N. M. Oil Cons. Division
811 S. 1st St.
ARTESIA, NM 88210-2834

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

1a. TYPE OF WORK
Drill ☐ Deepen ☐

b. TYPE OF WELL
Oil Well ☐ Single Zone ☐ Multiple Zone ☐

2. AROC (Texas) Inc.
3. 4200 E Skelly Drive, Suite 1000
Tulsa, OK 74135 918-491-1100

Phone: 505-885-5433
Fax: 505-885-4989

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*)
At surface
2310' FSL & 2310' FEL, Unit J
At proposed prod. zone
Same

5. LEASE DESIGNATION AND SERIAL NO.
~~NM-0467934~~ LC-053259-A

6. IF INDIAN, ALLOTTEE OR TRIBE NAME
26978

7. UNIT AGREEMENT NAME
Grayburg Jackson PSU

8. FARM OR LEASE NAME, WELL NO.
MA No. 3

9. API WELL NO.
30-015-21691

10. FIELD AND POOL, OR WILDCAT
Grayburg Jackson 7R-QN-GB-SA

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Section 28, T17S, R30E

12. COUNTY OR PARISH
Eddy

13. STATE
NM

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE *
1.5 miles southwest of Loco Hills, NM

15. DISTANCE FROM PROPOSED * LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any)	16. NO. OF ACRES IN LEASE	17. NO. OF ACRES ASSIGNED TO THIS WELL
330'	960	40
18. DISTANCE FROM PROPOSED LOCATION* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.	**19. PROPOSED DEPTH**	**20. ROTARY OR CABLE TOOLS**
600'	3185' (current)	Reverse Unit
21. ELEVATIONS (Show whether DF, RT, GR, etc)		**22. APPROX. DATE WORK WILL START ***
3630' GR		November 1, 2000

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	GRADE, SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT

The operator proposes to re-enter well and complete as a producer. Well was drilled 12/75 and PA'd in 11/93

Specific programs are outlined in the following attachments:
- SURFACE USE AND OPERATING PLAN
- EXHIBIT A - ROAD MAP
- EXHIBIT B - EXISTING WELL MAP
- EXHIBIT C - LOCATION AND ACREAGE DEDICATION PLAT
- EXHIBIT C-1 - TOPO MAP
- EXHIBIT D - DRILLING AND RIG LAYOUT
- EXHIBIT E - 3M BOP EQUIPMENT

NOV 2000
RECEIVED
OCD - ARTESIA

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 Perry L Hughes TITLE E. O. DATE 9/27/00

(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 _____ TITLE Assistant Field Manager, Lands And Minerals DATE _____

*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 any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

DRILLING PROGRAM

Shahara Oil, LLC
Grayburg Jackson PSU MA No. 3
2310' FSL & 2310' FEL, Unit J
Section 28, T17S, R30E
Eddy County, New Mexico
Lease No. NM-0467934

In connection with Form 3160-3, Application for Permit to Drill subject well, Shahara Oil, LLC. submits the following items of pertinent information in accordance with BLM requirements:

1. Geologic Name of Surface Formation: Permian

2. Estimated Tops of Important Geologic Markers

Formation	Depth
Top of Salt	500'
Base of Salt	1200'
Queen	2360'
Grayburg	2775'
Total Depth	3185'

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

There is little if any fresh water in this area. Oil is expected in the Premier Sand of the Grayburg formation @ 2980'.

The pore pressure gradient is normal (+8.4 ppg). No abnormal pressures are anticipated.

4. Existing Casing and Cement Program

	Casing			
Hole Size	From	To	Casing OD	Weight, Grade
12 ¼"	0'	502''	8 5/8"	24# cmt w/100sx
7 7/8"	0'	3185'	4 ½"	9.5# & 10.5# cmt w/700sx

Proposed Casing and Cement Program

No additional casing is proposed.

5. Minimum Specifications for Pressure Control:

The BOP equipment will be nippled up on the 4 ½" casing and used continuously.

BLM method to calculate minimum BOP requirements:
(.052)(8.4 ppg)(3185') - (0.22 psi/ft)(3185')=691 psi
Minimum BOP requirements: 2M BOP stack and manifold system

6. Proposed Mud System:

The well will be cleaned out to TD (3185') with fresh water.

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

7. Auxiliary Well Control and Monitoring Equipment:

a) None required.

8. Logging, Testing and Coring Programs:

a) No additional logs will be run.

b) No testing will be conducted.

c) No coring will be conducted.

d) Completion procedure will consist of adding perfs in the Premier Sand , acidizing and fracing.

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

No abnormal pressures, temperatures, or other potential hazards are anticipated.

Some minor hydrogen sulfide may be encountered. No major lost circulation zones have been reported in offsetting wells.

The maximum anticipated bottom hole pressure is approximately 1379 psi.
(3185' x .433 psi/ft = 1379 psi)
The maximum anticipated bottom hole temperature is 90 degrees F.

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 November 1, 2000. Once commenced, the clean out operation should be complete in 7 days.

