Form 9-331 C
(May 1963)

SUBMIT IN PLICATE*
(Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1425.

30-005-61071

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

5. LEASE DESIGNATION AND SERIAL NO.: NM-32185

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: ---

7. UNIT AGREEMENT NAME: ---

8. FARM OR LEASE NAME: ABO-20 Fed

9. WELL NO.: 1

10. FIELD AND POOL, OR WILDCAT: Ellenburger-Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: Ut A 20, 11-S, 23-E

12. COUNTY OR PARISH: Chaves

13. STATE: New Mexico

1a. TYPE OF WORK: DRILL ☒ DEEPEN ☐ PLUG BACK ☐

b. TYPE OF WELL: OIL WELL ☒ GAS WELL ☐ OTHER — SINGLE ZONE ☒ MULTIPLE ZONE ☐

2. NAME OF OPERATOR: Phillips Petroleum Company

3. ADDRESS OF OPERATOR: 4001 Penbrook, Rm 401, Odessa, Texas 79762

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*)
At surface: 660' FNL and 990' FEL Sec. 20
At proposed prod. zone: Same

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*: 6 Miles W SW from Roswell, New Mexico

15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. line, if any): 990' FEL

16. NO. OF ACRES IN LEASE: 1280

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.: 1st Well

19. PROPOSED DEPTH: 5500

20. ROTARY OR CABLE TOOLS: Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.): 3848.8' (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
17-1/2"	13-3/8"	48#, H-40 (Class C w/2% $CaCl_2$)	350'	Circ. to surface w/400 sxs
11"	8-5/8"	24#, K-55 (Class H w/20% Diacel-D. Tail in w/200 sxs Class C w/2% $CaCl_2$)	1400'	Circ. to surface w/150 sxs
7-7/8"	4-1/2"	11.6#, K-55 (excess Class H w/20% Diacel-D. Tail in w/sufficient quantity 50/50 Class C-POZ w/8#/sx salt and dispersant friction reducer.)	5500'	Caliper Volume plus 30%

Use mud additives as required for control per attached mud program.

BOP Equipment: Series 900, 3000# WP per Figure 7 schematic attached.

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 Sr. Engineering Specialist DATE July 22, 1981

(This space for Federal or State office use)

PERMIT NO. APPROVED APPROVAL DATE

(Orig. Sgd.) GEORGE H. STEWART
APPROVED BY TITLE DATE

CONDITIONS OF APPROVAL, IF ANY:

AUG 5 1981
FOR
JAMES A. GILLHAM
DISTRICT SUPERVISOR

*See Instructions On Reverse Side

N. MEXICO OIL CONSERVATION COMMISS.

WELL LOCATION AND ACREAGE DEDICATION PLAT

Form C-102
Supersedes C-128
Effective [illegible]

All distances must be from the outer boundaries of the Section.

Operator	Lease	Well No.
Phillips Petroleum Co.	ABO-20 Fed	1

Unit Letter	Section	Township	Range	County
A	20	11South	23East	Chaves

Actual Footage Location of Well:
660 feet from the North line and 990 feet from the East line

Ground Level Elev.	Producing Formation	Pool	Dedicated Acreage:
3848.8' (unprepared)	Ellenburger	Wildcat - Ellenburger	40 Acres

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

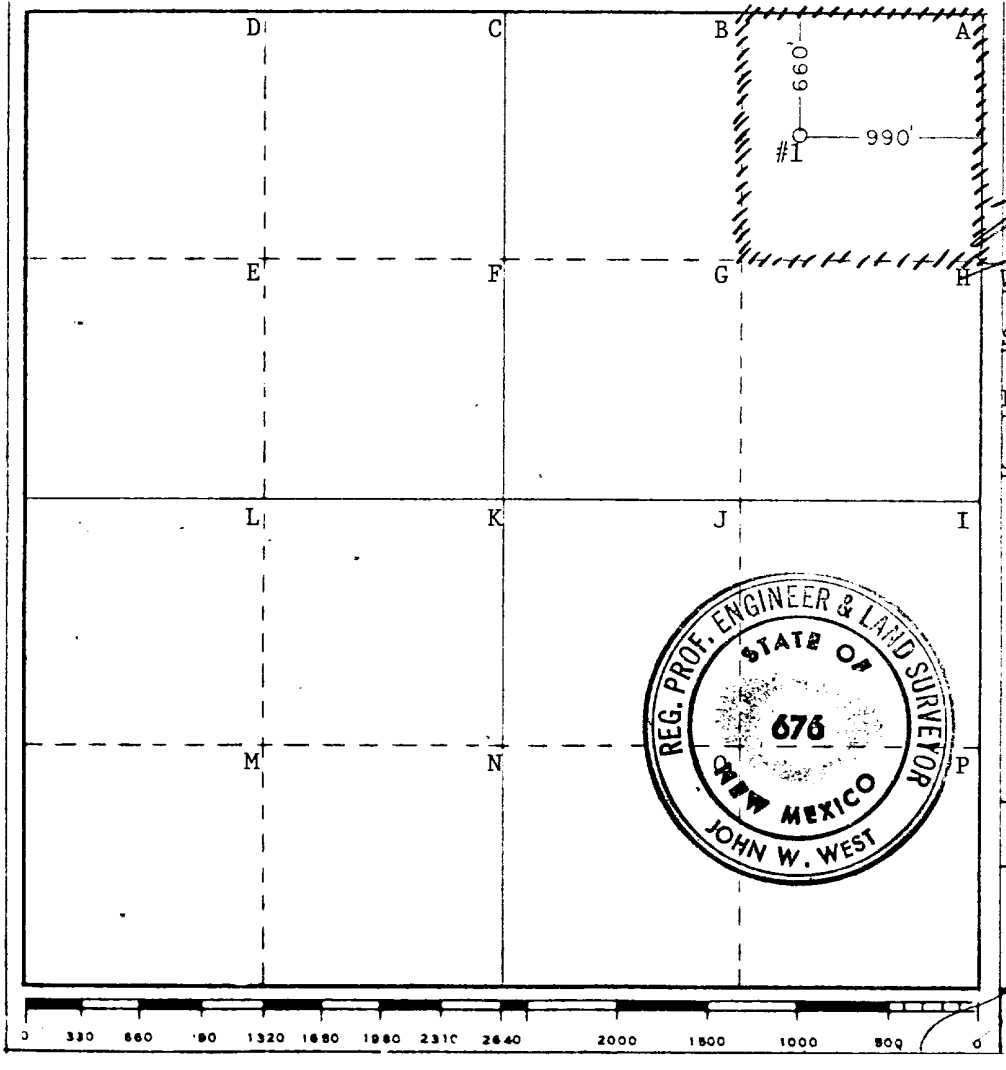
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

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.

