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OIL CONSERVATION DIVISION
SANTA FE

NSL-2305
RULE-104 F(I)

PHILLIPS PETROLEUM COMPANY
ODESSA, TEXAS 79762
4001 PENBROOK

EXPLORATION AND PRODUCTION GROUP

December 18, 1986

Re: Keely-C Fed Well No. 59
Grayburg-Jackson, SR-Q-G-SA Field
Request for Administrative Approval
of Unorthodox Location

Grayburg Jackson
Seven Rivers Queen Grayburg
San Andres Pool.
40 acre dedication
NW/4 SE/4 Section 25

State of New Mexico
Oil Conservation Division
P.O. Box 2088
Santa Fe, NM 87504-2088

Attn: R.L. Stamets
Director

Dear Sir:

Phillips respectfully requests administrative approval of an unorthodox location for our Keely-C Fed Well No. 59.

The Burch Keely Waterflood project was authorized by N.M.O.C.D. Order No. R-7900, dated April 25, 1985. Project development is currently under way with 22 producers being converted to injection, construction of a new water injection station, and installation of approximately 30,000' in injection lines. Water injection into the converted wells is expected to begin on or around December 31, 1986. Waterflood response is projected to occur within six months, based on offset waterflood performance.

The Keely-C Federal Well No. 59 will be drilled to recover oil reserves which would otherwise be bypassed by the waterflood. The location of the subject well, 1331' FSL and 1331' FEL of Section 25, T-17-S, R-29-E, Eddy County, New Mexico is necessary to maintain regular well spacing, the waterflood will operate with the greatest sweep efficiency and oil recovery will be maximized. In addition, the anticipated rapid waterflood response makes it imperative that the subject well be drilled within the next six months for optimum oil recovery.

Your early attention is appreciated. Please direct any inquiries to me at (915) 367-1488.

No offset operators
within unit

Yours very truly,

Larry M. Sanders

Larry M. Sanders
Regulation and Proration Supervisor

Request for Administrative Approval
of Unorthodox Location
Keely-C Fed Well No. 59

cc: State of New Mexico
Oil Conservation Division
Drawer DD
Artesia, NM 88210

Bureau of Land Management
P.O. Box 1778
Carlsbad, NM 88220

JLD

Form 3160–3
(November 1983)
(formerly 9–331C)

SUBMIT IN TRIPLICATE*
(Other instructions on reverse side)

Form approved.
Budget Bureau No. 1004–0136
Expires August 31, 1985

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

5. LEASE DESIGNATION AND SERIAL NO.: LC-028784-C

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

7. UNIT AGREEMENT NAME:

1a. TYPE OF WORK: DRILL [X] DEEPEN [ ] PLUG BACK [ ]

b. TYPE OF WELL: OIL WELL [X] GAS WELL [ ] OTHER — SINGLE ZONE [X] MULTIPLE ZONE [ ]

8. FARM OR LEASE NAME: Keely-C Fed

2. NAME OF OPERATOR: Phillips Petroleum Company

9. WELL NO.: 59

3. ADDRESS OF OPERATOR: Room 401, 4001 Penbrook St. Odessa, TX 79762

10. FIELD AND POOL, OR WILDCAT: Grayburg-Jackson-7R-Q-G-SA

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*)
At surface: Unit J, 1331' FSL & 1331' FEL
At proposed prod. zone: Unit J, 1331' FSL & 1331' FEL

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: Sec. 25, T-17-S, R-29-E

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*: 3 miles South & West of Loco Hills, NM

12. COUNTY OR PARISH: Eddy

13. STATE: NM

15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any): 1331' FSL

16. NO. OF ACRES IN LEASE: 1440

17. NO. OF ACRES ASSIGNED TO THIS WELL: 40

18. DISTANCE FROM PROPOSED LOCATION* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.: 910.3' NW to #19

19. PROPOSED DEPTH: 3500

20. ROTARY OR CABLE TOOLS: Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.): 3583.0 GL (Unprepared)

22. APPROX. DATE WORK WILL START*: Upon approval

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
12-1/4"	8-5/8"	24#	350'	400 sk Class C + 2% $CaCl_2$ (*1)
7-7/8"	5-1/2"	17#	3500'	Circ. to surface using caliper vol. + 30% excess (*2)

(*1) Circ. to surface

(*2) Lead: 800 sk Class C + 10% Diacel D + 9#/sk salt
Tail: 500 sk Class C + 5#/sk salt

This proposed location shares the proration unit with Keely-C Fed well no. 19 which is operated by Phillips Petroleum Company.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, 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 W. J. Mueller TITLE Eng. Supervisor, Reservoir DATE 12/18/86

(This space for Federal or State office use)

PERMIT NO. _____ APPROVAL DATE _____

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

***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.

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	Lease	Well No.
PHILLIPS PETROLEUM COMPANY	KEELY "C" FEDERAL	59

Unit Letter	Section	Township	Range	County
J	25	17-S	29-E	EDDY

Actual Footage Location of Well:
1331 feet from the SOUTH line and 1331 feet from the EAST line

Ground Level Elev.	Producing Formation	Pool	Dedicated Acreage:
3583.0	San Andres	Grayburg-Jackson-7R-Q-G-SA	40 Acres

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

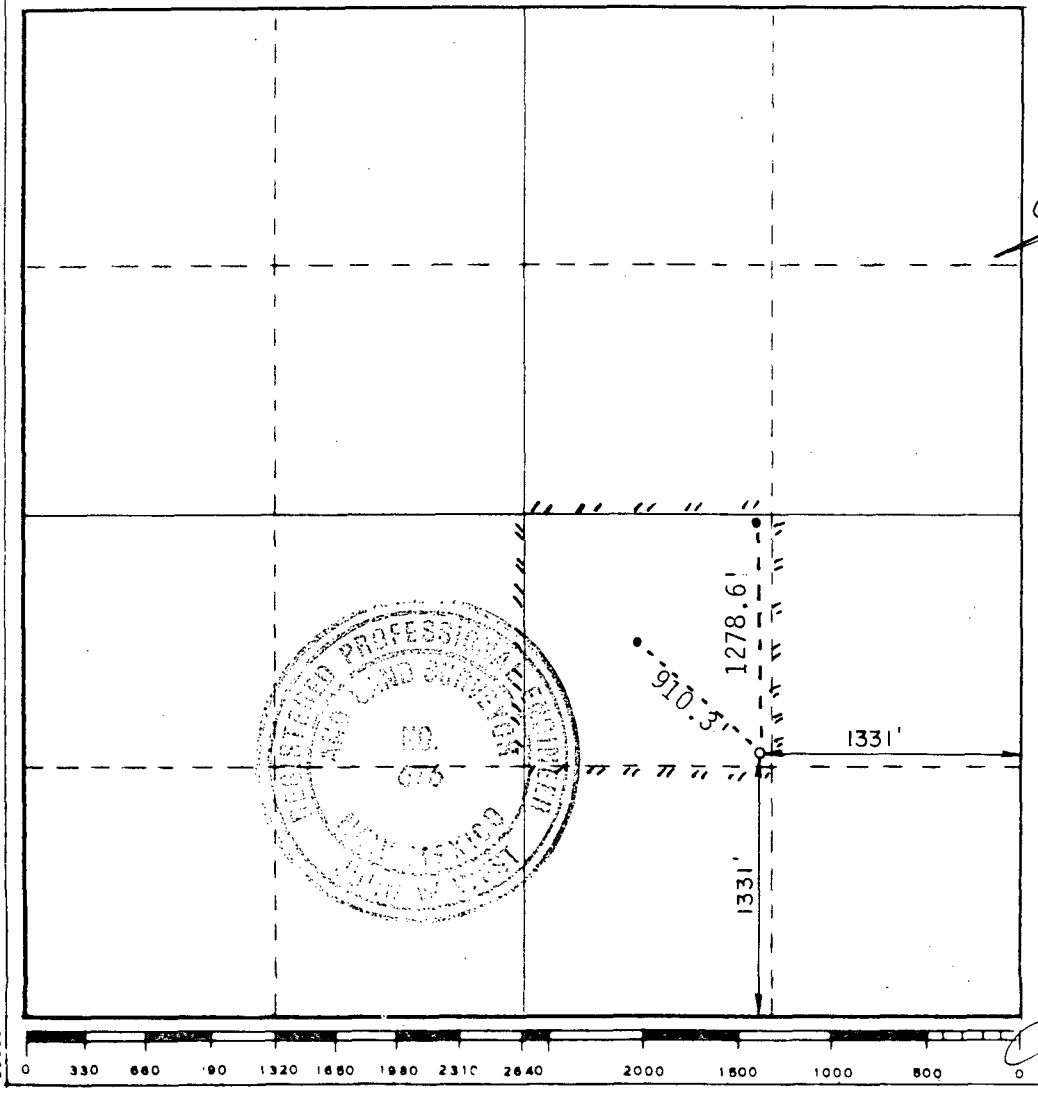
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

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: W. J. Mueller

Position: Eng. Supervisor, Reservoir

Company: Phillips Petroleum Company

Date: 12/22/86

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: NOV. 19, 1986

Registered Professional Engineer and/or Land Surveyor

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

96560

BLOWOUT PREVENTER REQUIREMENTS

Well Name: Keely-C Fed Well No. 59, Fed. Lease No. LC-028784-C

I. Blowout preventer equipment, installation, testing and responsibilities will be in accordance with Phillips Company's Blowout Preventer Standards.