SURFACE USE AND OPERATING PLAN

Shahara Oil, LLC
Grayburg Jackson PSU MA No. 3
2310' FSL & 2310' FEL, Unit J
Section 28, T17S, R30E
Eddy County, New Mexico
Lease No. NM-0467934

This plan is submitted with the Application for Permit to Drill the above described well. The purpose of the plan is to describe the location of the proposed well, the proposed construction activities, and the operations plan to be followed in rehabilitating the surface after completion of the operation to that a complete appraisal can be made of the environmental effects associated with the operations.

Located:	1.5 miles southeast of Loco Hills, New Mexico
Federal Lease Number:	NM-0467934
Lease Issued:	N/A
Acres in Lease:	960 acres
Record lessee:	Phillips Petroleum Company
Surface Ownership:	Federal
Grazing Permittee:	Williams & Son Cattle Company
Pool:	Grayburg Jackson 7R-QN-GB-SA
Pool Rules:	Unorthodox location approved by OCD Order R-2749-A.

Exhibits:

"A"	Road Map
"B"	Existing Wells Map
"C"	Well Location and Acreage Dedication Plat
"C-1"	Topo Map (Location Verification Map)
"D"	Drilling Rig Layout Diagram (Pulling Unit)
"E"	BOP Equipment

1. **Existing Roads:**

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

b) Directions to location: Go south from Loco Hills on Hagerman Cutoff Road approximately ½ mile. Go left (southeast) on existing lease road approximately ¾ mile. Go right on existing access road to location.

c) Routine grading and maintenance of existing roads will be conducted as necessary to maintain their condition as long as any operations continue on this lease.

2. **Proposed Access Road:**

No new access roads are necessary.

3. **Location of Existing Wells:**

Exhibit "B" shows all existing wells within a one-mile radius of this well.

4. **Location of Existing and/or Proposed Facilities:**

This well is to be an injector.

5. **Location and Type of Water Supply:**

The well will be drilled with a combination of natural and fresh water mud system as outlined in the drilling program.

The water necessary for drilling operations will be purchased and trucked to the wellsite.

6. **Source of Construction Materials:**

Not applicable.

7. **Method of Handling Waste Disposal:**

a) Drill cuttings will be disposed into the reserve pit.

b) Drilling fluids will be allowed to evaporate in the drilling pits until the pits are dry.

c) Any oil produced during testing will be stored in steel test tanks until sold.

d) Trash, waste paper, garbage and junk will be placed in a trash bin located on the drill site

pad. It will be transported to an approved landfill for disposal within 30 days after completion of drilling and/or completion of operations. All waste material will be contained to prevent scattering by the wind.

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

8. **Ancillary Facilities:**

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

9. **Well Site Layout:**

Will use existing well pad.

10. **Plans for Reclamation of the Surface:**

a) After completion of drilling and/or completion of operations, all equipment and other material not needed for operations will be removed. The pit area will be allowed to dry before reclamation. If the borrow pit is constructed, the cuttings in the reserve pit will be deep buried in the borrow pit, and the reserve pit and borrow pit will be broken out, filled, and leveled. The location will be cleaned of all trash and junk to leave the well site in an as aesthetically pleasing condition as possible.

b) Three sides of the reserve pit will be fenced prior to and during drilling operations. The borrow pit will be fenced on all four sides after the location is built. At the time the pulling unit is removed, the reserve pit will be fenced on the fourth side to prevent livestock or wildlife from being entrapped in the pit. The fencing will remain in place until the pits are cleaned up and leveled.

c) After abandonment, all equipment, trash and junk will be removed and the well site will be cleaned.

d) The disturbed area will be revegetated by reseeding during the proper growing season with a seed mixture of native grasses as recommended by the BLM.

11. **Other Information:**

a) Topography: The land surface in the area is undulating with small sand dunes. In the immediate area of the well site, the land slope is to the southwest.

b) Soil: Top soil at the well site is loamy sand.

c) Flora and Fauna: The vegetation cover is moderate. It includes range grasses, weeds, scrub

oak bushes, and mesquite bushes. Wildlife in the area is that typical of a semi-arid desert land and includes coyotes, rabbits, rodents, reptiles, hawks, dove, quail and other small birds.

d) Ponds and Streams: There are no rivers or streams within a mile of this proposed location.

e) Residences and Other Structures: There are no occupied dwellings within a mile of this location.

f) Archaeological, Historical, or Other Cultural Sites: None are know of in the area. An archaeological survey will be conducted by Geo Marine and will be submitted .

g) Land Use: Grazing, oil and gas production and wildlife habitat.

h) Surface Ownership: Federal

12. **Operator's Representative:**

Perry L. Hughes, Executive Officer
Shahara Oil, LLC
207 W. McKay
Carlsbad, NM 88220

Phone: 505-885-5433
Fax: 505-885-4989

13. **Certification:**

I hereby certify that I, or persons under my direct supervision, have inspected the proposed drill site and access route; that the statements made in this plan are, to the best of my knowledge, true and correct; and, that the work associated with the operations proposed herein will be performed by Shahara Oil, LLC and its contractors and sub-contractors in conformity with this plan and the terms and conditions under which it is approved. This statement is subject to the provisions of 18 U.S.C. 1001 for the filing of false statement.