W. J. Mueller

Position
Senior Engineering Specialist

Company
Phillips Petroleum Company

Date
July 22, 1981

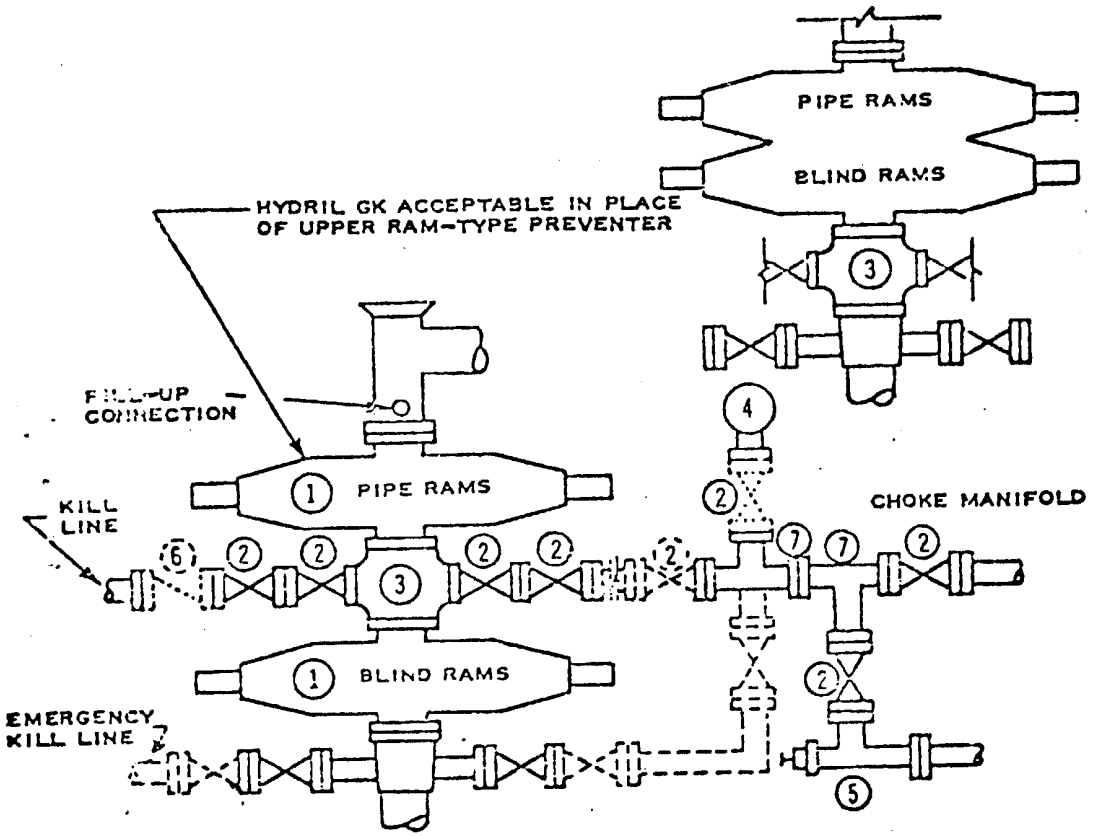
I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my knowledge and belief.

Date Surveyed
June 26, 1981

Registered Professional Engineer and/or Land Surveyor

Certificate No JOHN W. WEST 676
PATRICK A. ROMERO 6668
Ronald J. Eidson 3239

DOUBLE PREVENTER OPTION



① SERIES 900 RAM-TYPE BOP

② 2" SERIES 900 VALVE

③ SERIES 900 DRILLING SPOOL

④ 2" MUD PRESSURE GAUGE

⑤ 2" SERIES 900 CHOKE

⑥ 2" SERIES 900 CHECK VALVE

⑦ 2" SERIES 900 STEEL TEE

NOTES:

1. 3000 PSI WP CLAMP HUBS MAY BE SUBSTITUTED FOR FLANGES

2. VALVES MAY BE EITHER HAND OR POWER OPERATED BUT, IF POWER OPERATED, THE VALVES FLANGED TO THE BOP RUN MUST BE CAPABLE OF BEING OPENED AND CLOSED MANUALLY OR CLOSE ON POWER FAILURE AND BE CAPABLE OF BEING OPENED MANUALLY

..... OPTIONAL EQUIPMENT

PHILLIPS PETROLEUM COMPANY

3000 PSI WORKING PRESSURE
BLOWOUT PREVENTER HOOK-UP
(SERIES 900 FLANGES OR BETTER

REV 6/73

FIGURE NO.

BLOWOUT PREVENTER TESTING PROCEDURE

A. INITIAL INSTALLATION TEST FOR INSTALLATIONS AS SHOWN ON FIGURE NO. 7 - TWO RAM UNITS

After all blowout preventers, regular choke lines, valves, bell nipples, and flow lines are rigged up, the following steps are to be carried out with no exceptions: (Emergency choke and kill lines are not to be connected below the bottom preventer at this time.)

Preparations for Test Steps 1-9

1. Inspect all flanges to see if all bolts are in place and tight.
2. Check all opening and closing lines to preventers to see if they are correctly placed, hooked up, and tight.
3. Check to see that all control valves are properly marked.
4. Open bradenhead valves and wash inside of preventers with water from the top. No lines are to be connected to the bradenhead at this time.
5. Connect water into suction of mud pump and pump water through kill line and out bradenhead valves until water clears up.
6. Connect test line in place of kill line.

6-73

A. INITIAL INSTALLATION TEST FOR INSTALLATIONS AS SHOWN ON FIGURE NO. 7 TWO RAM UNITS (Contd.)

7. Connect kill line to one bradenhead valve and open valve.

8. Close other bradenhead valve.

9. Fill preventers with water.

10. Close blind rams with 1,500 psi.

Casing Blind Ram and Bradenhead Test Steps 10-24

11. Check closing line and preventer for leaks.

12. Pressure up casing with mud pump to pressure required to test casing using water. Hold for 10 minutes.

13. Check bradenhead, bradenhead valve flanges, and blind rams for leaks.

14. Install a pressure gauge on the bradenhead valve opposite where the kill line is tied on.

15. Open bradenhead valve to read casing pressure.

16. Close bradenhead valve on side where kill line is tied on.

17. Release pressure on kill line.

18. Disconnect kill line from bradenhead valve.

19. Check bradenhead valve for leaks on the side where the kill line was disconnected. See that casing pressure has not dropped below the required test pressure.

20. Remove pressure gauge and bleed down casing.

21. Close bradenhead valve(s).

22. Open blind rams with 1,500 psi.

23. Check opening line and preventer for leaks.

24. Disconnect kill line from bradenhead valve and open both bradenhead valves.

BOP Stack and Choke Line Test Steps 25-38

25. Run test plug in on a joint of drill pipe, set in seat.

NOTE: Test plug to be fabricated so that there will be enough clearance between plug and pipe rams to clear tool joint when closed on joint of drill pipe made up in plug. The plug must be drilled so there is communication between inside of drill pipe and top of plug above seal surface.

A. INITIAL INSTALLATION TEST FOR INSTALLATIONS AS SHOWN ON FIGURE NO. 7 TWO RAM UNITS (Contd.)

26. Install safety valve and kelly on top of drill pipe.

27. Fill preventers with water.

28. Open all valves on choke lines and check to see that water is flowing through each outlet. Let run until clear. Open valves on kill line side of spool.

29. Close outside valves on choke lines making sure they are full of water and have no trapped air.

30. Refill preventers if necessary.

31. If Hydril is used in place of upper ram type preventer, close 1" plug valve on closing line. Test to 1,500 psi. Inspect valve for leaks. Release pressure. Open valve.

32. Close pipe rams or Hydril with 1,500 psi.

33. Check closing line and preventer for leaks.

34. Open stand pipe valve, kelly cock, and safety valve, and fill kelly with water.

35. Close kelly cock.

36. If Hydril is used, reduce closing pressure to that recommended on page 56. Closing pressure may be increased as required to effect a seal up to a maximum of 1,500 psi.

