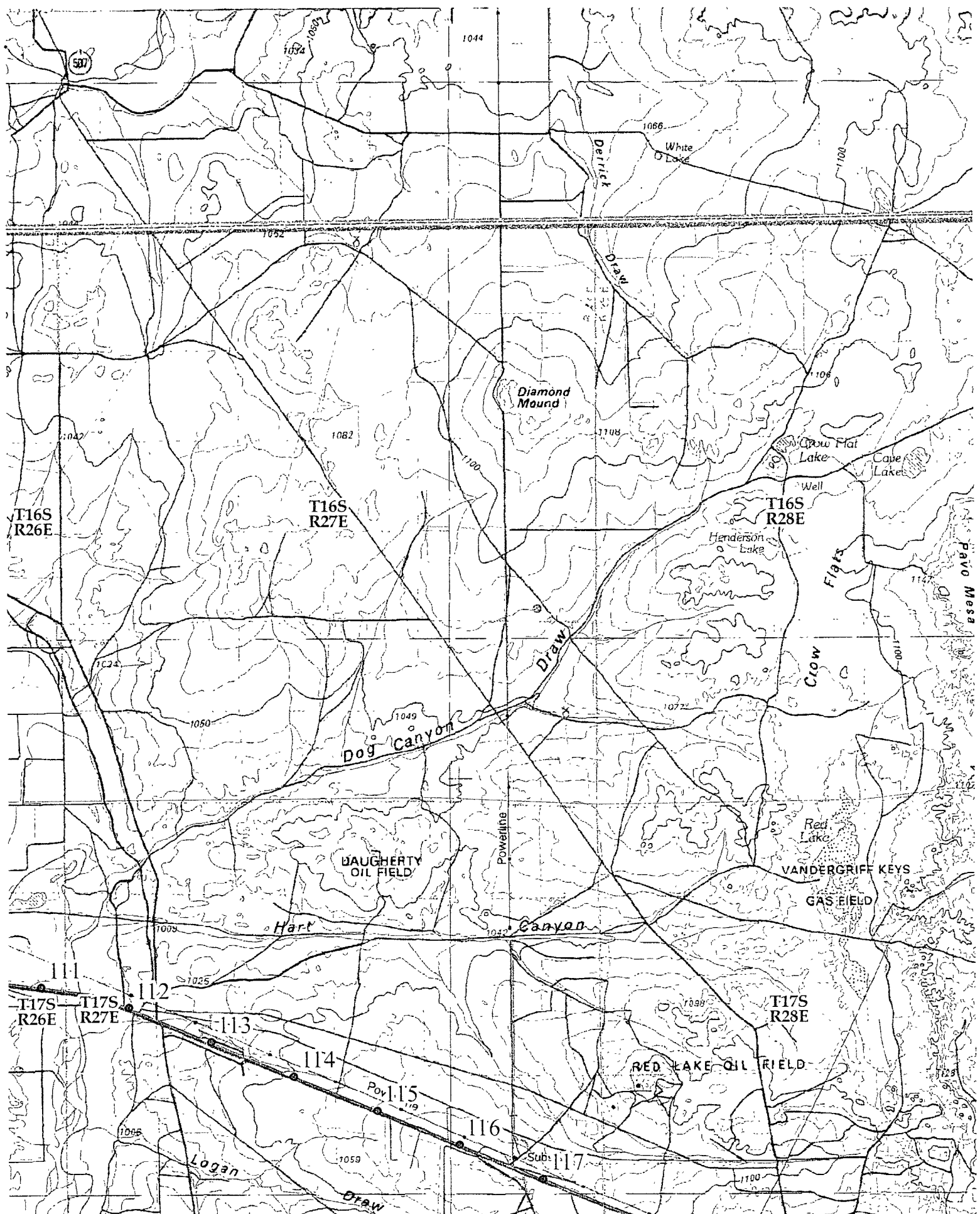
Date Surveyed
9/15/84

Registered Professional Engineer
and/or Land Surveyor

John W. West