9/27/00
Date

Perry L. Hughes, Executive Officer

HYDROGEN SULFIDE DRILLING OPERATIONS PLAN

APPLICABILITY:

The provisions of this plan are effective when drilling operations are conducted in areas where zones may be penetrated that are known to contain, or may be reasonably expected to contain, hydrogen sulfide gas in concentrations of 100 parts per million or more.

TRAINING REQUIREMENTS:

A. When conducting drilling operations in an area where hydrogen sulfide gas might be encountered, all personnel at the well site will have had proper training in the following areas:

1. The hazards and characteristics of hydrogen sulfide gas (H_2S).
2. Toxicity of hydrogen sulfide and sulfur dioxide.
3. Hydrogen sulfide gas detectors, warning systems, evacuation procedures, and proper use and maintenance of personal protective equipment.
4. Proper rescue procedures, first aid, and artificial respiration.

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

1. The effects of hydrogen sulfide 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 Hydrogen Sulfide Drilling Operations Plan and the Public Protection Plan.

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

WELL SITE DIAGRAM:

A. Attached is a detailed well site diagram showing:

1. Drilling rig orientation
2. Prevailing wind direction (Southwest)
3. Location of briefing areas
4. Location of Caution/Danger signs
5. Location of hydrogen sulfide monitors
6. Location of wind direction indicators

HYDROGEN SULFIDE SAFETY EQUIPMENT:

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

B. During drilling operations, a flare line will be routed from the BOP manifold to the reserve pit. Should suspected sour gas be vented through the flare line, a flare pistol will be used to ignite the flare.

C. Protective equipment for essential personnel will be installed and maintained as follows:

1. 30-minute air packs will be maintained on the rig floor and near the briefing area.
2. 30-minute work units will be maintained at the H_2S trailer and/or on the rig floor.
3. 30-minute escape units will be maintained on the rig floor.
4. 300 cubit ft. air cylinders will be maintained in the H_2S trailer.
5. Associated breathing air equipment will also be installed and maintained.
6. Hydrogen sulfide monitor will be located in the dog house on the rig floor with sensors placed on the rig floor, at the bell nipple, the shale shaker, and in the pit areas.
7. An audible/visual alarm will be located near the dog house on the rig floor.

VISUAL WARNING SYSTEMS:

A. High visibility Caution/Danger signs will be posted on roads providing direct access to the well location.

B. Green, yellow and red conditions flags to be displayed to denote Normal Conditions, Potential

Danger and Danger, H_2S present.

C. Wind socks to be located at the protection center and in the pit area to continuously indicate wind direction.

CIRCULATING MEDIUM:

A. Drilling fluid to be conditioned to minimize the volume of H_2S circulated to the surface.

SPECIAL WELL CONTROL EQUIPMENT:

A. In addition to the normal BOP stack and choke manifold, a drilling head will be used to help control and H_2S contaminated drilling fluid.

WELL TESTING:

A. No drill stem testing will be conducted.

COMMUNICATION:

A. Radio communication/cellular pone service will be available at the pulling unit and also in company vehicles.

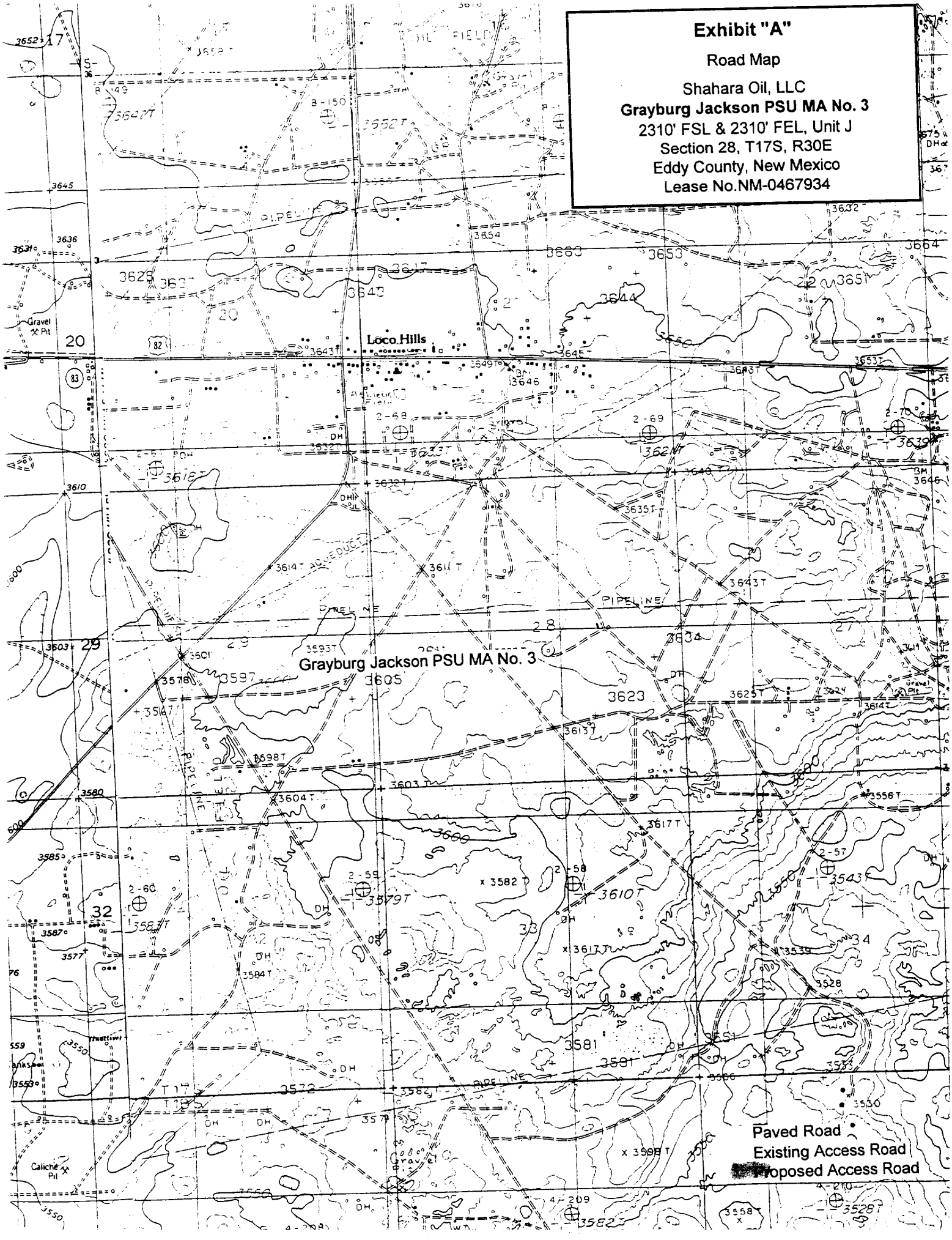


Exhibit "A"
Road Map
Shahara Oil, LLC
Grayburg Jackson PSU MA No. 3
2310' FSL & 2310' FEL, Unit J
Section 28, T17S, R30E
Eddy County, New Mexico
Lease No.NM-0467934
Loco Hills
Grayburg Jackson PSU MA No. 3
Paved Road
Existing Access Road
Proposed Access Road