37. Pressure up to working pressure of preventers through test line. For maximum Hydril packing unit life, as the test pressure builds up, reduce the closing pressure and later apply opening pressure per applicable schedule starting on page 57, provided a schedule is listed for the Hydril in use. Hold test pressure for 10 minutes.

38. Check all valves, flanges, and seals that are under pressure for leaks and tighten if necessary. Check test plug for leak.

Choke and Kill Valve Tests
Steps 39-55

39. Close second valve from hole on choke line. Open outside valve on full opening line. Hold pressure for one minute.

40. Check to see if valve leaks.

41. Close inside valve on choke line. Open second valve out on choke line. Hold pressure for one minute.

42. Check to see if valve leaks.

A. INITIAL INSTALLATION TEST FOR INSTALLATIONS AS SHOWN ON FIGURE NO. 7 TWO RAM UNITS (Contd.)

43. Close safety valve and open kelly cock.

44. Check safety valve for leaks.

45. Close inside valve on kill line side. Open inside valve on choke line side. Hold pressure for one minute.

46. Check to see if valve leaks.

47. Close second valve out on kill line. Open inside valve on kill line. Hold pressure for one minute.

48. Check to see if valve leaks.

49. Open second valve out on kill line. Close inside valves on kill line and choke line.

50. Disconnect test line; connect kill line.

51. Open pipe rams (or Hydril) with 1,500 psi.

52. Check opening line and preventer for leaks.

53. Pull plug out of hole.

54. Close bradenhead valves.

55. Record test on drilling report.

B. RAM CHANGE TEST FOR INSTALLATIONS AS SHOWN ON FIGURE NO. 7 OR 8 - TWO RAM UNITS

If Hydril is used in place of upper ram type preventer, ram change test is not required since no change will be made in preventer assembly to run casing.

Preparations Steps 1-2

1. After getting out of hole, open choke line valves and drain mud out of preventers. No lines are to be connected to Figure 7 bradenhead valves at this time.

2. Wash inside of preventers from top with water.

Ram Change Steps 3-9

3. Close blind rams.

4. Open bonnets or doors on upper ram type preventer.

5. Remove drill pipe rams.

6. Install rams to fit casing.

B. RAM CHANGE TEST FOR INSTALLATIONS AS SHOWN ON FIGURE NO. 7 OR 8 - TWO RAM UNITS (contd.)

7. Close bonnets or doors, checking all seals and "O" rings.

8. Tighten up all bolts and inspect preventer to see that bonnets or doors are closed, steel to steel.

9. Open blind rams.

Casing Ram Test Steps 10-22

10. Install test plug and test line on extra joint of casing the same size that is to be run. Casing joint used must be of sufficient strength to withstand test pressures. The crossover connections used to get from casing joint to test plug must be short enough to permit the casing rams to close against casing.

11. Set test plug in casing spool.

12. Fill preventers with water.

13. Close casing rams.

14. Purge air from casing joint.

15. Pressure up through casing joint to working pressure of preventers. Hold for 10 minutes.

16. Check for leaks in all flanges and seals that hold pressure, especially bonnet or door seals on preventer changed.

17. Release pressure.

18. Open casing rams.

19. Pull test plug out of hole.

20. Close choke line valve.

21. Change sign on valve on blowout preventer closing manifold that controls casing rams to indicate casing rams instead of drill pipe rams.

22. Record test and ram changes in drilling report.

C. WEEKLY TEST PROCEDURE FOR INSTALLATIONS AS SHOWN ON FIGURE 7 - TWO RAM UNITS

Preparations for Test Steps 1-10

1. Inspect all flanges to see if all bolts are in place and tight.

2. Check all opening and closing lines to preventers to see if they are correctly placed, hooked up, and tight.

C. WEEKLY TEST PROCEDURE FOR INSTALLATIONS AS SHOWN ON FIGURE 7 - TWO RAM UNITS (contd.)

3. Remove kill line and install test line in flange outside of second valve on the kill line side of the drilling spool.

4. Open valves on bradenhead and wash inside of preventers with water from the top. No lines are to be connected to the bradenhead at this time.

5. Run test plug in on a joint of drill pipe and set in seat.

6. Install safety valve and kelly on top of drill pipe.

7. Fill preventers with water.

8. Open all valves on choke lines and check to see that water is flowing through each choke line and full opening line. Let run until it clears up.

9. Close all outside valves on choke line, making sure they are full of water and do not have air trapped in them.

10. Refill preventers if necessary.

BOP Stack and Kelly Cock Test Steps 11-17

11. Close pipe rams (or Hydril, if used in place of upper ram type preventer).

12. Check closing line and preventer for leaks.

13. Open stand pipe valve, kelly cock, and safety valve, and fill kelly with water.

14. Close kelly cock.

15. If Hydril is used, reduce closing pressure to that listed on page 56. This may be increased as required up to a maximum of 1,500 psi.

16. Pressure up to 1/2 working pressure of preventers. For maximum Hydril packing unit life, as the test pressure builds up, reduce the closing pressure and later apply opening pressure per applicable schedule starting on page 57, provided a schedule is listed for the Hydril in use. Hold test pressure for 10 minutes.

Safety Valve Test Steps 18-24

17. Check for leaks.

18. Close safety valve and open kelly cock.

19. Check safety valve for leaks.

C. WEEKLY TEST PROCEDURE FOR INSTALLATIONS AS SHOWN ON FIGURE 7 - RAM UNITS (Contd.)

20. Release pressure.

21. Open pipe rams (or Hydril)

22. Pull plug out of hole.

23. Close bradenhead valves.

24. Record test on drilling report.

PHILLIPS PETROLEUM COMPANY MUD PROGRAM

WELL: ABO Fed-20 Well No. 1, Section 20, T-11-S, R-23-E, Chaves County, New Mexico.

1. Type Mud(s): 0-1400': Flosal*, bentonite, and lime.
   1400-5500': KCl, lower W.L. with Drispac*, if viscosity needed, use Flosal.

2. Make-up Water: 0-5500': Fresh

3. Solids Control: 0-1400': Reserve pit
   1400-T.D. : Mud up in metal pits (working pits), and use shale shaker if necessary.

4. Methylene Blue Test: Less than 20 pounds per barrel.

5. Alkalinity, pH and Calcium Control: Lime and Soda Ash.

6. Abnormal Pressure Zone: None

7. Other Trouble Zones: Possible loss of circulation to 1400'.

8. Viscosifying Additives: Bentonite and Flosal to surface casing point. Flosal below surface.

9. Filtration Additives: Drispac.

10. Dispersing and Thinning Additives: Desco* if needed.

11. Inhibiting Additives: KCl and Drispac.

12. Properties: Minimum practical mud weights will be used and adjusted as necessary to control well. Probable weights and types are shown.

DEPTH	WEIGHT	pH	W.L.	MUD TYPE
0-1400'	8.5-9.2			Fresh
1400-5500'	8.6-9.4		<20cc	KCl

* A Trademark

gr

Abo-Fed 20 Lease Well No. 1, NM 32185

NE/4 NE/4 Section 20, T-11-S, R-23-E, Chaves County, N.M.