Certificate No. JOHN W. WEST, 676
RONALD J. EIDSON, 3239





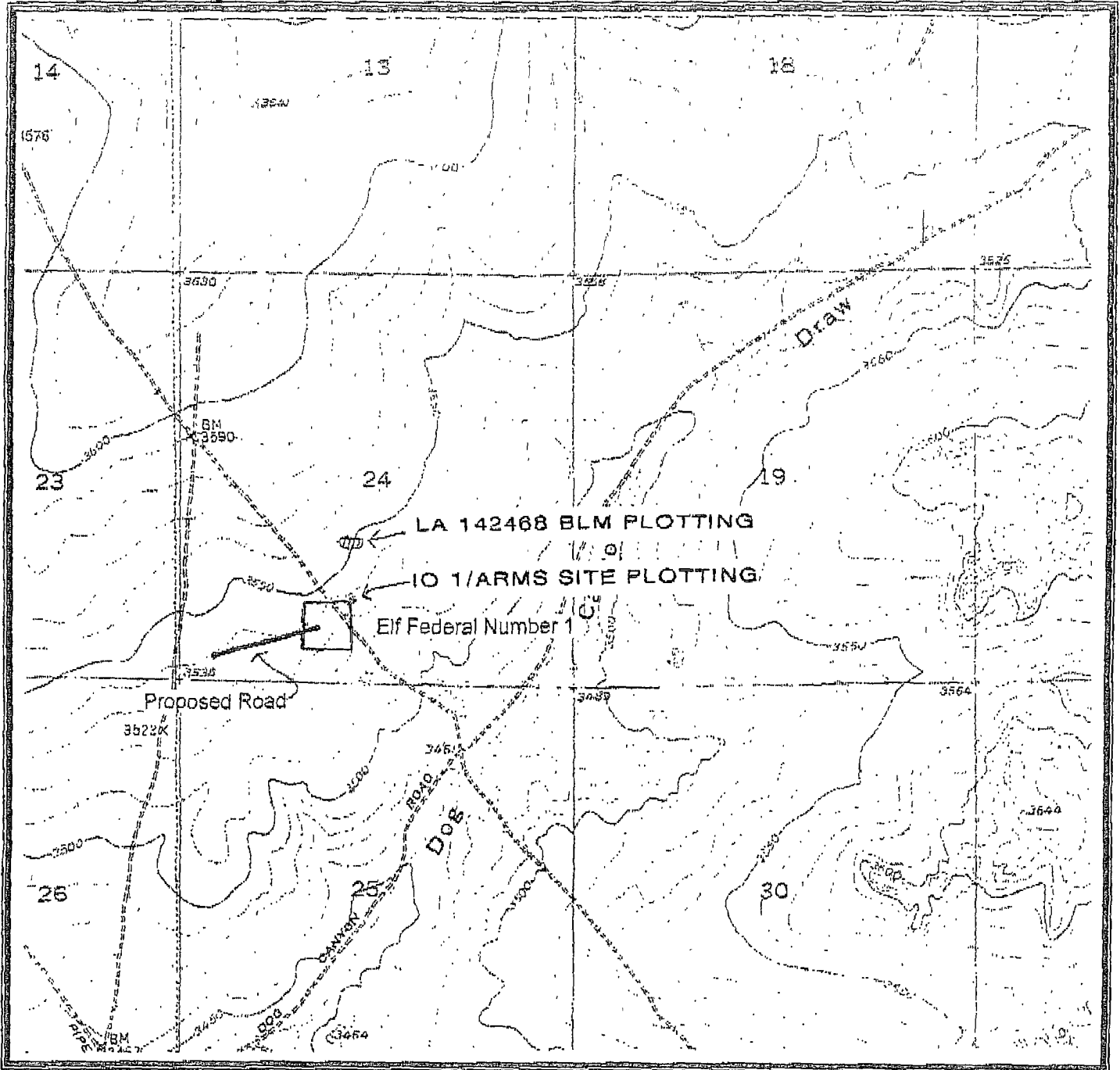
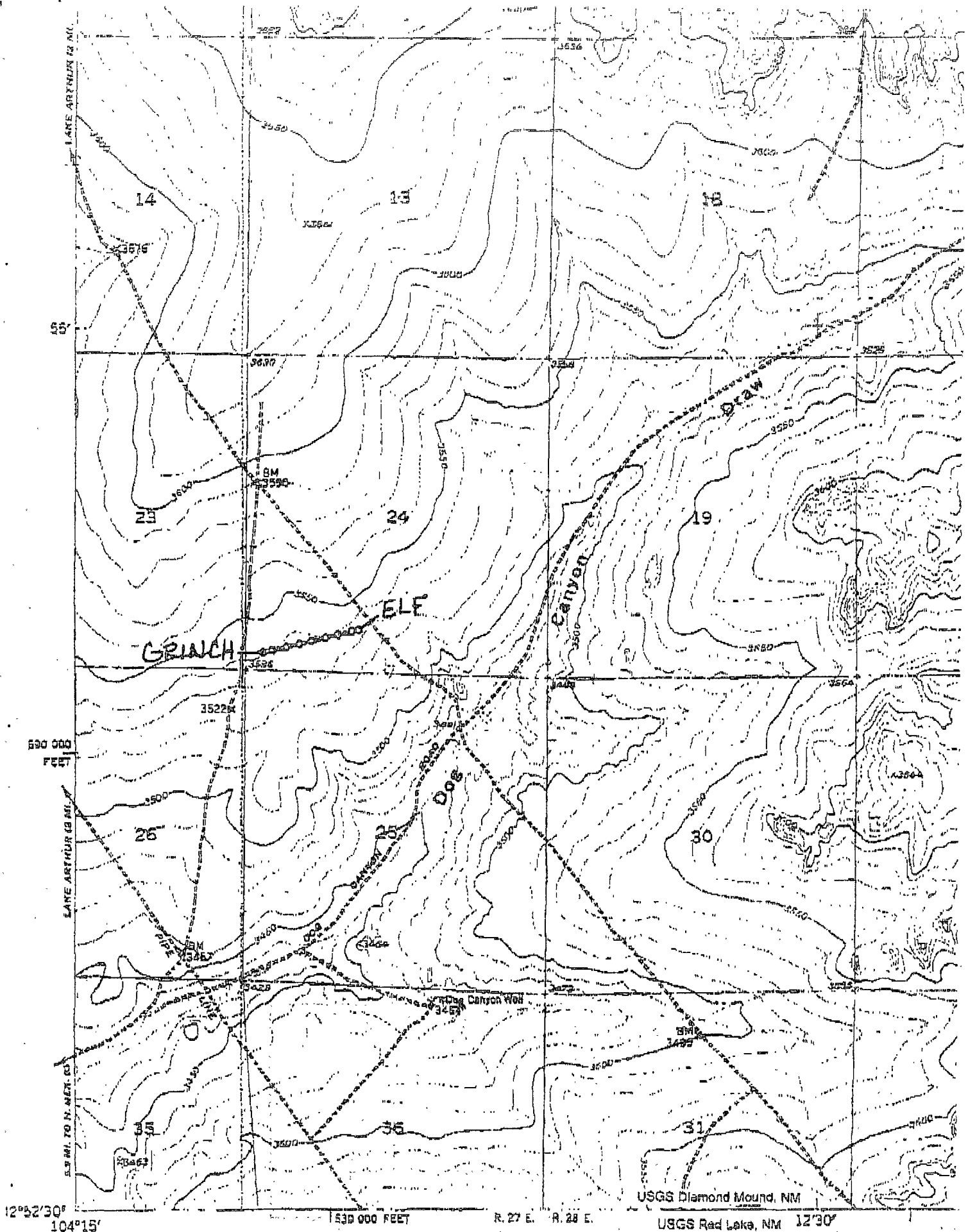