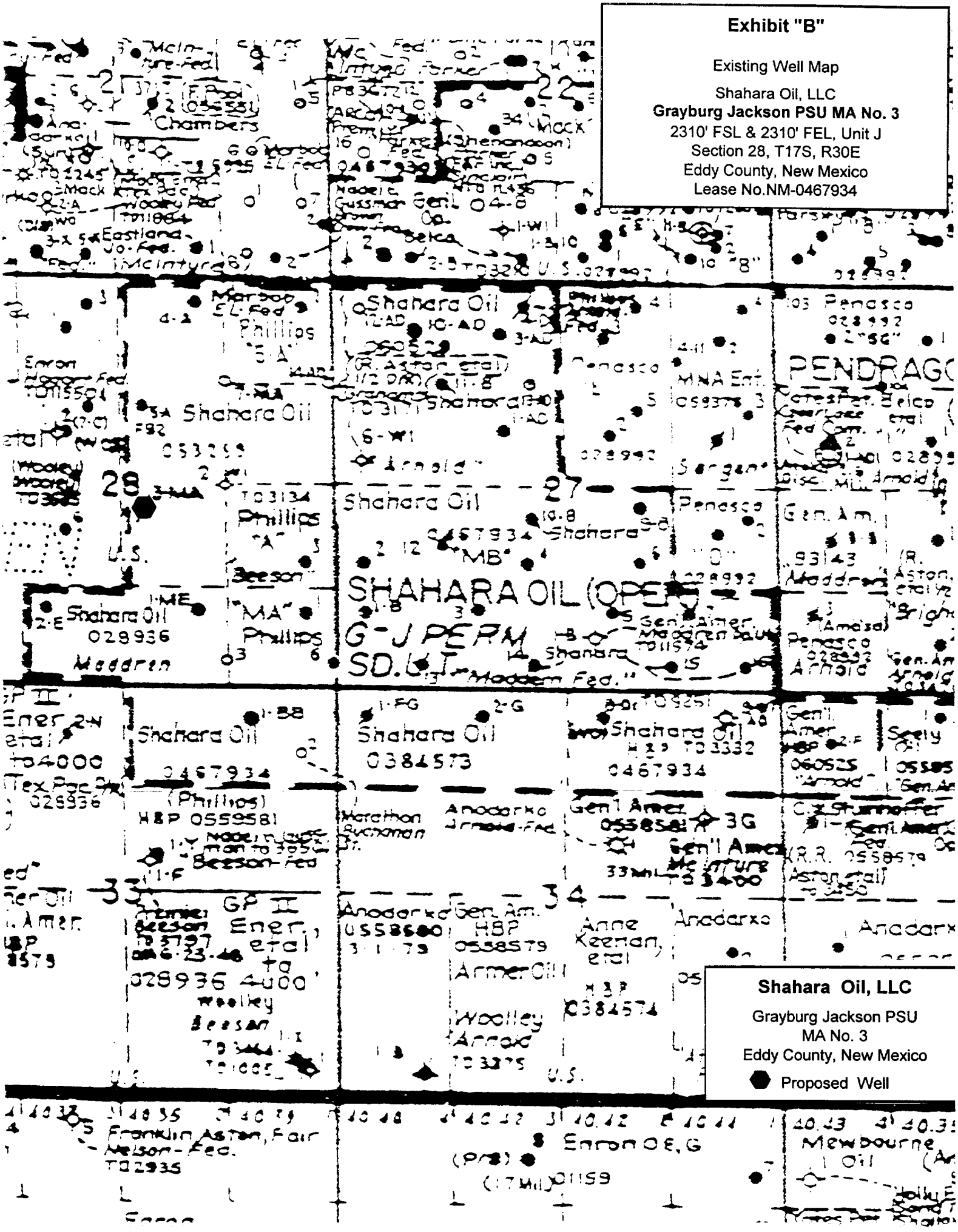


Exhibit "B"
Existing Well Map
Shahara Oil, LLC
Grayburg Jackson PSU MA No. 3
2310' FSL & 2310' FEL, Unit J
Section 28, T17S, R30E
Eddy County, New Mexico
Lease No.NM-0467934
SHAHARA OIL (OPER)
G-J PERM
SD. U.T.
Shahara Oil, LLC
Grayburg Jackson PSU
MA No. 3
Eddy County, New Mexico
Proposed Well

MEXICO OIL CONSERVATION COMM

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	Lease	Well No.
GENEPAL AMERICAN OIL CO. OF TEXAS	MADDREN	3

Unit Letter	Section	Township	Range	County
"J"	28	17 South	30 East	EDDY

Actual Footage Location of Well:
2310 feet from the South line and 2310 feet from the East line

Ground Level Elev.	Producing Formation	Pool	Dedicated Acreage:
3630 GL	Grayburg	Grayburg-Jackson	40 Acres

1. Outline the acreage dedicated to the subject well by colored pencil or hachure marks on the plat below.

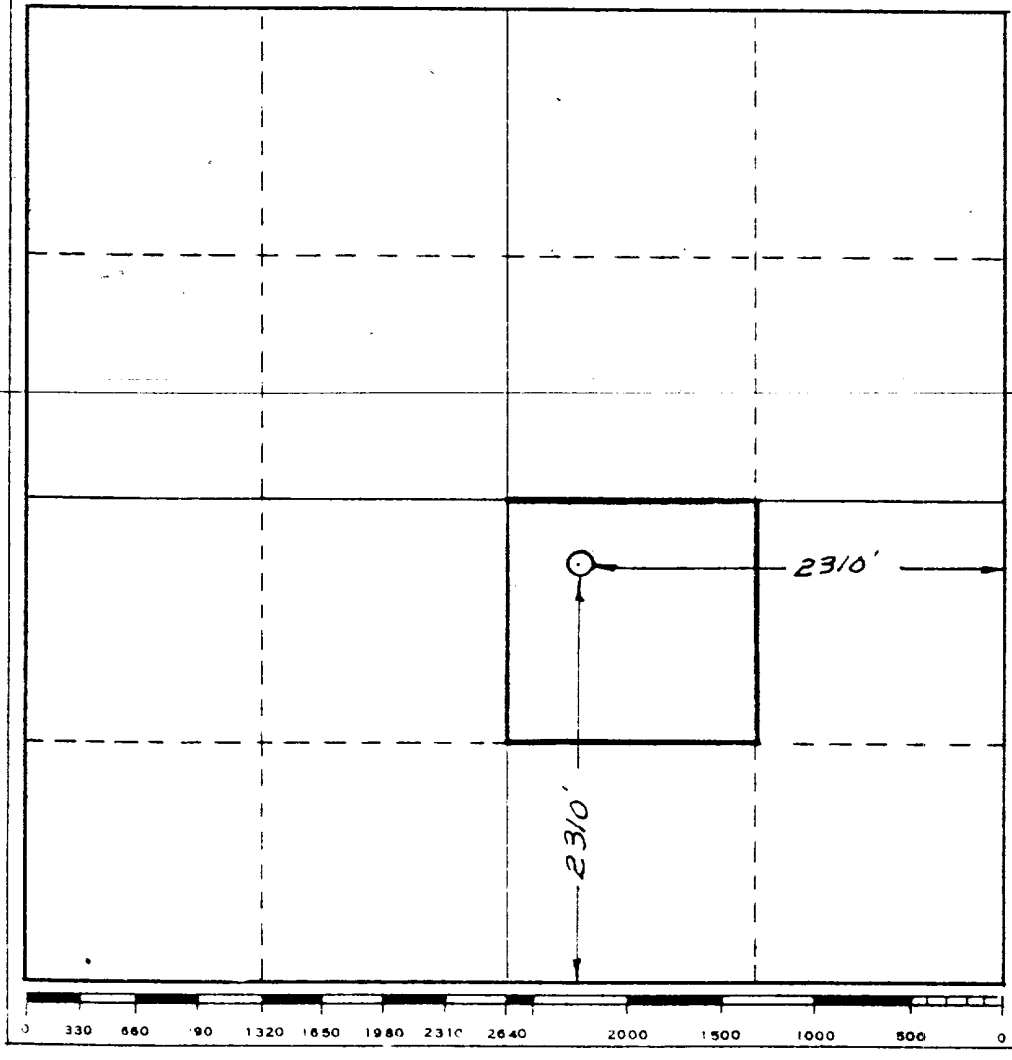
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

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 _____

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.