1. Location of Proposed Well: 660' FNL and 990' FEL, Section 20, T-11-S, R-23-E, Chaves County, N.M.

2. Unprepared Ground Elevation: 3848.8'

3. The geologic name of the surface formation is Quaternary Alluvium and sand overlying caliche.

4. The type of drilling tools will be standard rotary rig.

5. Proposed drilling depth is 5500' (Granite).

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

San Andres	680'	Wolfcamp	4370'
Glorieta	2020'	Pennsylvanian Lime	4670'
Tubb Sand	2900'	Granite Wash	5000'
Abo	3670'		

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

Water:	San Andres	680'
Oil and Gas:	Abo Sand	3670'
	Pennsylvanian Lime	4670'
	Granite Wash	5000'

8. The proposed casing program is as follows:

Surface: (0'-350') 13-3/8", 48#, H-40, 1 Cond.
Intermediate: (0'-1400') 8-5/8", 24#, K-55, 1 Cond.
Production: (0'-5500') 4-1/2", 11.6#, K-55, 1 Cond., 5000# Frac.

9. Cement Program:

Surface: Circulate to surface w/400 sxs Class C mixed at 14.8 ppg, 6.3 gal wtr/sx, 1.32 cf/sx, w/2% $CaCl_2$. Before drilling out, test casing to 1000 psi for 30 minutes (TT = 2:00 Hrs. @ 80°F, 12 Hr. Compressive Strength = 1045 psi @ 80°F.) WOC under pressure 18 hours.

Intermediate: Circulate to surface w/150 sxs Class H w/20% Diacel-D mixed at 12.4 ppg (yield = 2.42 cf/sx). Tail in w/200 sxs Class C mixed at 14.8 ppg, 1.32 cf/sx, with 2% $CaCl_2$. Before drilling out, test casing to 1000 psi for 30 min. (TT = 1:50 Hrs @ 95°F, 12 Hr Compressive Strength = 2025 psi @ 95°F.) WOC under pressure for 18 hours.

Production: Tie back into 8-5/8" casing with Caliper Volume plus 30% excess as follows:

Lead Slurry: Class H with 20% Diacel-D mixed at 12.4 ppg, 13.5 gal wtr/sx (yield = 2.42 cf/sx).

Tail Slurry: The tail-in cement volume should be calculated to fill annulus to ±3000' to cover Abo zone. (Top of Abo 3670'). Use 50/50 Class C-POZ mix mixed @ 14.2 ppg, 5.4 gal wtr/sx (yield = 1.26 cf/sx) with 8#/sx salt and appropriate dispersant-friction reducer (0.3% TF4 or equivalent.) TT = 4:20 Hrs @ 120°F static. 8 Hrs Compressive Strength = 650 psi, 24 Hr Strength = 1600 psi.

Run temperature survey to determine TOC. WOC 24 Hrs to test casing to 1000 psi for 30 minutes.

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:

    No cores. DST's to be Abo Sand - 2 tests (approx. 3800'-4000'); Penn - 1 test (approx. 4700'); Granite Wash - 1 test (approx. 5000'). Run open-hole logs: DLL - R_{xo} - GR - Caliper from T.D. to 1400'; CNL - FDC - GR - Caliper from T.D. to 1400'; CNL - GR to surface; Integrated BHC Sonic - GR - Caliper from T.D. to 1400'; and possible HDT Dipmeter.

13. Anticipate no abnormal pressures or temperatures to be encountered or any potential hazards such as hydrogen sulfide gas.

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

15. Water Supply: Propose to purchase from Gandy Trucking Company, Roswell, and truck to well site.

16. Caliche/construction material: Propose to acquire from rancher from pit on state lands located in Section 25, T-12-S, R-23-E, Chaves County, and truck to road repair site.

SURFACE USE PLAN

Phillips Petroleum Company, ABO-20 Fed Lease, Well No. 1, NE/4 NE/4, Section 20, T-11-S, R-23-E, Chaves County, New Mexico (Lease No. NM 32185).

This plan is to accompany "Application for Permit to Drill" the subject well which is located approximately six (6) miles west southwest of Roswell, 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. County road cuts south from U.S. Highway 70, runs approximately 4 miles to south line of Section 22, then west along south line of Sections 22 and 21, terminates at approximate center point in Section 21. Ranch road commences at terminus of county road, runs westerly 1/10 mile, then northwesterly to immediate site of proposed well.

2. Planned Access Road: No new road construction.

   A. Will use county road described in A above; widen ranch road to 12', upgrade with centerline side line slope drainage, resurface with caliche as needed, install wider replacement cattleguard at south line Section 21, provide one turnout halfway between cattleguard and well site.

   B. Turnouts: One halfway between cattleguard and proposed wellsite.

   C. Drainage Design: Improvements in ranch road will provide centerline to side line slope.

   D. Culverts, Cuts, Fills: None on roadway; well pad will require one (1) foot cut on north side and one (1) fill on south side.

   E. Surfacing Material: Caliche well pad; caliche roads as improvements dictate.

   F. Gates, Cattleguard, Fences: Replace existing cattleguard with larger size consistent with road and traffic requirements.

   G. Proposed Roads: No new road constructed. Existing ranch road to be upgraded.

3. Location of Existing Wells: None.

4. Location of Tank Batteries, Production Facilities, Production Gathering and Service Lines: Production stack to be erected on well pad approximately 100 feet east of well bore; tank facility to be constructed on well pad approximately 50 feet south of production stack.

5. Water Supply Source: To be purchased from Gandy Trucking, Roswell, and trucked to wellsite.

6. Source of Construction Material: Propose caliche to be purchased from rancher, mined from pit located on state lands located in Section 23, T-12-S, R-23-E, and trucked to use site. If alternate caliche source is necessitated, will be trucked, using access specified herein. (Possibly sufficient caliche from pad cut to fill repair need; if so, no outside requirement)

7. Methods of Handling Waste Disposal: Will be put in separate waste pits and covered with minimum of two (2) feet back fill (See sketch). If well is productive, maintenance waste will be placed in special trash cans and hauled away periodically. All produced wastes will be collected in tanks until hauled to an approved disposal system, or separate disposal application will be submitted for appropriate approval.

8. Auxillary Facilities: None.

9. Well Site Layout: Attached sketch shows relative location and dimensions of well pad, required drilling operation pits, and trash pit. Location will be 250 feet east and west by 250 feet north and south.

10. Plans for Restoration of Surface: Pits 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 road will be ripped per regulations. Commencement of rehabilitation operations will immediately follow removal of drilling and completion equipment from location, with an estimated sixty (60) day completion period.

11. Other Information:

    A. Terrain: Low rocky rolling hills. See attached topographic map and archeological survey report.

    B. Soil: Rocky.

    C. Vegetation: Mesquite, creosote, cactus, mixed grasses.

    D. Surface Use: Possible grazing.

    E. Ponds and Streams: None within one mile.

    F. Water wells: None within one mile.

    G. Residences and Buildings: None within 1/2 mile.

    H. Arroyos, Canyons, etc.: None significant in immediate wellsite vicinity. See archeological survey report.

    I. Well Sign: Sign identifying and locating the well will be maintained at drill site from spud date.

    J. Archeological Resources: None observed.

12. Operator's Representative(s):

Primary	Alternate
B. Z. Parker Production Manager 4001 Penbrook Street Odessa, Texas 79762 Telephone: (915) 367-1260	J. O. Woodson Area Superintendent Box 2130 Hobbs, New Mexico 88240 Telephone: (505) 393-5121