II. Figure Nos. 7-9 or 7-10 (Drawing Attached): Casing String 8-5/8, 5-1/2
BOP Size 8-5/8"; Working Pressure 3000 psi

III. Equipment to be furnished by Contractor:

A. Ram Type BOPs:
1. No. Required two
2. Acceptable Manufacturers & Types
   a. Cameron Iron Works: QRC; F; SS; U
   b. Shaffer Tool Works: B; E; LWS; LWP
   c. Hydril

B. Annular Type BOPs:
1. No. Required None
2. Acceptable Manufacturers & Types
   a. Hydril - GK
   b. Shaffer - Spherical
   c. Cameron - D

C. Preventer Operating Equipment
1. Hydraulic Pump - air, steam or electrically operated of sufficient volume and pressure capacity to close the largest ram type preventer in less than 30 seconds. Electrically operated pump must be equipped with explosion proof motor and controls.
2. Manifold with a control valve for each preventer.
3. A Hydril or equivalent regulator for each annular type preventer.
4. Accumulator of sufficient volume and pressure capacity to close all preventers in the assembly without recharging. If the pump in C.1. is incapable of recharging the accumulator in excess of 1500 psi, a separate pump capable of this is to be furnished.
5. Remote control panel with a station for each preventer control valve.
6. Steel piping to connect hydraulic closing units to preventers.
7. Choke manifold with seamless steel piping and flanged or clamp hub connections. Choke manifold assembly and piping sizes as specified, on the attached drawing. All working lines, except hydraulic closing lines, shall have flanged or clamp hub connections to preventers, spools and casing heads.
8. Full opening drill string safety valve (I.D. equal or larger than I. D. of tool joint in use). Working pressure to equal or exceed specified BOP working pressure. O.D. and configuration such that valve can be run in the hole with adequate clearance.
9. Full opening upper Kelly cock. Working pressure to equal or exceed specified BOP working pressure.

REG1,REQUIRE

III. C. (continued)

10. Hydraulic pump of sufficient pressure rating to test preventer assembly to rated working pressure with necessary hose and fittings to connect the pump to drill pipe box or safety valve pin.
11. Drilling spool for use wth single ram type preventers or with dual ram type preventers which do not have outlets between the rams.
12. Two valves on each side of drilling spool or dual preventers, one side for choke manifold connection and the other for kill line connection.
13. Hand wheels and extensions for manual operation of the ram type preventers. U-joints, extension guides, working platform(s) as necessary.
14. A 1" - 5000 psi WP plug valve on the closing side of the annular type preventer using a XXE 1" x 4" nipple.
15. Flowlines from choke manifold to pits.
16. Pressure gauge with pressure range at least equivalent to BOP WP.

IV. Equipment to be Furnished by Phillips:

A. Test plug to seat in casing head.

B. Remote controlled chokes, if installed.

C. Casinghead with valves on outlets.

D. Inside blowout preventer, if required.

E. Mud-gas separator, if required, and necessary piping.

V. Location of Equipment & Controls:

A. Remote control panel on the rig floor adjacent to drillers position and stairway exit from the floor.

B. Accumulator-Hydraulic Control Valve Unit to be placed minimum of 50 feet from well bore in easily accessible location.

C. Choke Manifold located 5 feet or more from the BOPs with minimum number of turns in the run.

D. Manual closing facilities installed so handwheels are outside the substructures in unobstructed location. U-joints, extension guides and working platforms installed as necessary for proper and safe operation.

E. Choke Manifold connection, where possible, is to be made between the two bottom ram type preventers through use of a drilling spool or by connecting between rams of dual type units with outlets so installed.
   1. On dual type preventers where outlets are not installed between rams, connection is to be made to a drilling spool installed between the ram type and annular type preventers.

REG1,REQUIRE1

V. (Continued)

F. Position and Type Rams will be as shown on the attached drawing.

G. Fill up line to be tied into the bell nipple above annular preventers.

H. Safety Valve, open with connections and/or subs available to fit any tool joint in use, shall be on the rig floor at all times.

VI. Testing

A. Initial Installation Test
Immediately after installation, each component part of the blowout preventer assembly including choke lines, valves and closing facilities will be tested individually by steps as outlined in the Blowout Preventer Testing Procedure section of Phillips' Blowout Preventer Standards. The test pressure will be at the working pressure specified in Item II. All components must be satisfactorily tested before drilling out.

B. Ram Change or Repair Test
1. After each ram change or when any component part of the preventer assembly, including lines and valves, is disturbed, the disturbed portion is to be tested to working pressure specified in Item II.
2. Installation of casing rams is not required for running casing.

C. Weekly Pressure Test
The first trip out of the hole after 12:01 AM, Tuesday, weekly test will be performed as outlined in the Blowout Preventer Testing Procedure which includes testing the entire assembly with water to 1/2 the specified working pressure for 10 minutes. The Kelly cock and safety valve are to be tested to the specified working pressure. The weekly test is not required where the test falls within three days after the initial installation test.

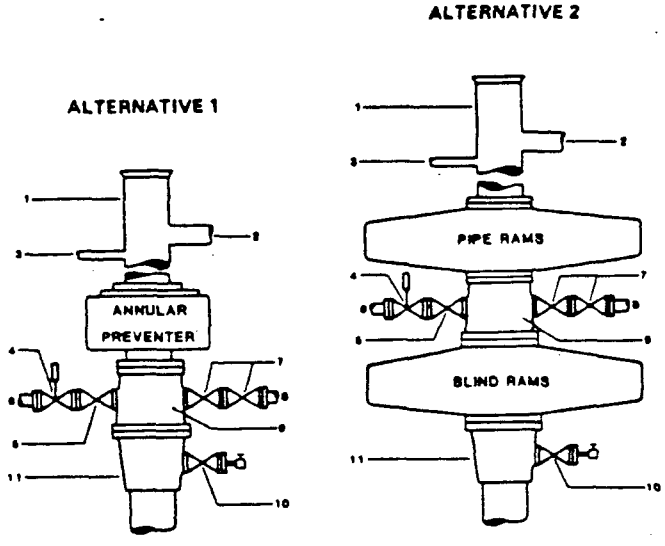
D. Operational Test
Each preventer unit is to be closed and opened on each trip or at least once each 48 hours (trip is not required just to actuate blind rams or pipe rams that do not fit top section of tapered string).

VII. Responsibilities

A. Contractor is to install and test the blowout preventer assembly as specified.

B. The driller is to check and record the accumulator pressure on the daily drilling report at the beginning of each tour.

C. Expense of rig time and pressure testing services for initial and weekly tests will be borne by:
1. Contractor while on footage contract.
2. Owner while on daywork contract.



NOTE: THE DRILLING SPOOL MAY BE LOCATED BELOW BOTH SETS OF RAMS IF A DOUBLE PREVENTER IS USED AND IT DOES NOT HAVE SUITABLE OUTLETS BETWEEN RAMS

Figure 7-9. Standard Hydraulic Blowout Preventer Assembly (2 M or 3 M Working Pressure) Alternative 1

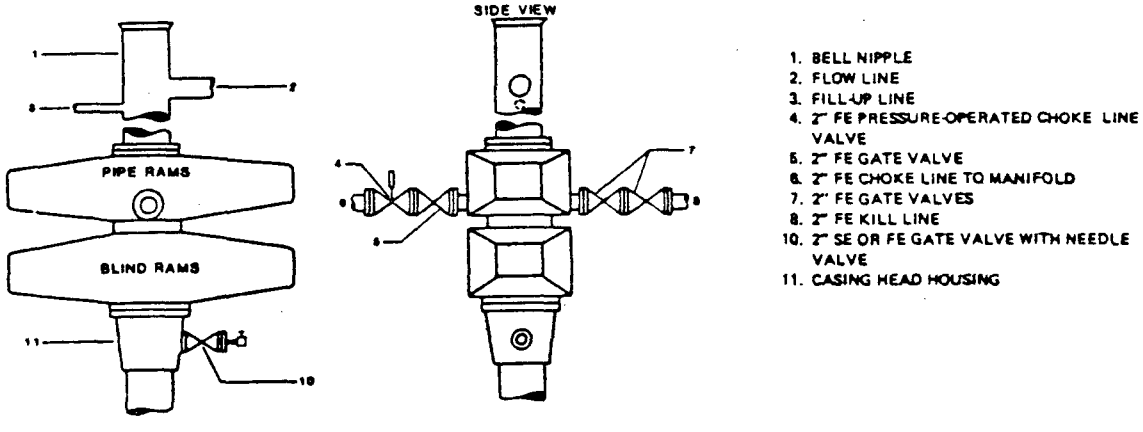


Figure 7-10. Standard Hydraulic Blowout Preventer Assembly (2 M or 3 M Working Pressure) Alternative 3 (without Drilling Spool)