CERTIFICATION

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

Name: Roy Crow

Position: District Superintendent

Company: General American Oil Co. of Te

Date: November 19, 1975

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.

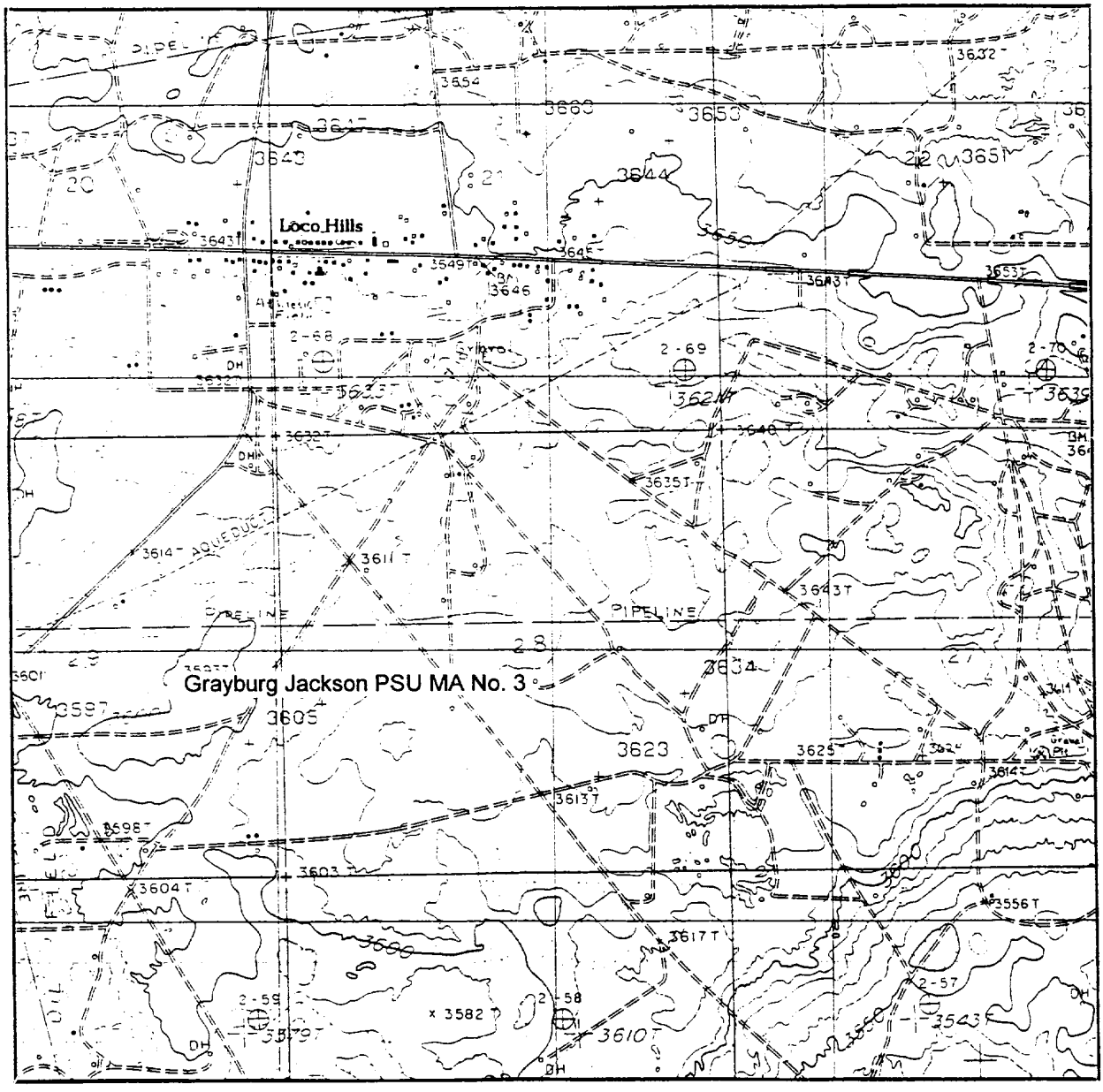
Date Surveyed: November 19, 19

Registered Professional Engineer and/or Land Surveyor: HERSCHEL L. JONES

Certificate No. 3640

STATE OF NEW MEXICO
REGISTERED LAND SURVEYOR

LOCATION VERIFICATION MAP



SCALE: 1" = 2000'

CONTOUR INTERVAL:
LOCAL HILLS, N.M.– 10'

SEC. 28 TWP. 17–S RGE. 30–E

SURVEY N.M.P.M.