13. Certification:

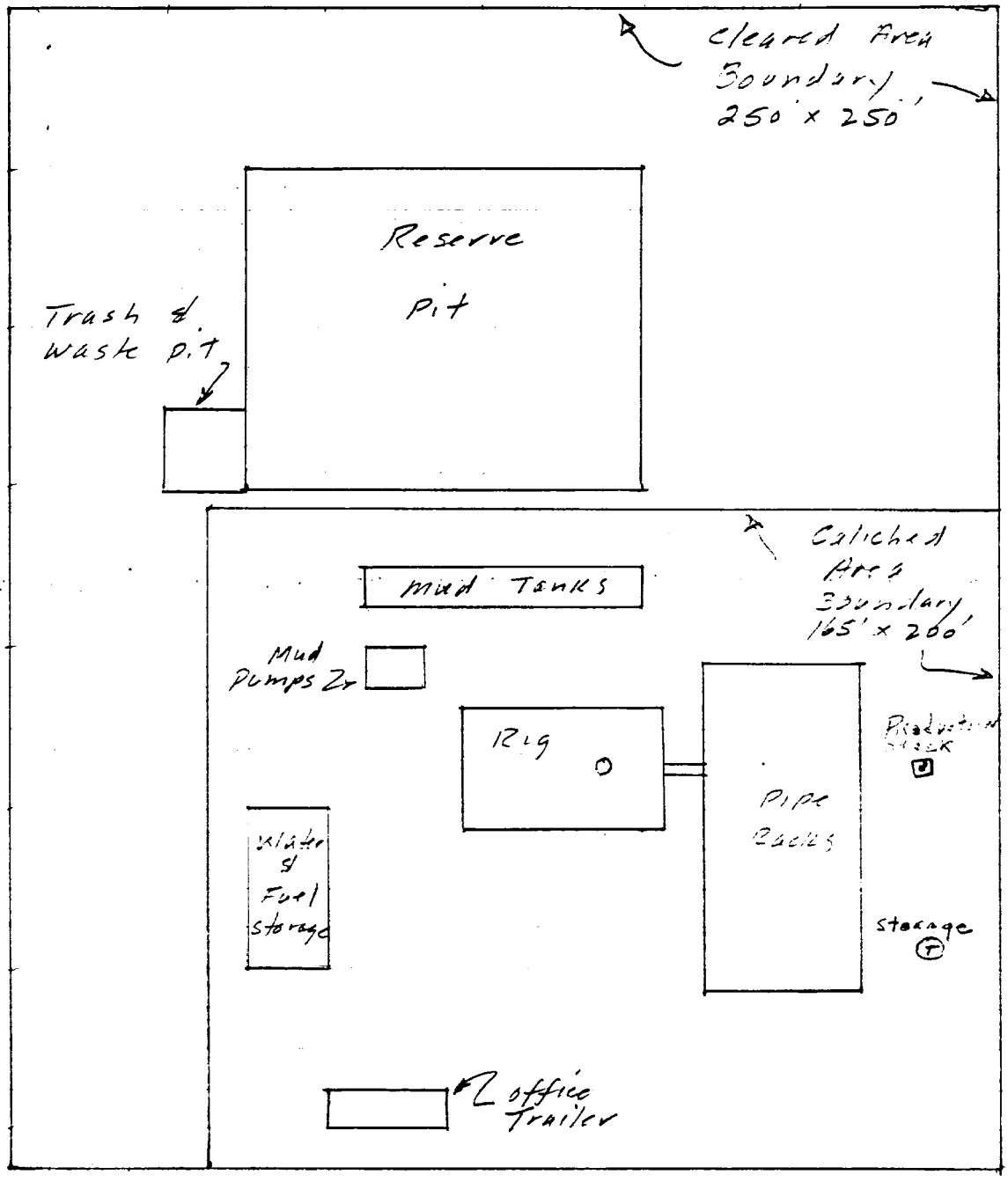
I hereby certify that I, or persons under my direct supervision, have inspected the proposed drill site and access route; that I am familiar with the conditions which presently exist; that the statements made in this plan are, to the best of my knowledge, true and correct; and that the work associated 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.

B. Z. Parker

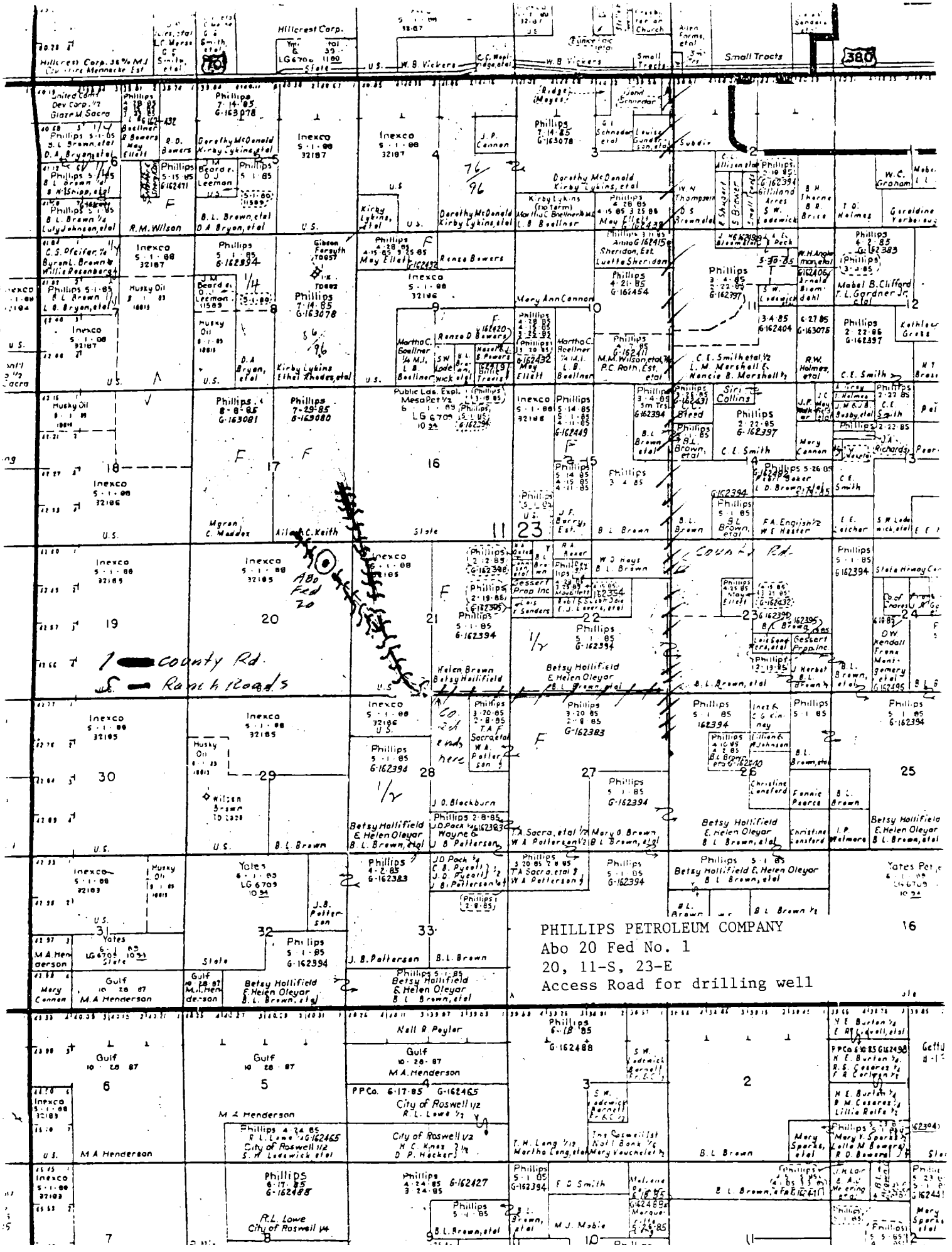
B. Z. Parker
Production Manager
Permian Basin Region
Phillips Petroleum Company