PHILLIPS PETROLEUM COMPANY

Keely-C Fed, Well No. 59, Fed Lease No. LC-028784-C

DRILLING PROGNOSIS

1. Location of Proposed Well: 1331' FEL & 1331' FSL of Section 25 T-17-S, R-29-E, Eddy County, NM

2. Unprepared Ground Elevation: 3583.0 .

3. The geologic name of the surface formation is Typic Torripsamment Subgroup/Kermit Berino Series .

4. Type of drilling tools will be rotary .

5. Proposed drilling depth is 3500 .

6. The estimated tops of important geologic markers are as follows:

Tertiary - Surface	Yates - 1080'
Rustler - 250'	Queen - 2100'
Salt - 365'	Grayburg - 2460'
Tansill - 970'	San Andres - 2925'

7. The estimated depths at which anticipated water, oil, gas, or other mineral bearing formations are expected to be encountered are as follows:

Water: Fresh water - None
Salt Water - 2100'
Grayburg-San Andres 2460-3000

8. The proposed casing program is as follows:

Surface String 8 5/8", 24#/ft, K-55, STC
Production String 5 1/2", 17#/ft, K-55, STC

9. Cement Program:

Surface String = Circulate to surface with 400 sks Class 'C' + 2% $CaCl_2$. (Slurry weight 14.8 ppg, Slurry yield 1.32 cu ft/sk, 6.3 gal wtr/sk) WOC 18 hrs.

Production String = Circulate to surface using caliper volume plus 30% excess. Lead: 800 sk Class 'C' + 10% Diacel D + 9#/sk salt, (Slurry weight 13.2 ppg, Slurry yield 2.07 cu ft/sk, 11.0 gal wtr/sk.) Tail: 500 sk Class C + 5#/sk salt, (Slurry weight 15.0 ppg, Slurry yield 1.35 cu ft/sk, 6.3 gal wtr/sk.) Desired TOC 2300'. If wtr flow is encountered while drilling, perform job at max. rate & Then SI BOP 4 hours.

10. The minimum specifications for pressure control equipment which are to be used, a schematic diagram thereof showing sizes, pressure ratings (or) API series and the testing procedure and testing frequency are attached.

11. The proposed mud program is attached (see Drilling Specialties mud letter).

12. The testing, logging, and coring programs are as follows:
D.S.T.'s or cores: None
Logs: 1) DLL-MSFL-GR-Caliper from TD to 800'.
2) CNL-LDT-GR-Caliper from TD to 800' w/ CNL-GR-Caliper continued to surface
3) Long spaced sonic from TD to 1500' for Frac Hite Log.
Special Tests: None

13. Anticipate no abnormal pressures or temperatures to be encountered or any other potential hazards such as Hydrogen Sulfide Gas. Low risk H_2S equipment will be used.

14. The anticipated starting date is immediately upon approval with duration of operations for approximately 30 days thereafter.

15. Water Supply: Purchased from a New Mexico Commerce Commission approved trucking company

16. Caliche for road and pad construction to be obtained from Fed pit in Sec. 19, T-17-S, R-30-E, and trucked to location.

October 31, 1986

Proposed Mud Program--Burch-Keely Area Infill Drilling, Grayburg Jackson (SR-Q-Gb/SA) Field, 3500' T.D., Eddy County, New Mexico.

Surface - 350' of 8-5/8" Casing

Spud with fresh water, bentonite, and lime mixed to a high viscosity. Circulate through the steel pits. Maintain sufficient viscosity to clean the hole for drilling, and insure running of casing.

Below Surface to 2050'

Drill out from under surface casing with 10 lb. brine. Circulate through the reserve pit. Use minimum volume necessary to circulate the hole. Use small additions of Desco*, if needed, for foaming. Water flow possible about 2000'±.

From 2050' to 3500' T.D.

Return to steel pits, and mud up. Reduce hardness, if high, with soda ash. Add Drispac* and starch (one sack Drispac with each 3-5 sacks of starch) for a fluid loss of 20cc, or less. Mix preservative as required. Maintain the following properties to T.D.: Viscosity - 32 to 36 sec/1000 cc; Fluid Loss - 20cc, or less; Weight - 10.3 ppg., or less. Maintain system with 10 lb. brine. If additional hole cleaning is needed, use Magma Fiber mixed at pump suction. Loss of mud may be encountered in the San Andres (2530' to T.D.). In case of loss, mix LCM, as required. 'Prior to reaching T.D., should hole conditions dictate, adjust mud properties as needed to insure running of open hole logs, and casing. (If hit water flow and unable to mud up, may want to pump one or two high viscosity sweeps at T.D. One sweep before logging, and another before tripping out to run casing. Leave high viscosity mud in hole below water flow to run pipe.)

The mud engineer shall include on each test report: Daily cost and materials used for the previous 24-hour period. Also, the cumulative cost to date for the well. Twice weekly, mail a copy of the test reports to: D. G. Slemmons, 4001 Penbrook, Odessa, Texas 79762. Send two copies of the well recap (total cost and engineering summaries) to: D. G. Slemmons, 4001 Penbrook, Odessa, Texas 79762.

* - Trademark

Mud Additives Recommended on Initial Load
(To be placed on pallets and covered)

Bentonite - 40 sacks
Lime - 5 sacks
Paper - 40 sacks
LCM - 40 sacks

Mud will be ordered by
Phillips' Drilling Supervisor

DGS/lsw
PR4/burch

SURFACE USE PLAN

Phillips Petroleum Company, Keely-C Fed Lease, Well No. 59, NW/4 SE/4 Section 25, T-17-S, R-29-E, Eddy County, New Mexico. (Fed Lease No. LC-028784-C.)

This plan is to accompany "Application for Permit to Drill" the subject well which is located approximately 3 miles South & West of Loco Hills New Mexico. The following is a discussion of pertinent information concerning the possible effect which the proposed drilling well may have on the environment of the well and road sites and surrounding acreage. A copy will be posted on the derrick floor so that all contractors and sub-contractors will be aware of all items of this plan.

1. Existing Roads

   A. 300' North of new location. Existing road runs East and West.

2. Planned Access Roads

   A. Turn South off existing road and construct 12'x300' new road in South direction to well site. 1331' FSL & 1331' FEL Section 25, T-17-S, R-29-E, Eddy County, New Mexico.
   B. Turnouts: None.
   C. Drainage Design: New road will have center line to side line slope
   D. Culverts, Cuts and Fills: None
   E. Surfacing Material: Caliche well pad and roads.
   F. Gates, Cattleguards, Fences: None
   G. Proposed Road: The proposed road is centerline staked.

3. Locations of Existing wells: Keely-C Fed #19 located Unit J 1980' FS & 1980' FE Lines, Section 25, T-17-S, R-29-E.
4. Locations of Tank Batteries, Production Facilities, Production Gathering, and Service Lines: The present tank battery is located Sec. 24, T-17-S, R-29-E, Satt. F., Section 25, 17-S, 29-E
   Flow line from Well No. 59 to run alongside proposed access roadway.

5. Water Supply Source: Purchased from a New Mexico Commerce Commission approved trucking company
6. Source of Construction Materials

   A. Caliche for surfacing the new road and well pads will be obtained from Pit in Sec. 19 & trucked into new location
   B. Caliche pit is located on Fed pit in Sec. 19, T-17-S, R-30-E

7. Methods for Handling Waste Disposal

   Will be put in separate waste pits and covered with minimum of 2' backfill. (See sketch.) If well is productive, maintenance waste will be placed in special trash

cans and hauled away periodically. All produced water will be collected in tanks until hauled to an approved disposal system, or separate disposal applications will be submitted for appropriate approval.

8. Ancillary Facilities: None

9. Well Site Layout: Attached sketch shows the relative location and dimensions of the well pad, mud pit, reserve pit, and trash pit. Location will be 250 E&W x 250 N&S .

10. Plans for Restoration of Surface:

Pit will be backfilled and levelled as soon as practical to original condition. If well is productive, caliche pad will remain as well service pad. If dry hole, pads and access roads will be ripped per regulations. Commencement of rehabilitation operations will immediately follow removal of drilling and completion equipment from location and rehabilitation of the surface is planned to be completed within 60 days from commencement.