COUNTY EDDY

DESCRIPTION 2310' FSL & 2310' FEL, Unit J

ELEVATION 3630' GL

OPERATOR SHAHARA OIL, LLC

LEASE GRAYBURG JACKSON PSU TRACT MA

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

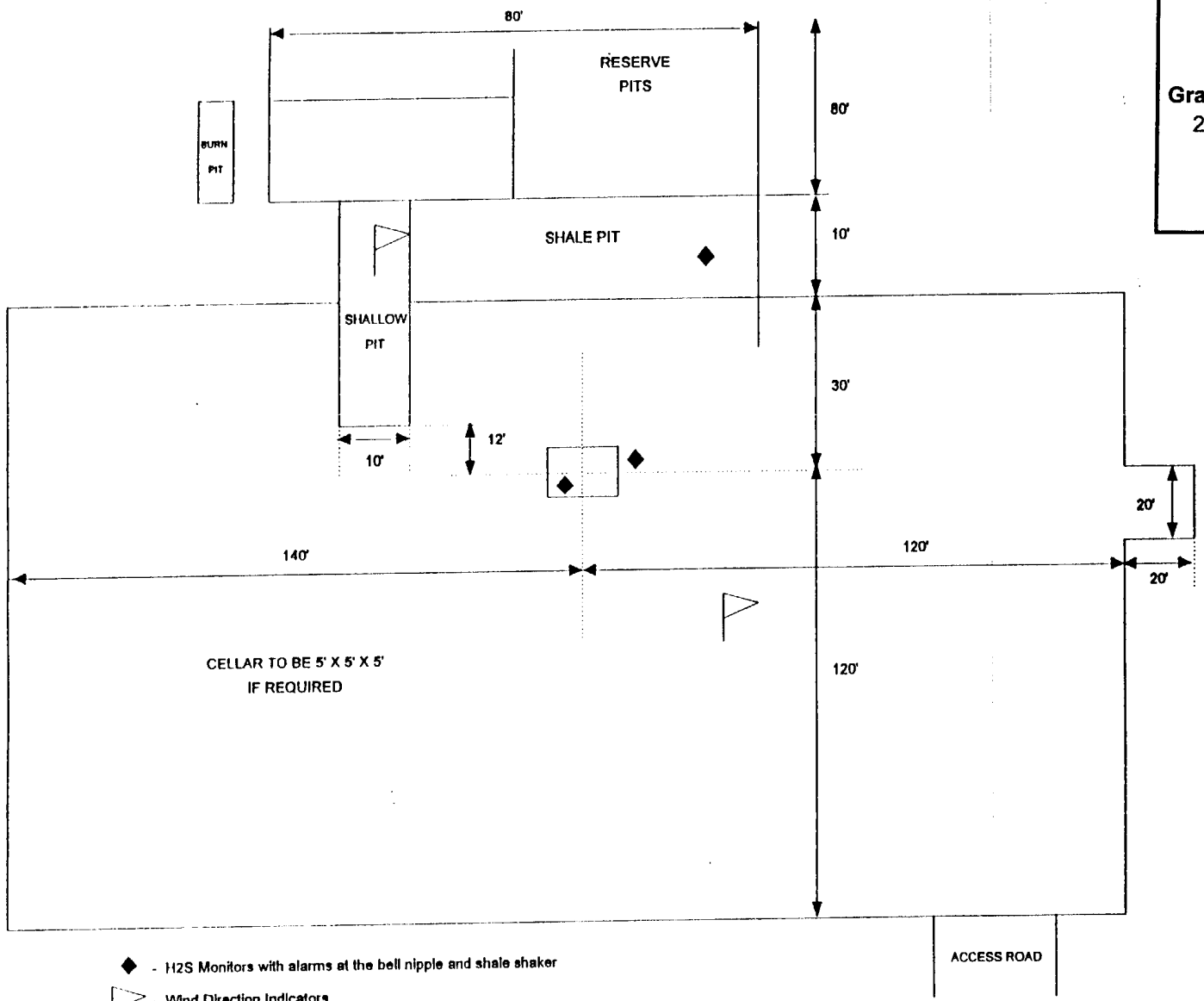
Exhibit "C-1"

Location Verification Map

Shahara Oil, LLC
Grayburg Jackson PSU MA No. 3
2310' FSL & 2310' FEL, Unit J
Section 28, T17S, R30E
Eddy County, New Mexico
Lease No.NM-0467934

Exhibit "D"
RIG LAYOUT

Shahara Oil, LLC
Grayburg Jackson PSU MA No. 3
2310' FSL & 2310' FEL, Unit J
Section 28, T17S, R30E
Eddy County, New Mexico
Lease No.NM-0467934



Prevailing Wind Direction
Southwest

N

◆ - H2S 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 ft from wellhead.