27 July 1981
Date

THM:ge



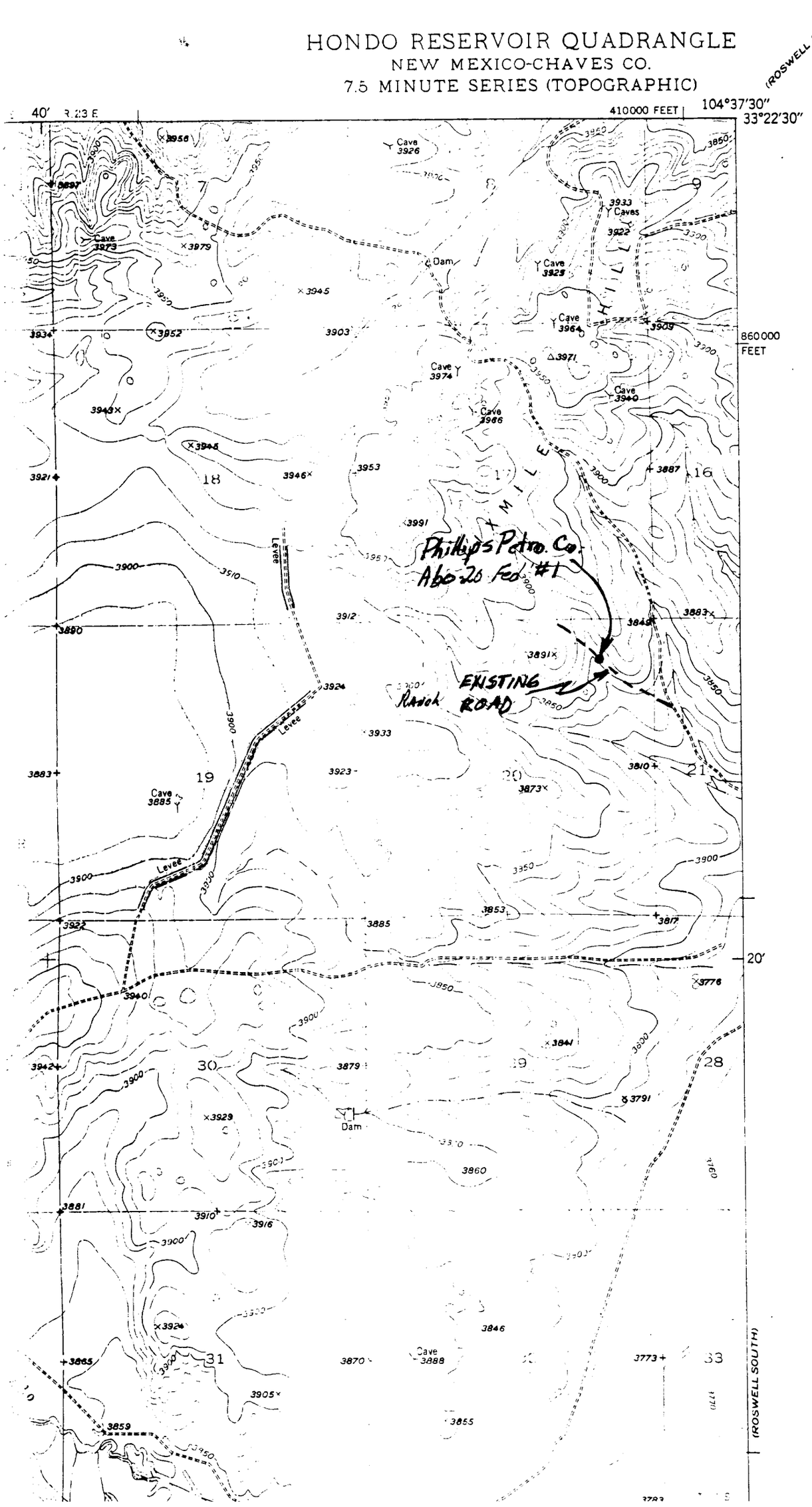
Phillips Petroleum Company
Development Plan
for Surface Use
Abo-20 Fed Well No. 1, NM 32185
Chaves County, NM
Scale: 1" = 40'


Abo Fed 20
1 County Rd.
Ranch roads
PHILLIPS PETROLEUM COMPANY
Abo 20 Fed No. 1
20, 11-S, 23-E
Access Road for drilling well

HONDO RESERVOIR QUADRANGLE

NEW MEXICO-CHAVES CO.

7.5 MINUTE SERIES (TOPOGRAPHIC)



ARCHAEOLOGICAL CLEARANCE SURVEY OF ABO-Fed-20 WELL NO. 1 AND EXISTING ACCESS ROAD NEAR ROSWELL, NEW MEXICO

By
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Prepared for
Phillips Petroleum Company
Hobbs, New Mexico and Odessa, Texas

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Submitted by:
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Under Authority of
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ABSTRACT

A cultural resource inventory of a proposed drill site and well pad located approximately six miles southwest of Roswell, New Mexico was conducted for Phillips Petroleum by Human Systems Research, Inc. No historic, archaeological or paleontological resources were recorded within the survey area. An existing unimproved access road was also monitored. No cultural resources were noted along the existing road. Since access improvements will be restricted to the existing road, no impact is expected. Archaeological clearance for the drilling location and the existing access road is therefore recommended.

HONDO RESERVOIR QUADRANGLE

NEW MEXICO-CHAVES CO.