Figure 1: Survey Area
Mack Energy Corporation
Elf Federal Number 1 Proposed Well Location, Access Road, and Site LA 142468
Section 24, T.16S, R.27E
USGS Diamond Mound, NM (1951) 7.5' topo map
Eddy County, New Mexico
Scale 1:24,000

N↑

Southern New Mexico Archaeological Services, Inc.



Directions to proposed Elf Federal #1

Turn north off of Highway 82 onto County Road #202, go north 3.2 miles. Take left fork continue northwest 2.3 miles. Cross cattle guard, turn right/east for .6 mile. Turn left/north .6 mile to a fence. Follow west side of fence .2 to a dry hole marker.

Attached to Form 3160-3
Mack Energy Corporation
Elf Federal #1 NMNM-120349
660 FSL & 1980 FWL Unit N, Sec. 24 T16S R27E
Eddy County, NM

DRILLING PROGRAM

Re-entry

1. Geologic Name of Surface Formation

Quaternary

2. Estimated Tops of Important Geologic Markers:

Quaternary	Surface
Grayburg	1230'
San Andres	1648'
Glorieta	3100'

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

Water Sand	150'	Fresh Water
Grayburg	1230'	Oil/Gas
San Andres	1648'	Oil/Gas
Glorieta	3100'	Oil/Gas

4. Casing Program: Existing

13 3/8" 54#, set @ 420' w/425sx, circulated
8 5/8" 24#, set 2154' w/1200sx, circulated
5 1/2" 15.5, 17#, set @ 3097' w/325sx, est. TOC 597'

5. Cement Program:

N/A

6. Minimum Specifications for Pressure Control:

The blowout preventer equipment (BOP) will consist of a double ram-type 7 1/16" Model T-81 preventer(attached). This unit will be manually operated and the ram type preventer will be equipped with blind rams on top of 2 7/8" tubing rams on bottom. The BOP will be nipped up on the 5 1/2" wellhead and used continuously until completed.

3000#
5000# per
operator
9/24/08
WWI

7. Types and Characteristics of the Proposed Mud System:

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

DEPTH	TYPE	WEIGHT	VISCOSITY	WATERLOSS
0-TD	Cut Brine	9.1	29	N.C.

Attached to Form 3160-3
Mack Energy Corporation
Elf Federal #1 NMNM-120349
660 FSL & 1980 FWL Unit N, Sec. 24 T16S R27E
Eddy County, NM

8. Abnormal Conditions, Pressures, Temperatures and Potential Hazards:

No abnormal pressures or temperatures are anticipated. The estimated bottom hole at TD is 100 degrees and estimated maximum bottom hole pressure is 620 psig. Low levels of Hydrogen sulfide have been found in producing wells in the area.

9. Anticipated Starting Date and Duration of Operations:

As soon as approved. Once approved, drilling should be finished in appr. 3 days.

SURFACE USE AND OPERATING PLAN

1. Existing & Proposed Access Roads

- A. This is an existing P & A'd well, therefore no new construction is anticipated. Re-surfacing of road and location will be necessary.
- B. 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:

- A. Surfacing material will consist of native caliche. Caliche will be obtained from the nearest BLM approved caliche pit or reserve pit area.

3. Location of Existing and/or Proposed Facilities:

- A. Mack Energy Corporation does not operate a production facility on this lease.
- B. If the well is productive, contemplated facilities will be as follows:
 - 1) San Andres Completion: Will be sent to the Elf Federal TB located at the #1 well. The Facility is shown in Exhibit #5.
 - 2) The tank battery and facilities including all flow lines and piping will be installed according to API specifications.
 - 3) Any additional caliche will be obtained from a BLM approved caliche pit. Any additional construction materials will be purchased from contractors.
 - 4) It will be necessary to run electric power if this well is productive. Power will be run by CVE and they will send in a separate plan for power.