11. Other Information:

A. Terrain: See Archeological Survey
B. Soil: See Archeological Survey
C. Vegetation: See Archeological Survey
D. Surface Use: Possible grazing
E. Ponds and Streams: None
F. Water Wells: None
G. Residences and Buildings: 3 miles North and East.
H. Arroyos, Canyons, etc.: None
I. Well Sign: Sign identifying and locating the well will be maintained at drill site with the spudding of the well.
J. Archaeological Resources: See Archeological Survey

12. Operator's Representative: Field personnel who can be contacted concerning compliance of the "Surface Use Plan" is as follows:

Production and Drilling
W. B. Berry
4001 Penbrook Street
Odessa, Texas 79762
Phone: 915-367-1488

or

D.J. Fisher
1625 West Marland
Hobbs, New Mexico 88240
Phone: 505-393-5121

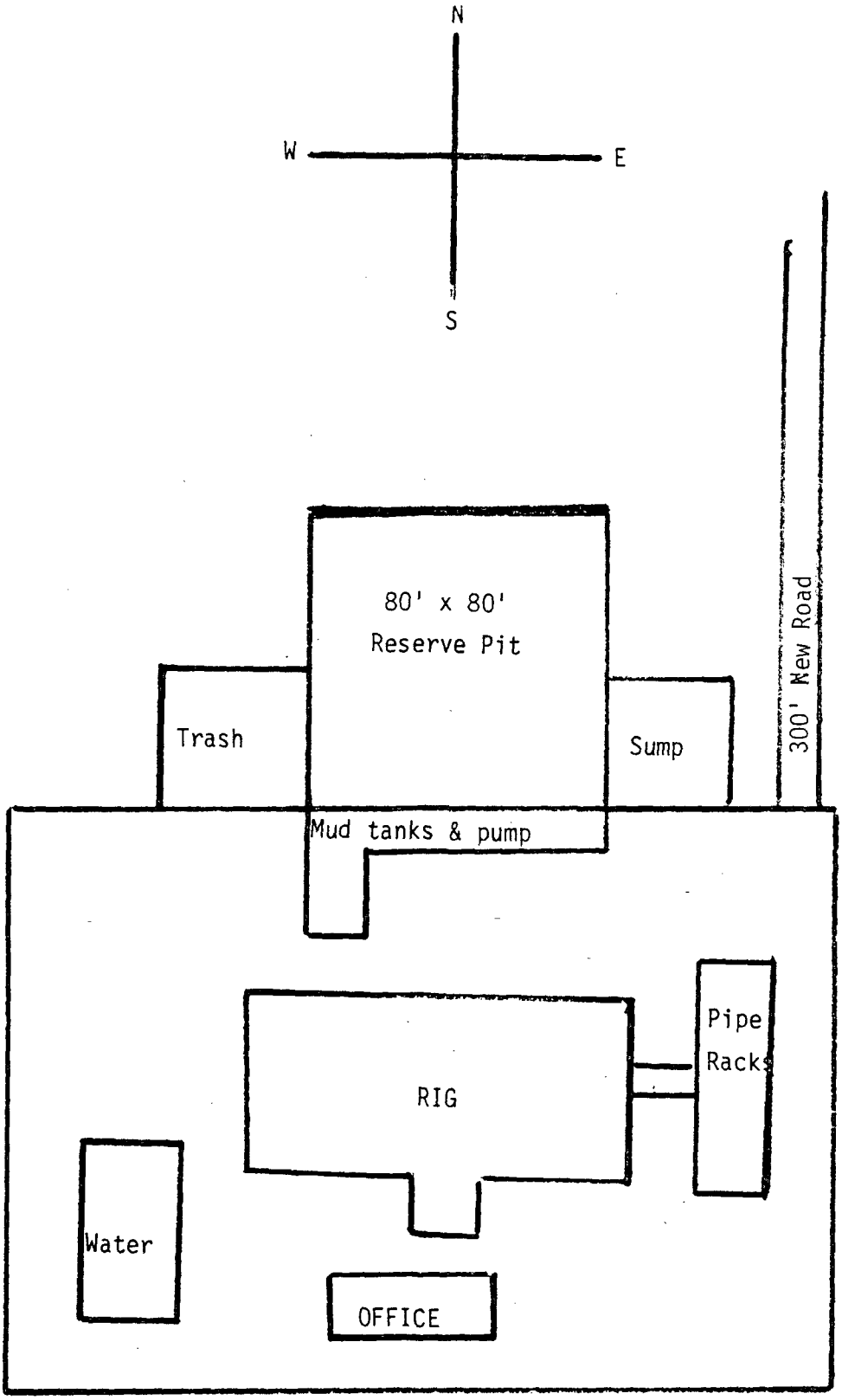
13. Certification:

I hereby certify that I, or persons under my direct supervision, have inspected the drill site and access route; that I am familiar with the conditions which presently exist; that the statements made in this plan are, to the best of my knowledge, true and correct; and that the work associated with the operations proposed herein will be performed by Phillips Petroleum Company and its contractors

and sub-contractors in conformity with this plan and the terms and conditions under which it is approved.

W. B. Berry

December 18, 1986
Date



250' x 250'

Keely-C Fed Well No. 59

NMAS
New Mexico Archaeological Services, Inc.

P. O. Box 1341
Carlsbad, New Mexico 88220
(505) 887-7646

11 December 1986

Reconnaissance
Excavation
Analysis
Explanation
Curation

PHILLIPS PETROLEUM CO.
DEC 1 2 1986
RECEIVED

Mr. Wes Stinson
Staff Drilling Superintendent
PHILLIPS PETROLEUM COMPANY
1625 W. Marland
Hobbs, New Mexico 88240-6427

Dear Mr. Stinson:

Enclosed please find NMAS' Archaeological Clearance Report for PHILLIPS PETROLEUM COMPANY's proposed Burch "C" Federal Well No. 45, Burch "C" Federal Well No. 46, Keely "C" Federal Well No. 59, Keely "C" Federal Well No. 60 and their associated access roads in Eddy County, New Mexico. Two isolated cultural occurrences (ICO) and one instance of burned caliche (BC) were recorded on the Burch "C" Federal Well No. 45 location. One isolated cultural occurrence (ICO) was recorded on the Burch "C" Federal Well No. 46 location. No cultural resources were encountered on the Keely "C" Federal Well No. 59. One isolated cultural occurrence (ICO) was recorded on the Keely "C" Federal Well No. 60 location. NMAS is suggesting clearance for PHILLIPS PETROLEUM COMPANY's proposed work as presently staked.

If you have any questions pertaining to this report, please call my office. Thank you for asking NMAS to do these surveys.

Yours sincerely,

J. Loring Haskell

Dr. J. Loring Haskell
Principal Investigator

Enclosure

cc: Mr. Ronald Ainsworth, PHILLIPS PETROLEUM COMPANY, Hobbs
Mr. Mark Calamia, BLM, Carlsbad
Mr. Thomas W. Merlan, SHPO, Santa Fe

as

Archaeological Clearance Report

for

PHILLIPS PETROLEUM COMPANY

Burch "C" Federal Well No. 45
Burch "C" Federal Well No. 46
Keely "C" Federal Well No. 59
Keely "C" Federal Well No. 60

Prepared

By

Dr. J. Loring Haskell

Submitted

By

Dr. J. Loring Haskell
Principal Investigator
New Mexico Archaeological Services, Inc.
Carlsbad, New Mexico

11 December 1986

Permit No. 14-2920-86-C

Report Number: NMAS-1986-11-D

ABSTRACT

New Mexico Archaeological Services, Inc., representing PHILLIPS PETROLEUM COMPANY, Hobbs, undertook a Class III survey of Bureau of Land Management lands scheduled to be impacted by the construction of four drill locations and their associated access roads. Field work was conducted under partly cloudy conditions in mid- afternoon on 8 December and cloudy conditions during mid- day and the afternoon of 9 December. The proposed locations will measure 400 X 400 ft (actual area surveyed 17.76 acres). Burch "C" Federal Well No. 45's access road will measure 20 X 600 ft (actual area surveyed 1.38 acres). Burch "C" Federal Well No. 46's access road will measure 20 X 450 ft (actual area surveyed 1.03 acres). Keely "C" Federal Well No. 59's access road will measure 20 X 300 ft (actual area surveyed 0.69 acre). Keely "C" Federal Well No. 60's access road will measure 20 X 75 ft (actual area surveyed 0.17 acre). Total acreage 21.05 acres. They will be situated in Sections 13, 14, 23, 25 and 30, T17S, R29E, NMPM, Eddy County, New Mexico. Cultural properties consists of two isolated cultural occurrences (ICO) and one instance of burned caliche (BC) on the Burch "C" Federal Well No. 45 location. One isolated cultural occurrence (ICO) was recorded on the Burch "C" Federal Well No. 46 location. No cultural resources were encountered on the Keely "C" Federal Well No. 59. One isolated cultural occurrence (ICO) was recorded on the Keely "C" Federal Well No. 60 location. Clearance is suggested for all PHILLIPS PETROLEUM COMPANY's proposed work as presently staked.

Introduction

On 8 and 9 December 1986, New Mexico Archaeological Services, Inc., (NMAS), Carlsbad, undertook for PHILLIPS PETROLEUM COMPANY, Hobbs, an archaeological survey of federal lands administered by the Bureau of Land Management in Eddy County, New Mexico. Reconnoitered areas will be impacted by four drill locations and their associated access roads. This project was advanced by Mr. Wes Stinson, Staff Drilling Superintendent, PHILLIPS PETROLEUM COMPANY, and administered by Dr. J. Loring Haskell, Principal Investigator, NMAS, Inc. This survey was undertaken by Dr. Haskell. Field work was conducted under partly cloudy conditions in mid- afternoon on 8 December and cloudy conditions during mid- day and the afternoon of 9 December. Ground visibility ranges between 75 and 90%. Field time 4½ hours.