EXHIBIT "E" MINIMUM BLOWOUT PREVENTER REQUIREMENTS

3,000 psi Working Pressure

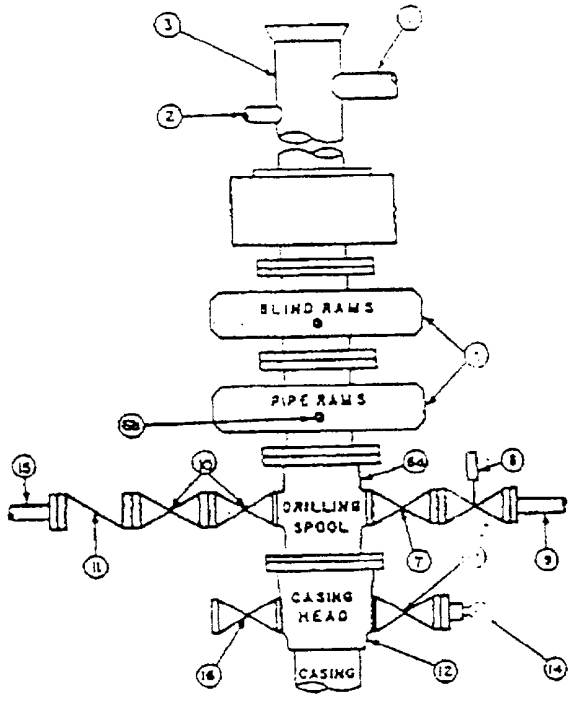
3 MWP

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 "E"

BOP Equipment

Shahara Oil, LLC
Grayburg Jackson PSU MA No. 3
2310' FSL & 2310' FEL, Unit J
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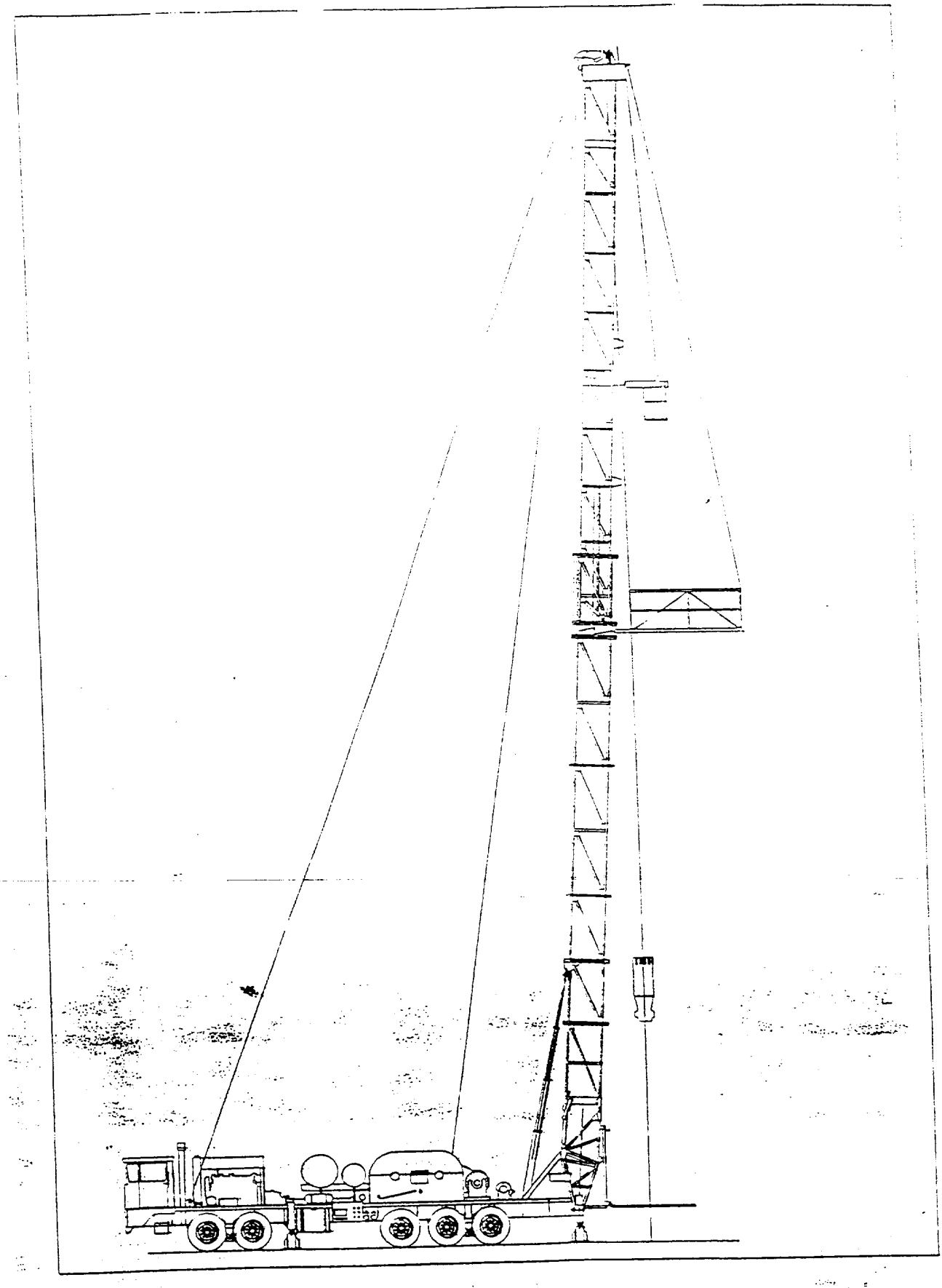

Lease No.NM-0467934