7.5 MINUTE SERIES (TOPOGRAPHIC)

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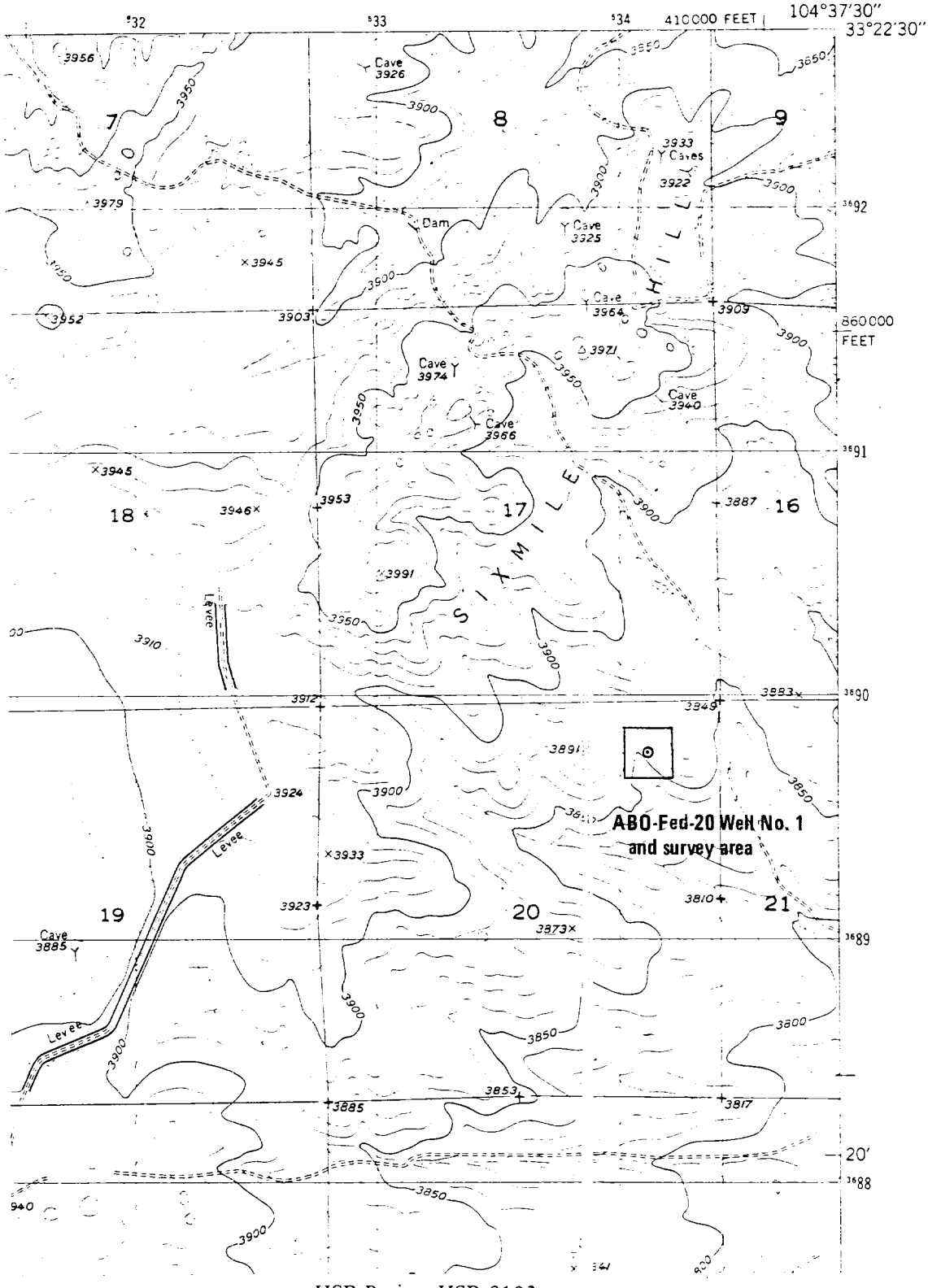
(ROSWELL NORTH)



HSR Project HSR-8103
Archaeological Clearance Survey
Phillips Petroleum Co., ABO-Fed-20 Well No. 1

ARCHAEOLOGICAL CLEARANCE SURVEY OF ABO-Fed-20 WELL NO 1 AND EXISTING ACCESS R AD NEAR ROSWELL, NEW ME CO

INTRODUCTION

On July 1, 1981, Human Systems Research, Inc. per rmed an archaeological clearance survey of a proposed well location, well pad area, and as ciated access road southwest of Roswell, New Mexico. The proposed drill site, designated " 3O-Fed-20 Well No. 1" is located near Roswell, Chaves County, New Mexico, within Sectic 20, Township 11 South, Range 23 East, N.M.P.M., at an elevation of approximately 3,87 feet, along the south margin of Sixmile Hill. The proposed drill site lies on privately own surface, although all subsurface mineral rights are retained by the Federal govenment.

The archaeological clearance was initiated at the req st of Mr. Ron Ainsworth, Phillips Petroleum. Field investigations were conducted by Mr. Pete Eidenbach, Principal Investigator, and Sara Eidenbach, Archaeologist I Trainee, Human Syst ıs Research, Inc., Tularosa, New Mexico, under authority of Bureau of Land Management Pe ıit No. 80-NM-140.

ENVIRONMENTAL SETTIN

The proposed drill site lies approximately six miles w ıthwest of Roswell, New Mexico, and immediately east of Hondo Reservoir, approximately tl ee miles north of the Rio Hondo, which flows generally northeastward to its confluence with he Pecos River. The topography of the general area consists of low, rocky rolling hills and s ales typical of the karst limestone lands which occur along the footslopes and bajadas along ıe east of the Sacramento uplift.

Numerous caves and low sinkholes lie within this e ironmental zone, created by the movement of ground water through the porous limestone edrock which lies just below the shallow soil surface. Intermittent summer precipitation su ports a typical bajada plant community of mixed grasses, cactus, creosote and mesquite.

DRAINAGE

Drainage patterns along the eastern footslopes of th Sacramento Mountains and Pecos Plains are generally intermittent, except for the major st eams, like the Rio Ruidoso, Rio Bonito, Rio Hondo, and the Rio Penasco, which originate the Sacramento highlands. These streams and a large number of small, shallow draws and in ermittent channels flow generally eastward to the Pecos River, which eventually joins the l io Grande south and east in the vicinity of Del Rio, Texas.

CLIMATE

Climatic conditions in the vicinity of Roswell are ge erally semi-arid, with annual precipitation averaging approximately 13 inches, and originati ıg from summer storms from the Gulf of Mexico, primarily during the months of May through October. Average temperatures range from mean minimums in the low 20's during January, to mean maximums in the mid 90's during July. Relative humidity is typically low, except during periods of severe summer storms. Winds are moderate to high during most of the year and often become severe, particularly during the winter and spring and during periods of summer storms.

SOILS

Soils in the general vicinity of the study area are usually quite shallow, fine textured and thermic, with substantial proportions of carbonates. As yet no published formal soils classification of Chaves County is available.

VEGETATION

Biotic communities throughout the region are classified as Semidesert Grasslands (Brown and Lowe 1980), and include areas of creosote-mesquite bajada, oak shinnery and mixed desert grasses.

TOPOGRAPHY

The topography of the Pecos Valley and vicinity ranges between 3,500 and 4,000 feet elevation, and consists of low, rolling hills and shallow draws, forming a low plains land which gradually rises westward toward the Sacramento Mountain uplift. Outcrops of limestone, sandstone and exposures of gravel valley fill occur throughout the area, and sinkholes, caves and other karst features become common as one proceeds north from the vicinity of the study area.

PAST RESEARCH AND CULTURE HISTORY

With the exception of Kelley's (1966) reconnaissance studies from the vicinity of Roswell into the Sacramento and Capitan highlands, and Jelenek's (1967) survey of the Pecos River Valley to the north in the vicinity of Fort Sumner, the archaeological record in the Roswell vicinity and westward toward the Sacramentos remains virtually unknown.

Although a Bureau of Land Management Class 1 Overview study has been completed, the published volume has not yet been made available (Camilli and Allen 1979). Isolated amateur studies have been conducted throughout the southeastern portion of New Mexico, and adjacent areas in west Texas. These, however, have generally focused on particular sites, and little synthesis of these materials has been undertaken. The most extensive discussion of the general southeastern New Mexico region has only recently been released by the New Mexico State Historic Preservation Bureau (Stuart and Gauthier 1981) and may be consulted for a more thorough discussion of the region's culture history, as currently known.

PALEOINDIAN PERIOD

Few sites dating to this period have been formally reported but quite an extensive number are likely to exist throughout the Pecos Plains area. These sites, dating to the time period from 12,000 to 7,000 years ago, have been identified with Clovis, Folsom, Midland, Plainview and Cody (Eden-Scottsbluff) complexes and quite commonly are associated with the bones of extinct mammals, including mammoth and late Pleistocene forms of bison. Many of these have been interpreted as kill sites, although some occupation or campsites have also been noted.

It seems likely that recent eolian soil deposition may have buried many of these early sites throughout the Pecos Plains region, and the majority of recorded examples have generally been located in an exposed erosional context.