Survey Technique

For this investigation, PHILLIPS PETROLEUM COMPANY's proposed locations were reconnoitered for evidence of man's past activities by walking them in a series of 25 ft wide, close itnerval (15° or less), zigzag transects. In addition, an added zone extending 20 ft on each side of the staked 400 X 400 ft locations, and lying outside the bounds of the proposed work areas were reconnoitered by a similar means. The access roads were walked in two, 50 ft wide transects. Lathe is considered to be the center of the proposed roads. Methodologically, these procedures served to promote optimal conditions for the visual

examination of the areas to be impacted by construction-related activities.

Burch "C" Federal Well No. 45

Location

The proposed location will measure 400 X 400 ft (actual area surveyed 4.44 acres) on federal lands and will be situated 330 ft from the north line and 2580 ft from the west line.

Section 23, T17S, R29E, NMPM, Eddy County, NM

Thus it will be situated in the:

NE¼NW¼, Section 23, T17S, R29E, NMPM, Eddy County, NM

The associated access road will measure approximately 20 X 600 ft (actual area surveyed 1.38 acres) and is situated in the:

NE¼NW¼, Section 23, T17S, R29E, NMPM, Eddy County, NM
SW¼SE¼, Section 14, T17S, R29E, NMPM, Eddy County, NM

Map Reference: USGS RED LAKE SE QUADRANGLE, 7.5 Minute Series, 1955.

The sites of the proposed location and access road have not been previously impacted by mechanical means.

Terrain

PHILLIPS PETROLEUM COMPANY's proposed location will be situated on a hummocky landform due north of a large subsidence structure or doline. Areal dunes range between 0.60 and 2.0 m in height and increase in magnitude toward the west. Soil individuals are composed of Holocene- and Pleistocene- aged, sandy loams and loamy sands. Croute calcaire underlies surficial deposits and outcrops on the south. Caliche screes are characteristic of interdunal areas presently undergoing degradation.

Rills and gullies are characteristic of the general vicinity as a whole. Drainge is tributary to the doline. Taxonomically, soil individuals fall within the Typic Torripsamment subgroup/ Kermit- Berino Series. Nearest water is in the form of seasonally available sources within the Bear Grass Draw catchment. Nearest permanent source of water is the Pecos River. Elevation is approximately 3600 feet.

Floristics

Local soils are supportive of a scrub floral community. Principal plants of the overstory are Prosopis juliflora and Atriplex canescens. Forbs include an omnipresence of Gutierrezia sarothrae, Croton sp., and Lesquerella sp. Grasses, occurring maninly on the south, are represented by Setaria macrostachys, Aristida sp., Sporobolus flexuosus and Tridens pulchellus.

Cultural Resources

Prefield 8 December 1986, Mark Calamia, four archaeological sites, Section 23.

Prefield 10 December 1986, Mark Calamia, seven archaelogical sites, Section 14.

Section 23, T17S, R29E

NM-06-942, a Jornada Mogollon special activities zone, consists of a scatter of primary- and secondary- decortication flakes, scrapers, mano and metate fragments, Jornada Brownware potsherds, and fragments of burned caliche.

NM-06-2974 (NMAS 5598), a task locus of unknown authorship, hosts a single fire hearth, a scatter of burned caliche, and several chert secondary decortication flakes.

NMAS 5631, a small task locus of unknown authorship, hosts chert and quartzite primary- secondary and tertiary decortication flakes, several quartzite cores, a quartzite biface, a quartzite hammerstone, and burned caliche.

NM-06-2973 (NMAS 5599), a task locus of Jornada Mogollon authorship, hosts Jornada Brownware and Chupadero Black-on-white potsherds, a chert scraper, a quartzite scraper, and chert and quartzite primary- and secondary- decortication flakes.

Section 14, T17S, R29E

NMAS 5647, a large special activities zone, hosts chert and quartzite primary- and secondary- decortication flakes, frequent thinning flakes, chert and quartzite cores, quartzite hammerstones, ground stone fragments, at least three, burned, highly organic features, at least six, highly eroded, burned, caliche-type hearths, and numerous amorphous scatters of burned- and fire-cracked, caliche cobbles and gravels.

NMAS 5464, an occupation zone of Jornada Mogollon authorship, hosts chert and quartzite, primary- and secondary- decortication flakes, one chalcedony secondary decortication flake, one chert core, one quartzite chopper, numerous ground stone fragments, several Chupadero Black-on-white potsherds, and a very light scatter of burned caliche cobbles.

NMAS 5664, a special activities zone of possible Archaic age, harbors ground stone fragments, three hightly eroded, caliche-type, fire hearths, chert and quartzite, primary- and secondary- decortication flakes, several quartzite core and hammerstones, and an amorphous scatter of burned- and fire-cracked caliche cobbles and gravels.

NMAS 5465, an occupation zone of unknown authorship, hosts two sandstone metate fragments, one sandstone mano fragments, chert primary- and secondary- decortication flakes, one chalcedony tertiary decortication flake, and an highly eroded fire hearth.

NM-06-4123, ceramic and lithic scatter, hosts Jornada Brownware potsherds, undiagnostic ground sandstone fragments, two metate fragments, and chert debitage, principally secondary decortication flakes and thinning flakes.

NM-06-2812, an Jornada Mogollon- and possible Archaic-aged site, hosts Jornada Brownware potsherds, metate and mano fragments, bifaces, unifaces, utilized flakes, cores, hammerstones, and fire- cracked caliche cobbles and gravels.

NM-06-4148, a ceramic and lithic scatter, hosts an Jornada Brownware potsherd, chert and quartzite cores, primary- secondary- and tertiary-decortication flakes, sandstone mano and metate fragments, and thermally altered caliche.

During the course of this survey, two isolated cultural occurrences (ICO) and one instance of burned caliche (BC) were recorded.

Isolated Cultural Occurrences (ICO)

ICO 1, consisting of one yellowish-gray, chert interior flake, 36 X 33 X 8 mm, is situated on a denuded surface at a point 150 ft south-southeast of the center of the location. A caliche scree, along with actual outcroppings of caliche, mark the coeval surface. There is no evidence of sub-surface remains as the artifacts rest on croute calcaire. Plants include: mesquite, brown snakeweed and croton. It is located in the:

SE¼NE¼NE¼NW¼, Section 23, T17S, R29E, NMPM, Eddy County,NM

UTM: Not Available

Map Reference: USGS RED LAKE SE QUADRANGLE, 7.5 Minute Series, 1955.

ICO 2, consisting of one piece of very dark red, granular, quartzite angular debris, 44 X 27 X 24 mm, is located on a partially denuded surface at a point 120 ft west of center. Caliche cobbles and gravels mark the ceoval surface. There is no evidence of surface remains. Plants occurring locally are mesquite, brown snakeweed and croton. It is located in the:

NE¼NE¼NE¼NW¼, Section 23, T17S, R29E, NMPM, Eddy County, NM

UTM: Not Available

Map Reference: USGS RED LAKE SE QUADRANGLE, 7.5 Minute Series, 1955.

Burned Caliche (BC)

One burned caliche cobble was noted at a point 185 ft south-southeast of the center of the location.

Prehistorically, land usage was intense during Eastern Jornada

Mogollon times. Areal archaeological sites are of the task locus and special activities zone types. Economic pursuits focused principally on hunting and gathering activities.

Recommendations

NMAS recommends clearance for PHILLIPS PETROLEUM COMPANY's proposed Burch "C" Federal Well No. 45 and its access road and suggests that work-related activities proceed in accordance with company plans (Fig. 1). Clearance, of course, is granted by the Bureau of Land Management. If additional cultural resources are encountered during construction, the BLM and NMAS should be notified immediately. Previously recorded NMAS 5631 is situated to the northwest of the location and is not threatened as long as men and materiel are confined to the pad.

Burch "C" Federal Well No. 46

Location

The proposed location will measure 400 X 400 ft (actual area surveyed 4.44 acres) on federal lands and will be situated 2080 ft from the south line and 760 ft from the east line.