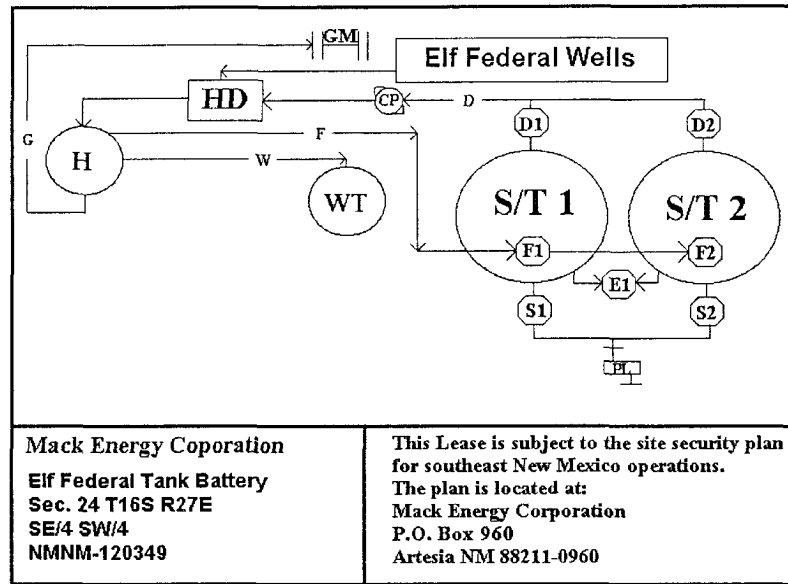


Exhibit #5

4. Location and Type of Water Supply:

The well will be drilled with brine water mud system. The water will be obtained from commercial water stations in the area and hauled to location.

5. Methods of Handling Water Disposal:

- A. Drilling fluids will be contained in steel tanks using a **closed loop system**.
- B. Garbage and trash produced during drilling or completion operations will be collected in a trash bin and hauled to an approved landfill.

6. Well Site Layout:

- A. The well pad layout is shown in Exhibit #6. Dimensions of the pad are shown.

Attached to Form 3160-3
Mack Energy Corporation
Elf Federal #1 NMNM-120349
660 FSL & 1980 FWL Unit N, Sec. 24 T16S R27E
Eddy County, NM

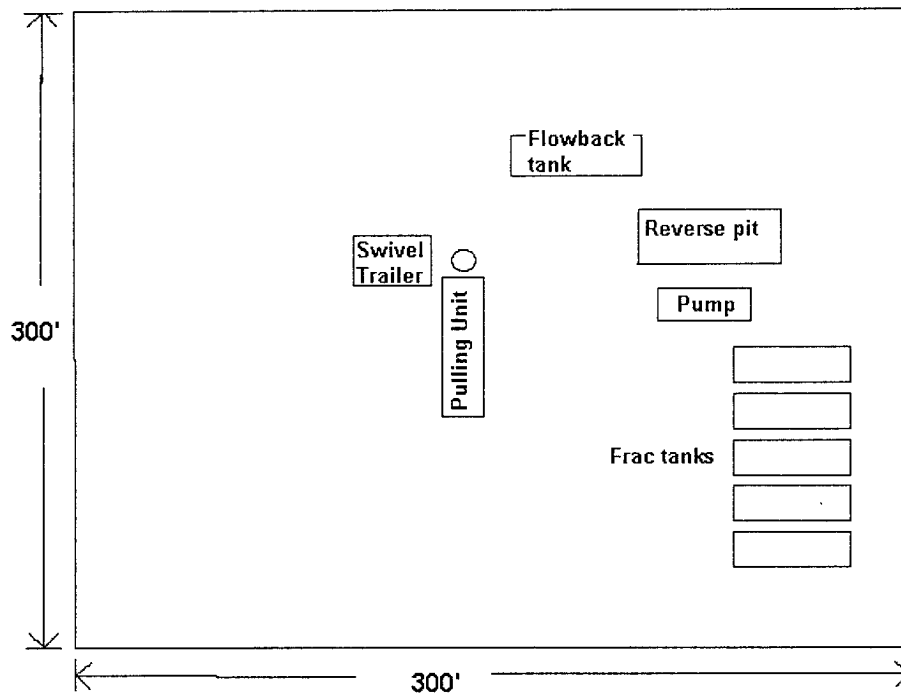


Exhibit #6

7. Plans for Restoration of the Surface:

- A. In the event of a dry hole. Location will be recontoured to its original natural level and reseeded as per BLM specifications.

8. Surface Ownership:

The well site and lease is located entirely on Federal surface. We have notified the surface lessee of the impending operations. According to BLM the lessee is Bogel Limited Company, Lewis Derrick, P.O. Box 460 Dexter, NM 88230.

9. Other Information:

- A. A Cultural Resources Examination has been completed by previous operator.

10. Lessee's and Operator's Representative:

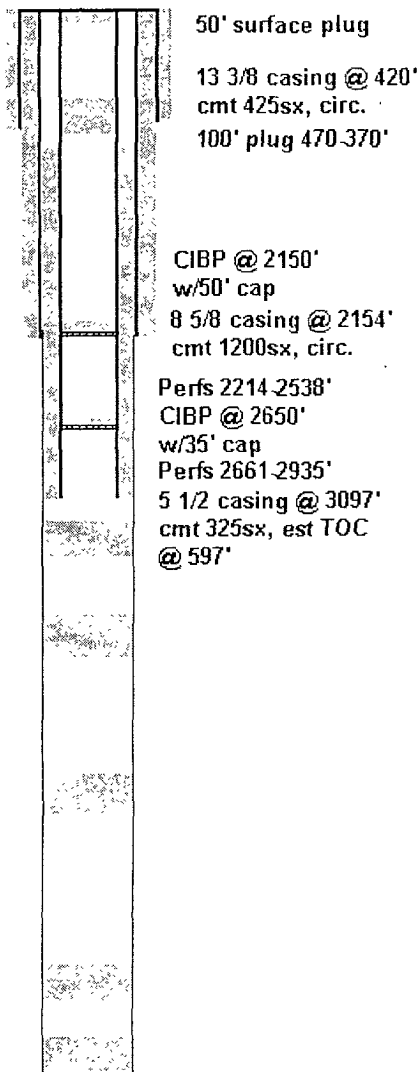
The Mack Energy Corporation representative responsible for assuring compliance with the surface use plan is as follows:

Jerry W. Sherrell
Mack Energy Corporation
P.O. Box 960
Artesia, NM 88211-0960
Phone (505) 748-1288 (office)

Mack Energy Corporation

Elf Federal #1 API 30-015-25047

Before



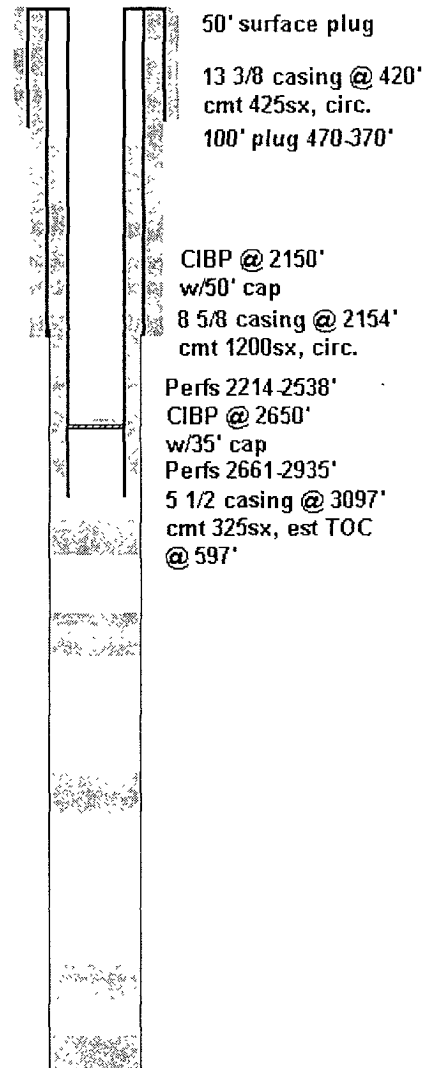
TD 9485'

PROPOSED

Drill out to top of CIBP @
2650'

Perforate from 1650-2625

After

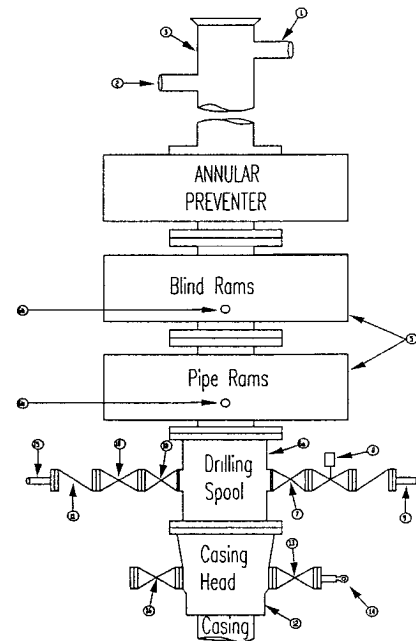


TD 9485'

Mack Energy Corporation
Minimum Blowout Preventer Requirements
 3000 psi Working Pressure
 3 MWP
 EXHIBIT #10

Stack Requirements

NO	Items	Min. I.D.	Min. Nominal
1	Flowline		2"
2	Fill up line		2"
3	Drilling nipple		
4	Annular preventer		
5	Two single or one dual hydraulically operated rams		
6a	Drilling spool with 2" min. kill line and 3" min choke line outlets		2" Choke
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	Valve 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	
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CONTRACTOR'S OPTION TO FURNISH:

- 1 All equipment and connections above bradenhead or casinghead. Working pressure of preventers to be 2000 psi minimum.
- 2 Automatic accumulator (80 gallons, 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 casing head 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, or bean

- 5 All valves to be equipped with hand-wheels 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 (2000 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 Does not use kill line for routine fill up operations.