ARCHAIC PERIOD

Human occupation of the Pecos Plains area during this period, dating roughly from 7,000 to 2,000 years ago, is poorly documented. Although isolated Archaic materials have occasionally been noted, such sites are commonly difficult to recognize in the absence of diagnostic projectile points, items which are commonly collected when noted by both amateurs and professional archaeologists. Although many of the non-diagnostic lithic scatters which occur in the region could date to this period but may not be definitively identifiable as Archaic, paleoclimatic data suggest that the region may have been generally unoccupied during Archaic times. This period was notably dry at the time and it seems most likely that plains populations relocated to major river valleys and basin-range areas to the west, like the Sacramento uplands where extensive Archaic occupation has been documented.

CERAMIC PERIOD

The majority of archaeological sites recognized in the Pecos Plains region date to the Ceramic period, between 2,000 and 500 years ago. Although most of these sites are identified with the Jornada Mogollon, actual cultural identifications and chronological sequences remain highly tentative at this time. Few large structural sites from this period have been recognized, and the general area offers little agricultural potential. With only minor exceptions, like Bloom Mound (Kelley 1966), a Lincoln Phase pueblo with ten to twelve rooms, nearby the study area southwest of Roswell, most Mogollon period sites on the Pecos Plains generally appear to be limited activity locations, probably related to the hunting of bison. A notable example, the Garnsey Site (Speth 1979), lies southeast of Roswell.

HISTORIC PERIOD

Coronado's expedition to the edge of the plains reported nomadic bison hunters, living in skin tents and using large numbers of dogs for transportation in 1541. The actual identity of these groups has yet to be established, but similar groups undoubtedly continued this migratory life style until the introduction of the horse, and its acquisition by aboriginal peoples. For a period of nearly three hundred years, the Pecos Plains and the Great Plains to the east were subject to massive population movement, and dominated by a variety of mounted, nomadic hunting populations, including the Apache and Comanche. During this period the Comanchero trade developed, and the Pecos River became a major route for the transport of livestock and other goods acquired through raids in western and southern Texas and traded to the Indian and Spanish populations of central and northern New Mexico. The region remained uncolonized by historic populations until after the American Civil War, when pioneering Texas stockmen reopened the Pecos as a safe route of travel, then known as the Goodnight-Loving Trail, and major ranches became established, including the Chisum Ranch, which ultimately resulted in the establishment of the modern city of Roswell.

RESEARCH DESIGN

In the absence of both previous survey data and the establishment of an accurate cultural historical sequence, a research design, especially for small survey projects of the type reported here, must, of necessity, be based on an inductive approach. In short, primary focus must concentrate on the location of additional sites, rather than on the verification of formal hypotheses.

Nonetheless, a series of broad generalizations, developed in conjunction with the BLM Class 1 Overview, served as the basis for the research approach utilized during this survey.

Human use of the Pecos Plains area is documented during the PaleoIndian, Archaic, Mogollon and Historic periods, the most intense use and occupation of the area appears to have been during the PaleoIndian, Mogollon and late Historic periods and is generally associated with sources of surface water, many of which are intermittent at the present time. The highest site densities and largest sites are expected to occur in association with major tributary streams and the Pecos River. The most frequent site types reported are lithic scatters, which probably represent areas of limited, short-term activity, with a major focus on bison hunting, and may be associated with any of the cultural periods recognized in the region. Some limited activity sites, particularly those dating to the later periods, may also represent temporary trading campsites.

FIELDWORK

SURVEY LOCATION

Phillips Petroleum Company drill site ABO-Fed-20 Well No. 1; 660 feet from north line; 990 feet from east line; Section 20, Township 11 South, Range 23 East, N.M.P.M., Chaves County, New Mexico.

OWNERSHIP: Surface rights, Private; subsurface rights, Federal.

MAP REFERENCE: U.S.G.S. Hondo Reservoir Quadrangle, New Mexico, Chaves County; 7.5 minute series (topographic); photorevised 1979.

SURVEY AREA

The area intensively surveyed consisted of a 200 x 200 meter square, centered on the proposed drill hole, oriented to true north.

This area is approximately contained within, and includes S½ of NW¼ of NE¼ of NE¼ and N½ of SW¼ of NE¼ of NE¼ of Section 20, Township 11 South, Range 23 East, N.M.P.M.

Universal Transverse Mercator coordinates of survey area corners:

	Survey Corner	Northing	Easting
Zone 13	NW	36-89860	5-34020
	NE	36-89860	5-34220
	SW	36-89660	5-34020
	SE	36-89660	5-34220

SURVEY METHOD

An area 200 x 200 meters, centered on the drill location, oriented true north, was located and marked at corners with flagging. This area was then systematically traversed by pedestrian survey at an interval of 30 meters, traveling north-south.

SURVEY RESULTS

The general survey area is centered on a gently sloping depression between low limestone and gravel ridges, along the south slopes of Sixmile Hill. The area is typical of the karst topography along the Pecos Plains. Broken limestone outcrops on the hilltops to the east and west of the well site. Soils are primarily aeolian silts, with a dry color 10 YR 6/4 light yellow brown, in the valley bottom, near the well site.

Land slope averages approximately 2-5% in the valley bottom, and 10-25% on the hill slopes. Aspect is toward the south-southeast, approximately 150 degrees azimuth.

Ground cover is high, approximately 80% in the valley bottom and 50% on the hill slopes. Range condition is good.

Vegetation within the survey area, in order of dominance: Valley floor – mixed grasses, sideoats grama, cholla, creosote bush, common thistle, mesquite, prickly pear and fishhook barrel cactus; Hill slopes – creosote bush, mixed grasses, broom snakeweed, mesquite.

Elevations within the survey area range from 3,845 feet (1172 meters) in the valley to 3,880 feet (1183 meters) along the hill slopes.

In addition to the formal survey area described above, an existing unimproved ranch road was also monitored, and will be regraded along the existing route to facilitate access for drilling equipment.

No historic, archaeological or paleontological materials of any kind were noted during survey of the well pad area or in the vicinity of the existing access road.

CONSULTATION OF THE REGISTER

The National Register of Historic Places and the State Register were consulted to determine whether any Register properties were within the survey area or its immediate vicinity. No such properties are listed in the area, and no impacts on potentially eligible properties are expected as a consequence of the proposed well project.

SUMMARY AND SIGNIFICANCE

No archaeological or historic evidence of human use or occupation was noted within the survey area. This lack of evidence is in keeping with the initial expectations of the research design. No seep springs, intermittent or permanent drainages lie within or immediately nearby the study area and no unusual or rare environmental resources are present. Human use of areas like the one reported here would probably have been limited to the passage of small parties in pursuit of game animals. Long distance travel, and most gathering activities, would have tended to concentrate along drainages and near sources of surface water. The types of ephemeral activities which might have occurred in the type of context represented in this survey area would be unlikely to result in anything beyond the most minimal evidence of human use, like a lost projectile point, or a few flakes resulting from tool retouch or resharpening and would probably represent nothing more than a fortuitous isolated occurrence.

RECOMMENDATIONS

No archaeological, historic or paleontological materials of any kind were encountered during intensive survey of the vicinity of Phillips Petroleum ABO-Fed-20 Well No. 1 and its associated, unimproved existing access road. Consultation of both the National and State Registers of Historic Places did not reveal any listings or locations likely to be adversely affected by the proposed drilling activities. Therefore, no impacts, direct or indirect, are expected to affect any cultural resources potentially eligible for nomination to the National or State Registers.

Archaeological clearance for this project is therefore recommended.

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