Section 30, T17S, R30E, NMPM, Eddy County, NM

Thus it will be situated in the:

NE¼SE¼, Section 30, T17S, R30E, NMPM, Eddy County, NM

The associated access road will measure approximately 20 X 450 ft (actual area surveyed 1.03 acres) and is situated in the:

NE¼SE¼, Section 30, T17S, R30E, NMPM, Eddy County, NM
SE¼NE¼, Section 30, T17S, R30E, NMPM, Eddy County, NM

Map Reference: USGS RED LAKE SE QUADRANGLE, 7.5 Minute Series,

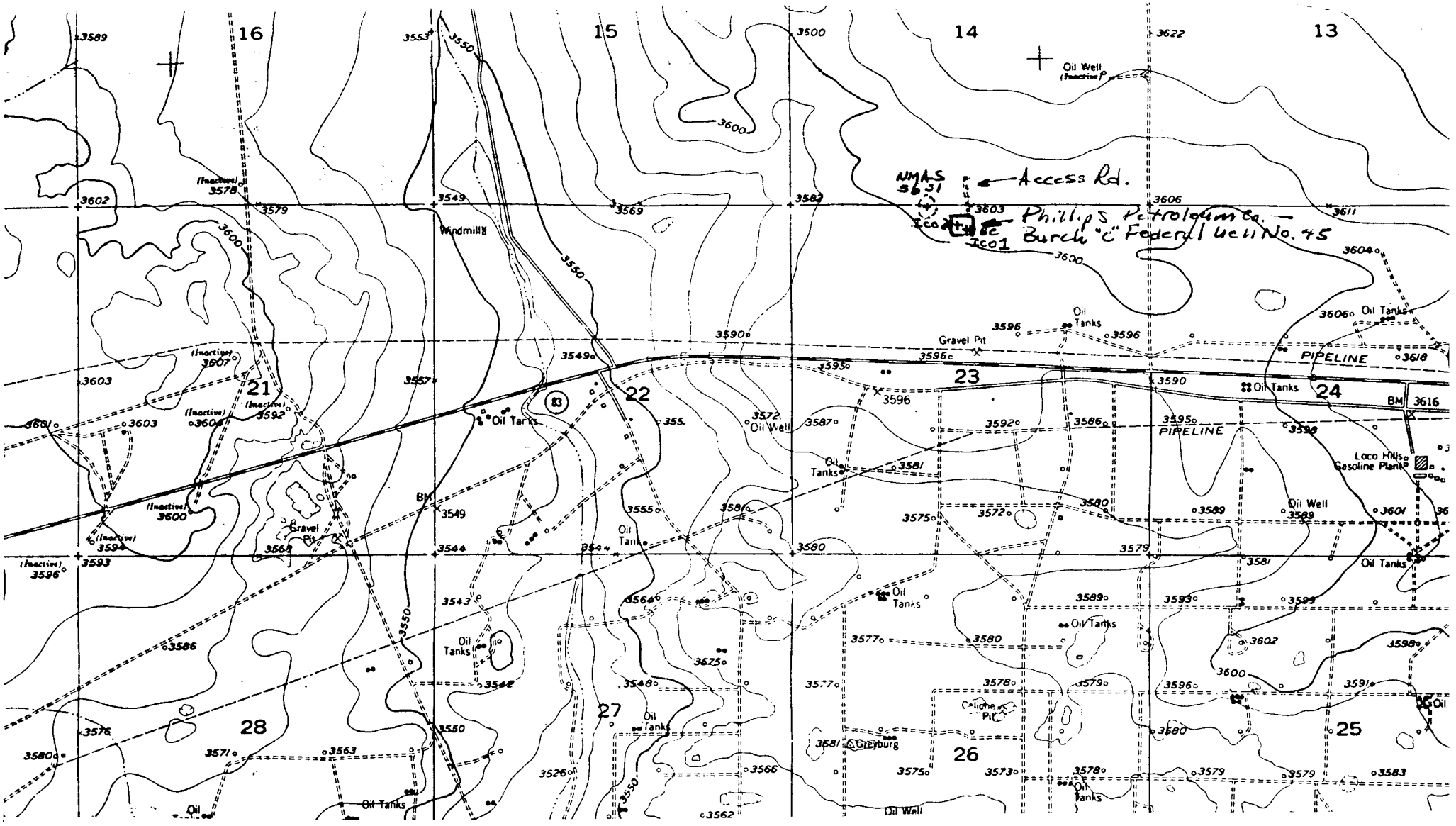


Fig. 1. USGS RED LAKE SE QUADRANGLE, 7.5 Minute Series, 1;24,000, 1955, showing PHILLIPS PETROLEUM COMPANY's proposed Burch "C" Federal Well No. 45, 330 FNL, 2580 FWL, and access road, Sections 14 and 23, T17S, R29E, NMPM, Eddy County, New Mexico.

The sites of the proposed location and access road have not been previously impacted by meachanical means.

Terrain

PHILLIPS PETROLEUM COMPANY's proposed location will be situated on an aeolian landform at the south end of a linear-shaped, subsidence structure or doline prominent coppice dunes ranging up to 2.0 m in height, flank this feature on the east. Elsehwere, dune development is decidedly less. Attendant deflation basins are closed and self-contained on the upper slope and interconnecting below. Soil individuals fall within the Typic Torripsamment subgroup/Kermit- Berino Series. Drainage is by sheetwash with runoff being tributary to the doline. Nearest water is the form of seeps and springs in the Bear Grass Draw catchment to the west. Elevation is 3580 feet.

Floristics

Local soils are supportive of a scrub, floral community. Plants of the overstory are Prosopis juliflora, Yucca glauca, artemisia filifolia, Quercus havardii and are rare Chrysothamnus pulchellus. Forbs of this association are Solanum elaeagnifolium, Eriogonum annuum, Croton sp. and Pensteman sp. The Gramineae includes Sporobolus flexuosus, Aristida sp., Cenchrus incertus, Andropogon spp., Stipa neomexicana, Bouteloua sp. and Setaria macrostachys.

Cultural Resources

Prefield 8 December 1986, Mark Calamia, no archaeological sites.

During the course of this survey, one isolated cultural occurrence (ICO) was recorded.

Isolated Cultural Occurrence (ICO)

This ICO, consists of one piece of angular, very dark red, granular, quartzite debris, 36 X 28 X 21 mm, is situated at a point 190 ft east of center in a deflation basin. There is no evidence of sub-surface remains. Chief plants are mesquite, yucca and three awns. It is located in the:

SW¼NE¼NE¼SE¼, Section 30, T17S, R30E, NMPM, Eddy County, NM

UTM: Not Available

Map Reference: USGS RED LAKE SE QUADRANGLE, 7.5 Mintue Series, 1955.

Locally, land usage was intense during Late Archaic and Eastern Jornada Mogollon times. Actual utilization focused on hunting and gathering activities and hence was short term and transitory at any one time. Areal archaeological sites are of the task locus and special activities zone types.

Recommendations

NMAS recommends clearance for PHILLIPS PETROLEUM COMPANY's proposed Burch "C" Federal Well No. 46 and its access road and suggests that work-related activities proceed in accordance with company plans (Fig. 2). Clearance, of course, is granted by the Bureau of Land Management. If additional cultural resources are encountered during construction, the BLM and NMAS should be notified immediately. Duned settings are notorious for covering and uncovering cultural properties.