Mack Energy Corporation

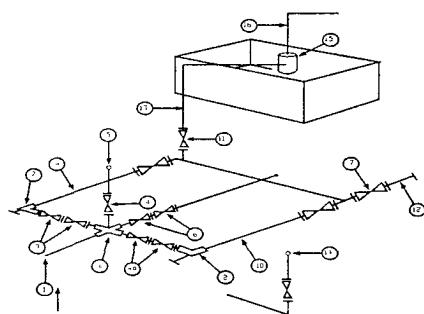
Exhibit #11

MINIMUM CHOKE MANIFOLD

3,000, 5,000, and 10,000 PSI Working Pressure

3M will be used

3 MWP - 5 MWP - 10 MWP



Mud Pit

Reserve Pit

* Location of separator optional

Below Substructure

Minimum requirements

No.		3,000 MWP			5,000 MWP			10,000 MWP		
		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" x 3" x 3" x 2"			3,000			5,000			
2	Cross 3" x 3" x 3" x 2"									10,000
3	Valve Gate Plug	3 1/8		3,000	3 1/8		5,000	3 1/8		10,000
4	Valve Gate Plug	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	2 1/16		10,000
5	Pressure Gauge			3,000			5,000			10,000
6	Valve Gate Plug	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		2"	10,000
11	Valve Gate Plug	3 1/8		3,000	3 1/8		5,000	3 1/8		10,000
12	Line		3"	1,000		3"	1,000		3"	2,000
13	Line		3"	1,000		3"	1,000		3"	2,000
14	Remote reading compound Standpipe pressure quage			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	Valve Gate Plug	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 10 M
- (3) Remote operated hydraulic choke required on 5,000 psi and 10,000 psi for drilling.

EQUIPMENT SPECIFICATIONS AND INSTALLATION INSTRUCTION

- 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 degree bends using bull plugged tees.

Mack Energy Corporation

Hydrogen Sulfide Drilling Operation Plan

I. HYDROGEN SULFIDE TRAINING

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

1. The hazards and characteristics of hydrogen sulfide (H₂S)
2. The proper use and maintenance of personal protective equipment and life support systems.
3. The proper use of H₂S 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 H₂S on metal components. If high tensile tubular 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 H₂S Drilling Operations Plan and 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. The concentrations of H₂S of wells in this area from surface to TD are low enough that a contingency plan is not required.

II. H₂S SAFETY EQUIPMENT AND SYSTEMS

Attached to Form 3160-3
Mack Energy Corporation
Elf Federal #1 NMNM-120349
660 FSL & 1980 FWL Unit N, Sec. 24 T16S R27E
Eddy County, NM

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

1. Well Control Equipment:

- A. Flare line.
- B. Choke manifold.
- C. Blind rams and pipe rams to accommodate all pipe sizes with properly sized closing unit.

2. Protective equipment for essential personnel:

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

3. H2S detection and monitoring equipment:

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

4. Visual warning systems:

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

5. Mud program:

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

6. Metallurgy:

- A. All drill strings, tubing, wellhead, blowout preventer, kill lines, choke manifold and lines, and valves shall be suitable for H2S service.
- B. All elastomers used for packing and seals shall be H2S trim.

7. Communication:

Attached to Form 3160-3
Mack Energy Corporation
Elf Federal #1 NMNM-120349
660 FSL & 1980 FWL Unit N, Sec. 24 T16S R27E
Eddy County, NM

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

EXHIBIT #7

WARNING

YOU ARE ENTERING AN H2S

AUTHORIZED PERSONNEL ONLY

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

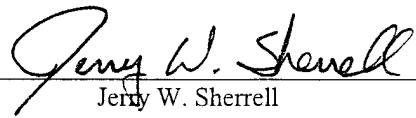
MACK ENERGY CORPORATION

1-505-748-1288

CERTIFICATION

I hereby certify that I, or person under my direct supervision, have inspected the proposed drill site and access route; that I am familiar with the conditions which currently exist; that the statements made in this APD are to the best of my knowledge, true and correct; and the work associated with the operations proposed herein will be performed by Mack Energy Corporation 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: 8-1-08

Signed: 
Jerry W. Sherrell

Mack Energy Corporation Call List, Eddy County

Artesia (575)	Cellular	Office	Home
Jim Krogman.....	746-5515.....	748-1288.....	746-2674
Lonnie Archer.....	746-7889.....	748-1288.....	365-2998
Donald Archer.....	748-7875.....	748-1288.....	748-2287
Chris Davis.....	746-7132.....	748-1288.....	
Kevin Garrett.....	746-7423.....	748-1288.....	

Agency Call List (575)

Artesia

State Police.....	746-2703
City Police.....	746-2703
Sheriff's Office.....	746-9888
Ambulance.....	911
Fire Department.....	746-2701
LEPC (Local Emergency Planning Committee.....	746-2122
NMOCD.....	748-1283

Carlsbad

State Police.....	885-3137
City Police.....	885-2111
Sheriff's Office.....	887-7551
Ambulance.....	911
Fire Department.....	885-2111
LEPC (Local Emergency Planning Committee.....	887-3798
Bureau of Land Management.....	887-6544
New Mexico Emergency Response Commission.....	(505)476-9690
24 Hour.....	(505)827-9126
Natonal Emergency Response Center (Washington).....	(800)424-8802

Emergency Services

Boots & Coots IWC.....	1-800-256-9688 or (281)931-8884
Cudd pressure Control.....	(915)699-0139 or (915)563-3356
Halliburton.....	746-2757
B. J. Services.....	746-3569
Flight For Life-Lubbock, TX.....	(806)743-9911
Aerocare-Lubbock, TX.....	(806)747-8923
Med Flight Air Amb-Albuquerque, NM.....	(505)842-4433
Lifeguard Air Med Svc. Albuquerque, NM.....	(505)272-3115

**Bureau of Land Management
RECEIVED**

AUG 22 2008

**Carlsbad Field Office
Carlsbad, NM**

PECOS DISTRICT CONDITIONS OF APPROVAL

OPERATOR'S NAME:	MACK ENERGY CORPORATION
LEASE NO.:	NM-120349
WELL NAME & NO.:	ELF FEDERAL #1
SURFACE HOLE FOOTAGE:	660' FSL & 1980' FWL
BOTTOM HOLE FOOTAGE:	' F L & ' F L
LOCATION:	Section 24, T. 16 S., R 27 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**
 - Cave/Karst
- ☒ **Construction**
 - Fence requirement
 - Notification
 - Topsoil
 - Reserve Pit
 - Federal Mineral Material Pits
 - Well Pads
 - Roads
- ☐ **Road Section Diagram**
- ☒ **Drilling**
- ☐ **Production (Post Drilling)**
 - Well Structures & Facilities
- ☐ **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)

REMOVE OLD SALT SATURATED RESERVE PIT AREA BEFORE CONSTRUCTION OF PAD.

Conditions of Approval Cave and Karst

- ** Depending on location, additional Drilling, Casing, and Cementing procedures may be required by engineering to protect critical karst groundwater recharge areas.

Cave/Karst Surface Mitigation

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

Pad Berming:

The pad will be bermed to prevent oil, salt, and other chemical contaminants from leaving the pad on the south and east side

Closed Mud System Using Steel Tanks with All Fluids and Cuttings Hauled Off.

A closed mud system using steel tanks for all cuttings and fluids is required. All fluids and cuttings will be hauled off site for disposal. No pits are allowed.

Tank Battery Liners and Berms:

Tank battery locations will be lined and bermed. A 20 mil permanent liner will be installed with a 4 oz. felt backing to prevent tears or punctures. Tank battery berms must be large enough to contain 1 ½ times the content of the largest tank.

Compressor Liners and Containment:

Gas compressors must have a leak containment system that will contain all leakage over an extended period of time. Containment systems should be leak proof both vertically and horizontally, and include: the ability to visually monitor any leakage; the ability to siphon out any leakage or accumulated fluids; and appropriate bird and bat protection on all leak containment areas. When compressors are replaced: soils will be sampled to ensure the original containment was fully successful; any breach of original containment cleaned up down to clean soils; and new liners and/or containment systems installed prior to placement of the new compressor.

Leak Detection System:

A method of detecting leaks is required. The method could incorporate gauges to measure loss, siting valves and lines so they can be visually inspected, or installing electronic sensors to alarm when a leak is present. Leak detection plan will be submitted to BLM for approval.

Automatic Shut-off Systems:

Automatic shut off, check valves, or similar systems will be installed for pipelines and tanks to minimize the effects of catastrophic line failures used in production or drilling.

Cave/Karst Subsurface Mitigation

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

Rotary Drilling with Fresh Water:

Fresh water will be used as a circulating medium in zones where caves or karst features are expected. SEE ALSO: Drilling COAs for this well.

Directional Drilling:

Kick off for directional drilling will occur at least 100 feet below the bottom of the cave occurrence zone. SEE ALSO: Drilling COAs for this well.

Lost Circulation:

ALL lost circulation zones from the surface to the base of the cave occurrence zone will be logged and reported in the drilling report.

Regardless of the type of drilling machinery used, if a void of four feet or more and circulation losses greater than 70 percent occur simultaneously while drilling in any cave-bearing zone, the BLM will be notified immediately by the operator. The BLM will assess the situation and work with the operator on corrective actions to resolve the problem.

Abandonment Cementing:

Upon well abandonment in high cave karst areas additional plugging conditions of approval may be required. The BLM will assess the situation and work with the operator to ensure proper plugging of the wellbore.

Pressure Testing:

Annual pressure monitoring will be performed by the operator on all casing annuli and reported in a sundry notice. If the test results indicated a casing failure has occurred, remedial action will be undertaken to correct the problem to the BLM's approval.

VI. CONSTRUCTION

RANCHER FENCE WILL BE REROUTED AROUND THIS LOCATION. WHEN WELL IS PLUGGED THE FENCE WILL BE PLACED BACK TO ORIGINAL ROUTE.

A. NOTIFICATION

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 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 4 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 PITS

Tanks are required for drilling operations: No Pits.

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 (575) 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.

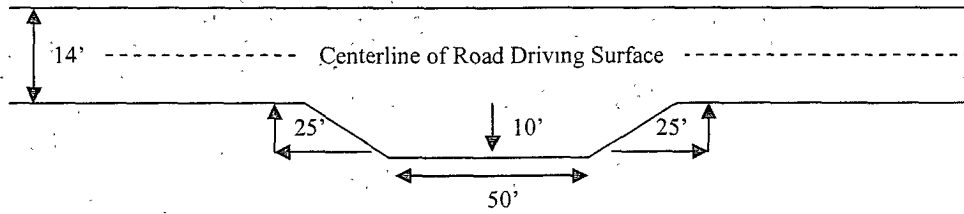
Ditching

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:

Standard Turnout – Plan View

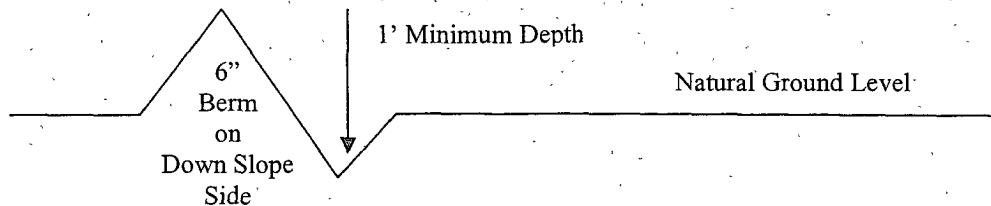


Drainage

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

Cross Section of a Typical 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

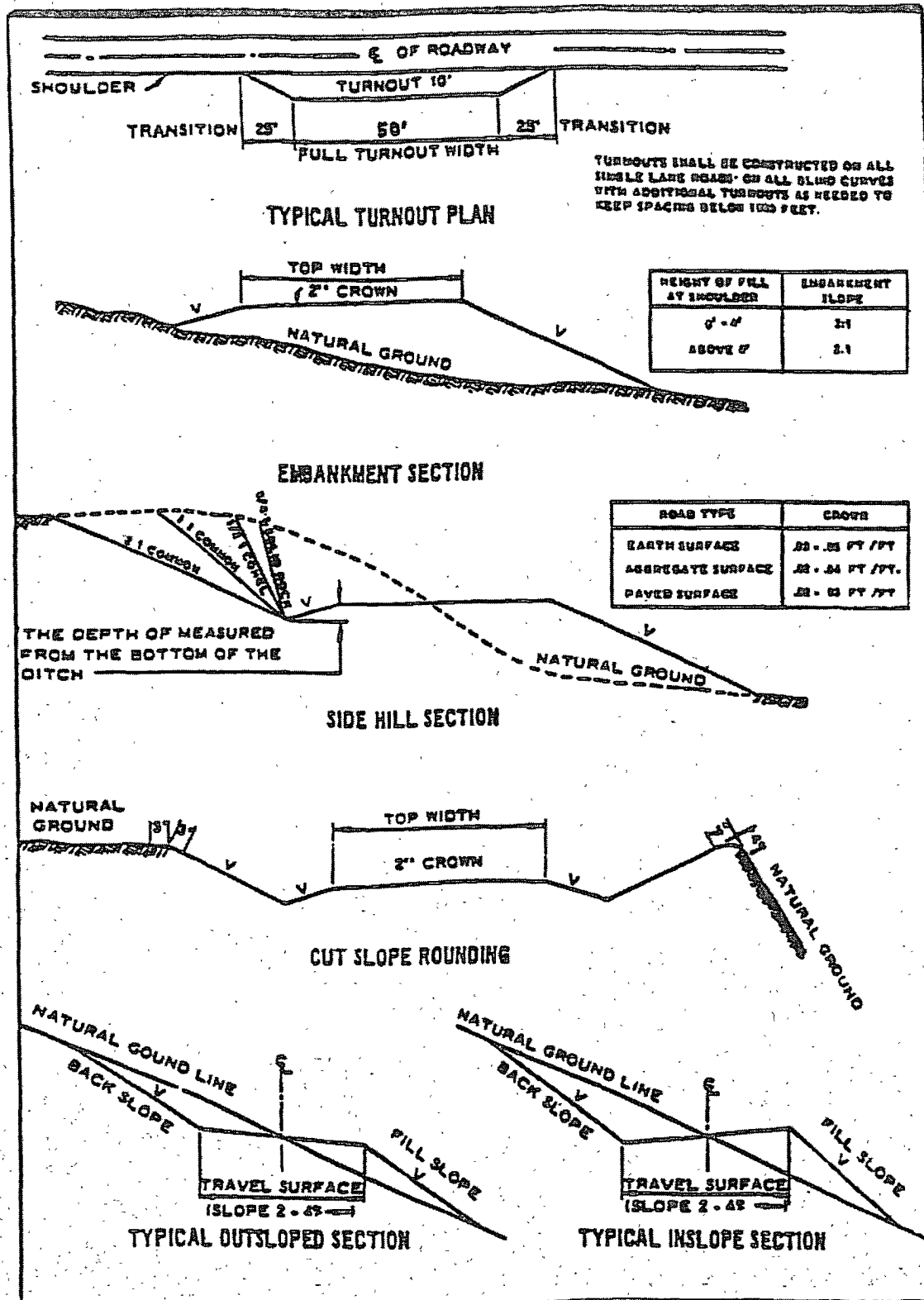
Where entry is required across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting.

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 – RE-ENTRY

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. BOPE tests

☒ **Eddy County**

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

1. **Although Hydrogen Sulfide has not been reported in this section, it is always a potential hazard. 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.
3. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.

B. CASING – RE-ENTRY

1. **The 13-3/8" surface casing is set at 420' and cemented to surface.**
2. **The 8-5/8" intermediate casing is set at 2154' and cemented to surface.**
3. **The 5-1/2" production casing is set at 3097' with estimated TOC of 597'.**

A CIT is to be performed on the 5-1/2" casing per Onshore Oil and Gas Order 2.III.B.1.h prior to drilling the shoe plug. This will test the casing and the cement seal on the CIBP. Contact the BLM a minimum of 24 hours prior to performing the test for witness of test.

4. 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. **Operator states 5M in APD**
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.

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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

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 4, for Gypsum 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>
Alkali Sacaton (<i>Sporobolus airoides</i>)	1.0
DWS \subseteq Four-wing saltbush (<i>Atriplex canescens</i>)	5.0

\subseteq DWS: DeWinged Seed

*Pounds of pure live seed:

Pounds of seed x percent purity x percent germination = pounds pure live seed
(Insert Seed Mixture Here)

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.