Keely "C" Federal Well No. 59

Location

The proposed location will measure 400 X 400 ft (actual

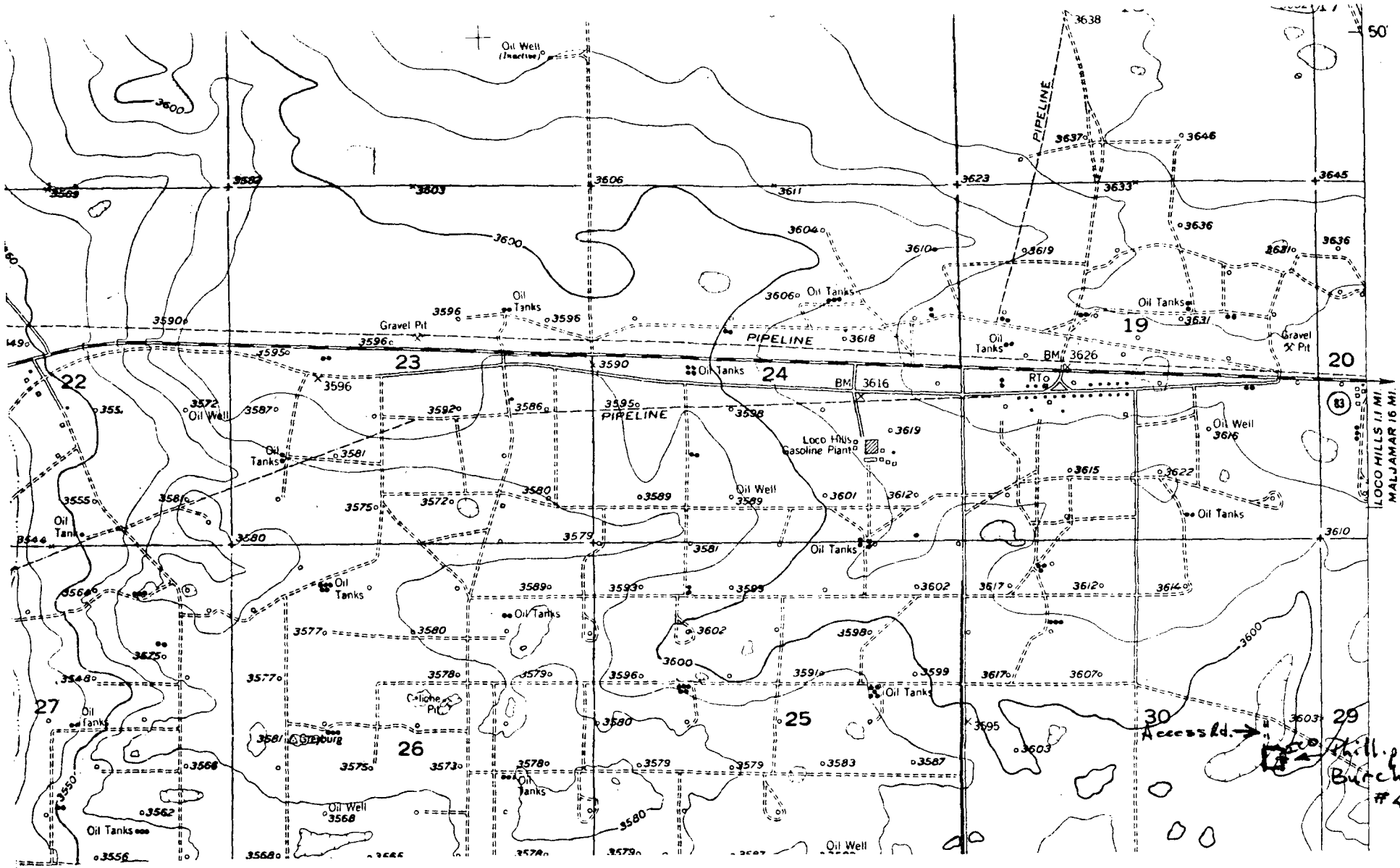


Fig. 2. USGS RED LAKE SE QUADRANGLE, 7.5 Minute Series, 1;24,000, showing PHILLIPS PETROLEUM COMPANY's proposed Burch "C" Federal Well No. 46, 760 FEL, 2080 FSL, and access road, Section 30, T17S, R30E, NMPM, Eddy County, New Mexico.

area surveyed 4.44 acres) on federal lands and will be situated 1331 ft from the south line and 1331 ft from the east line.

Section 25, T17S, R29E, NMPM, Eddy County, NM

Thus it will be situated in the:

NW¼SE¼, Section 25, T17S, R29E, NMPM, Eddy County, NM

The associated access road will measure approximately 20 X 300 ft (actual area surveyed 0.69 acre) and is situated in the:

NE¼SE¼, Section 25, T17S, R29E, NMPM, Eddy County, NM

Map Reference: USGS RED LAKE SE QUADRANGLE, 7.5 Minute Series, 1955.

The sites of the proposed location and access road have not been impacted by previous construction.

Terrain

PHILLIPS PETROLEUM COMPANY's proposed location will be situated on a duned landform due west of the hamlet of Loco Hills. Coppice dunes and closed, hemispherically shaped, deflation basins are characteristic of the landform as a whole. Areal dunes range up to 3.5 m in height. Soils are composed of Pleistocene- and Holocene-aged aeolian deposits which fall within the Typic Torripsamment subgroup/Kermit Berino Series. Caliche inclusions commonly occur in soil individuals. Croute calcaire underlies the coeval surface. Drainage is internal in nature owing to the permeable condition of local soils and, of course, the Karst nature of the landform. Nearest water is in the form of seeps and springs within Bear Grass Draw to the west or the Cedar Lake polje to the east. Elevation is 3583 feet.

Floristics

Local soils are supportive of a scrub, floral community. Plants of the overstory are Artemisia filifolia, Yucca glauca and Quercus havardii. Attendant forbs are Solanum elaeaginifolium, Gutierrezia sarothrae, Gutierrezia sarothrae, Croton sp., Calylophus sp., and Eriogonum annuum. Grasses include Aristida sp., Cenchrus incertus, and Sporobolus flexuosus. Most forbs and grasses are presently browned and desiccated.

Cultural Resources

Prefield 8 December 1986, Mark Calamia, one archaeological site.

NM-06-4354 (NMAS 5786), a special activities zone of Eastern Jornada Mogollon authorship, hosts chert and quartzite primary- and secondary-decortication flakes, angular debris, ground stone fragments, at least six Jornada Brown potsherds, several shell fragments, and a light- and amorphous-scatter of burned- and fire-cracked caliche cobbles and gravels.

During the course of this survey, no cultural properties were recorded. Their absence is due chiefly to the lack of siliceous lithic sources in the near vicinity. Land usage focused on hunting and/or gathering activities throughout prehistory. Principal mammalian, forms taken in the past should have included Lepus, Sylvilagus, Antilocapra and Odocoileus. Additionally, Bison was available at various times.

Recommendations

NMAS recommends clearance for PHILLIPS PETROLEUM COMPANY's proposed Keely "C" Federal Well No. 59 and its access road and sugggests that work-related activities proceed in accordance with company plans (Fig. 3). Clearance, of course, is granted by the Bureau of Land Management. If cultural resources are

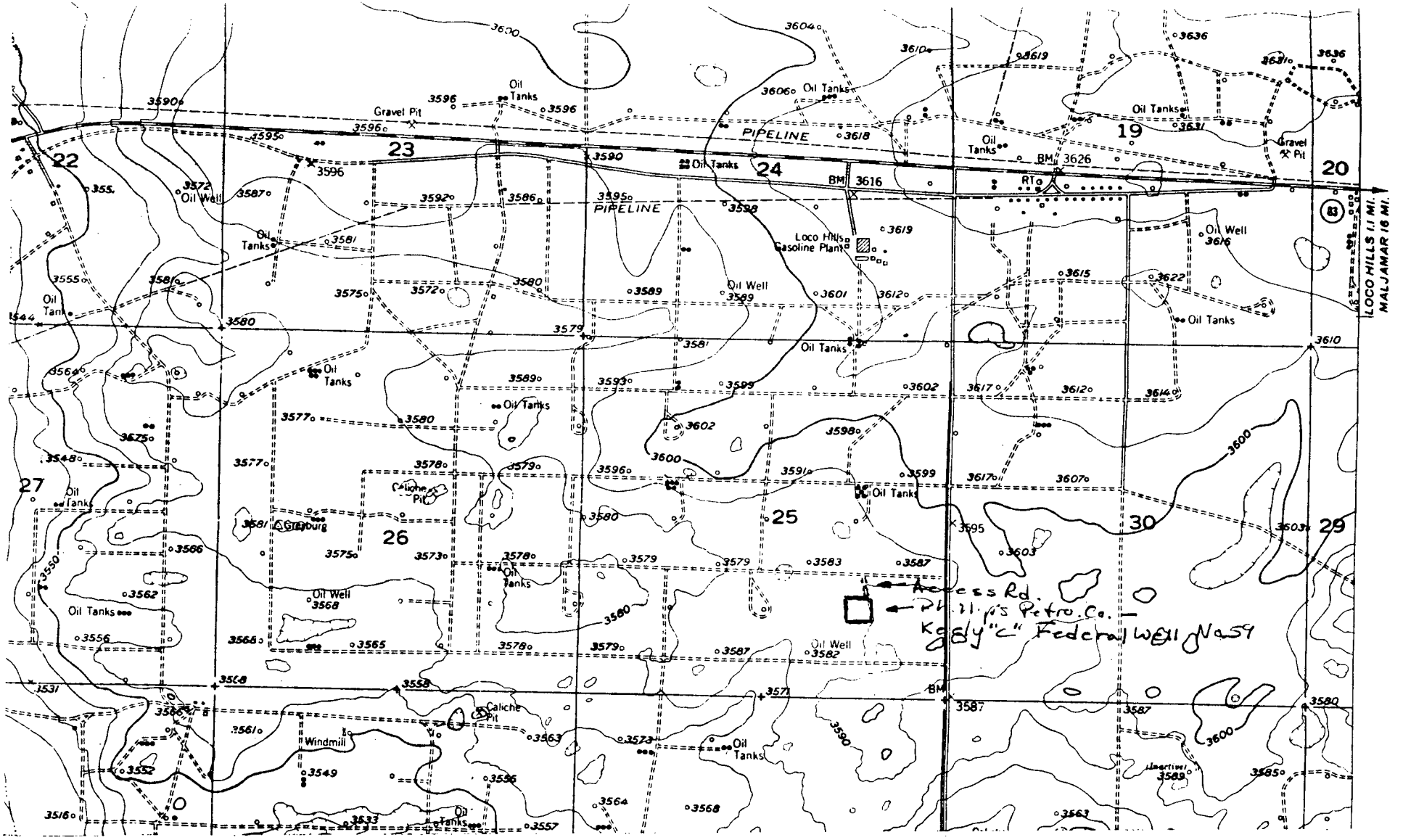


Fig. 3. USGS RED LAKE SE QUADRANGLE, 7.5 Minute Series, 1;24,000, 1955, showing PHILLIPS PETROLEUM COMPANY's proposed Keely "C" Federal Well No. 59, 1331 FSL, 1331 FEL, and access road, Section 25, T17S, R29E, NMPM, Eddy County, New Mexico.

encountered during construction, the BLM and NMAS should be notified immediately. Duned settings are notorious for covering and uncovering cultural properties.

Keely "C" Federal Well No. 60

Location

The proposed location will measure 400 X 400 ft (actual area surveyed 4.44 acres) on federal lands and will be situated 660 ft from the north line and 1830 ft from the east line.

Section 13, T17S, R29E, NMPM, Eddy County, NM

Thus it will be situated in the:

NW¼NE¼, Section 13, T17S, R29E, NMPM, Eddy County, NM

The associated access road will measure approximately 20 X 75 ft (actual area surveyed 0.17 acre) and is situated in the:

NW¼NE¼, Section 13, T17S, R29E, NMPM, Eddy County, NM

Map Reference: USGS RED LAKE SE QUADRANGLE, 7.5 Minute Series, 1955.

The site of the proposed location and access road have not been impacted by previous construction.

Terrain

PHILLIPS PETROLEUM COMPANY's proposed location will be situated on an aeolian landform of generally stable character. Coppice dunes and deflation basins mark the coeval surface. Dunes range between 0.50 and 1.25 m in height. Deflated areas commonly host calcareous inclusions. Soil individuals are made up of loose, non-calcareous, sandy loams and loamy sands and are assignable to the Typic Torripsamment subgroup/Kermit- Berino

Series. Croute calcaire underlies the coeval surface at variable depths. Drainage is internal in nature owing to the permable condition of local soils. Nearest water is in the Bear Grass Draw catchment and occurs in the form of seasonal inundation of associated collapse features by flood waters. Elevation is 3620 feet.

Floristics

Areal soils are supportive of a scrub, floral community. Plants of the overstory are Quercus havardii, Yucca glauca and Prosopis juliflora. Most commonly occurring forbs are Gutierrezia sarothrae, Croton sp., Solanum elaeagnifolium and Salsola kali. Principal grasses are Aristida sp., Setaria macrostachys, Sporobolus flexuosus and Tridens pulchellus.

Cultural Resources

Prefield 8 December 1986, Mark Calamia, no archaeological sites.

During the course of this survey, one isolated cultural occurrence (ICO) was recorded.

Isolated Cultural Occurrences (ICO)

This ICO, consisting of one, very dark gray, chert, secondary decortication flake, 42 X 22 X 9 mm, 55% cortex, with bulb, but lacking retouch, is situated on a denuded surface at a point approximately 180 ft north of center. Principal plants are mesquite and broom snakeweed. There is no evidence of sub-surface remains. It is located in the:

SW¼NE¼NW¼NE¼, Section 13, T17S, R29E, NMPM, Eddy County, NM

UTM: Not Available

Map Reference: USGS RED LAKE SE QUADRANGLE, 7.5 Minute Series, 1955.

Prehistorically, this area was visited on a regular basis by social units engaged in hunting- and hunting-related tasks. Occupancy, while relatively brief and transitory, was on a repetitive basis. Reflecting this type of utilization, expected resources should be of the isolated variety and hence should occur on a random, non-patterned basis.

Recommendations

NMAS recommends clearance for PHILLIPS PETROLEUM COMPANY's proposed Keely "C" Federal Well No. 60 and its access road and suggests that work-related activities proceed in accordance with company plans (Fig. 4). Clearance, of course, is granted by the Bureau of Land Management. If additional cultural resources are encountered during construction, the BLM and NMAS should be notified immediately. Duned settings are notorious for covering and uncovering cultural properties.

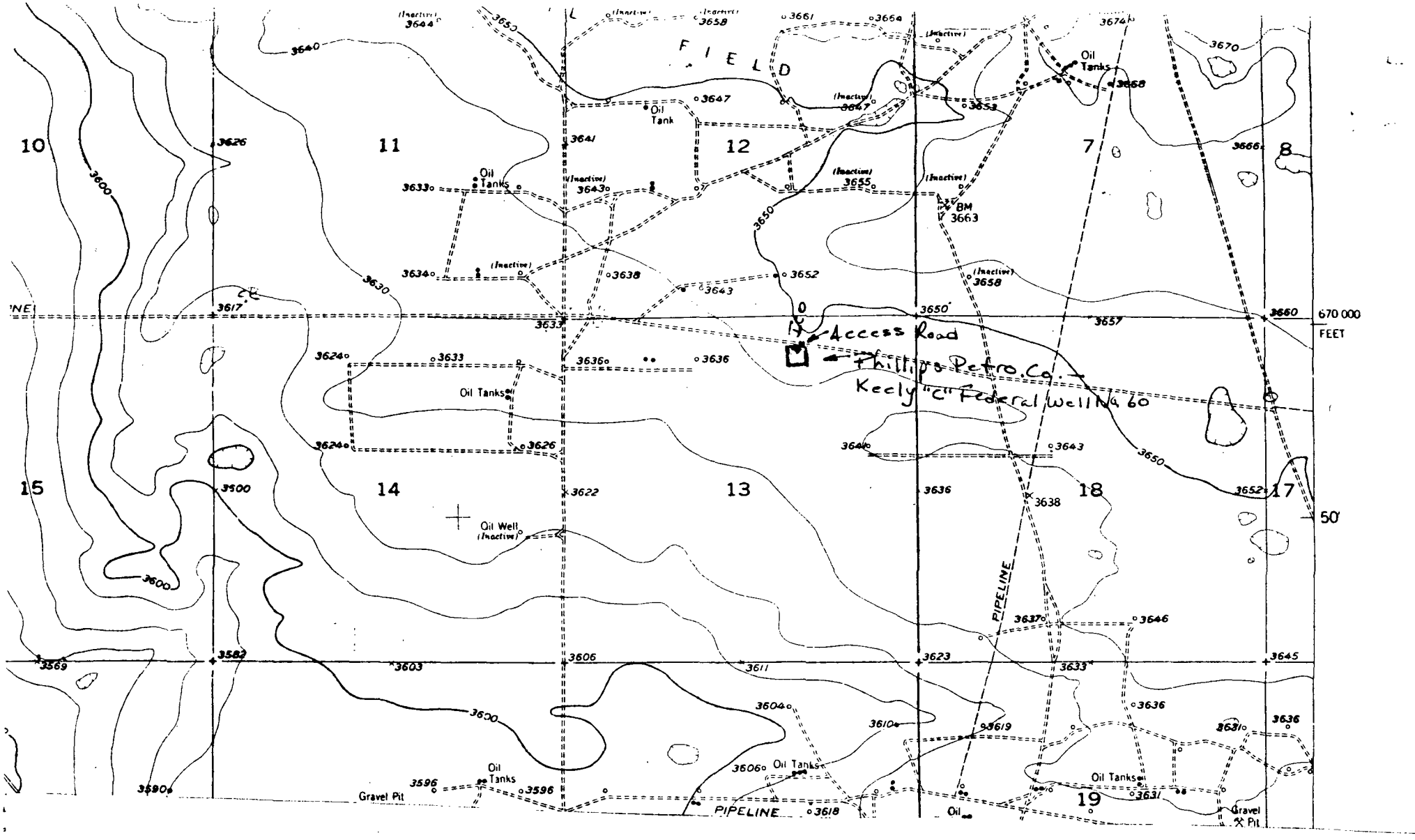


Fig. 4. USGS RED LAKE SE QUADRANGLE, 7.5 Minute Series, 1;24,000, 1955, showing PHILLIPS PETROLEUM COMPANY's proposed Keely "C" Federal Well No. 60, 660 FNL, 1830 FEL, and access road, Section 13, T17S, R29E, NMPM, Eddy County, New Mexico.

LITHIC DEFINITIONS

CORES: The block or nodules of raw material from which flakes are removed in the manufacture of chipped-stone tools.

UNPREPARED CORE: A core which possesses no systematic shaping of lateral edges and primary flaking is limited to preparation of a striking platform.

PREPARED CORE: A core which displays systematic preparation of the lateral edges.

PRIMARY DECORTICATION FLAKE: A flake struck during the initial shaping of a core which displays cortex over the entire dorsal surface.

SECONDARY DECORTICATION FLAKE: A flake struck during the initial shaping of the core which exhibits cortex over only part of the dorsal surface. An important difference between primary and secondary decortication flakes is that the latter are often utilized as tools themselves in a modified or unmodified state.

TABULAR FLAKE: Flake struck from an unprepared core, exhibiting a quadrilateral cross-section. The dorsal and ventral surfaces of these flakes are flat and parallel.

PARALLEL-SIDED FLAKE: Flake struck from a prepared core; large, thick flakes possessing a triangular cross section.

RECTANGULAR FLAKE: Flake struck from a prepared core exhibiting parallel, or slightly expanding lateral edges in relation to its longitudinal axis. These flakes are generally smaller than Parallel-Sided flakes and are belived to be struck from the edges, toward the center of a pyramidal core.

LAMELLAR FLAKE: Flake struck from a prepared core which exhibits a thinner, more regular shape than the other flakes detached from prepared cores. The symmetry and length-width ratio of Lamellar Flakes cause them to possess traits intermediate between those of flakes and blades. Indeed, they are removed from cores prepared similarly to the ones true blades are struck from, but lack the careful attention to the striking platform necessary to produce such a blade.

THINNING FLAKE: Flake removed to thin a piece for artifact manufacture.

BLADE: A specialized flake which possesses parallel lateral edges and a length equal to or more than twice the width. Blades are manufactured from carefully prepared

LITHIC DEFINITIONS (Cont.)

core, utilizing a blade technique which results in a unique pattern of ridges on the dorsal surface.

GRAVER: Chipped stone tool designed to possess a point or spur which is generally assumed to function as an incising implement. Frequently, heavy wear on such a spur is a diagnostic trait of such tools.