Form 9-331 C
(May 1963)

SUBMIT IN TRIPLICATE
(Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1425.

Copy to NMOCC

RECEIVED
DEC 21 1978
O. C. C.
ARTESIA, OFFICE

30-015-22763

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

RECEIVED
DEC 4 1978
U.S. GEOLOGICAL SURVEY
ARTESIA, NEW MEXICO

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

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

2. NAME OF OPERATOR: Amoco Production Company ✓

3. ADDRESS OF OPERATOR: P.O. Drawer "A", Levelland, Texas 79336

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*)
At surface: 1980 FNL & 1980 FEL , Sec 28 (Unit G, SW¼, NE¼)
At proposed prod. zone:

5. LEASE DESIGNATION AND SERIAL NO.: NM 26103

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

7. UNIT AGREEMENT NAME:

8. FARM OR LEASE NAME: Federal "K" ~~Gas Com~~

9. WELL NO.:

10. FIELD AND POOL, OR WILDCAT: Undesignated Morrow

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: 28-25-27

12. COUNTY OR PARISH: Eddy

13. STATE: NM

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*: 11.5 miles south of Malaga, NM

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

16. NO. OF ACRES IN LEASE:

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

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

19. PROPOSED DEPTH: 12,500'

20. ROTARY OR CABLE TOOLS: Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.): 3111.8 GR

22. APPROX. DATE WORK WILL START*: 12-15-78

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
20"	16"	65#	600'	Circulate to Surface
14 3/4"	10 3/4"	40.5#	2,000'	Circulate to Surface
9 1/2"	7 5/8"	33.7#	11,000'	Tie back to 10 3/4"
6 1/2"	5" (liner)	17.93#	10,700'-12,500'	Tie back to 7 5/8"

Propose to drill and equip Morrow well at 12,500'. After drilling well, logs will be run and evaluated. Perforate and/or stimulate as necessary in attempting commercial production.

Mud Program:
- 0-600' Native mud and fresh water
- 600'-2000' Native mud and brine water
- 2,000'-11,000' Add fresh water to brine and commercial mud to maintain safe hole conditions.
- 11,000'-12,500' Add KCL for 6% system. Use brine water for make-up water. Raise viscosity and reduce water loss to 6.0 for Morrow penetration.

Gas is not dedicated
BOP program is attached - Archaeological reconnaissance 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 Dennis Evans TITLE Assist. Admin Analyst DATE 11-30-78

(This space for Federal or State office use)

PERMIT NO. _____ APPROVAL DATE 12-19-78

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

0+5 -USGS-A
1-Houston
1-SUSP
1-DE

*See Instructions On Reverse Side

NEW MEXICO OIL CONSERVATION COMMISSION

WELL LOCATION AND ACRE[illegible] DEDICATION PLAT

Form
Supersedes C-[illegible]
Effective [illegible]

All distances must be from the outer boundaries of the Section

Operator: Amoco Production Co.	Lease: [redacted]			Well No.: 1
Unit Letter: G	Section: 28	Township: [illegible]	Range: [illegible]	County: Eddy
Actual Footage Location of Well: 1980 feet from the North line and 1980 feet from the East line				
Ground Level Elev.: 3111.6	Producing Formation: Morrow	Pool: Wildcat Morrow		Dedicated Acreage: 320 Acres

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

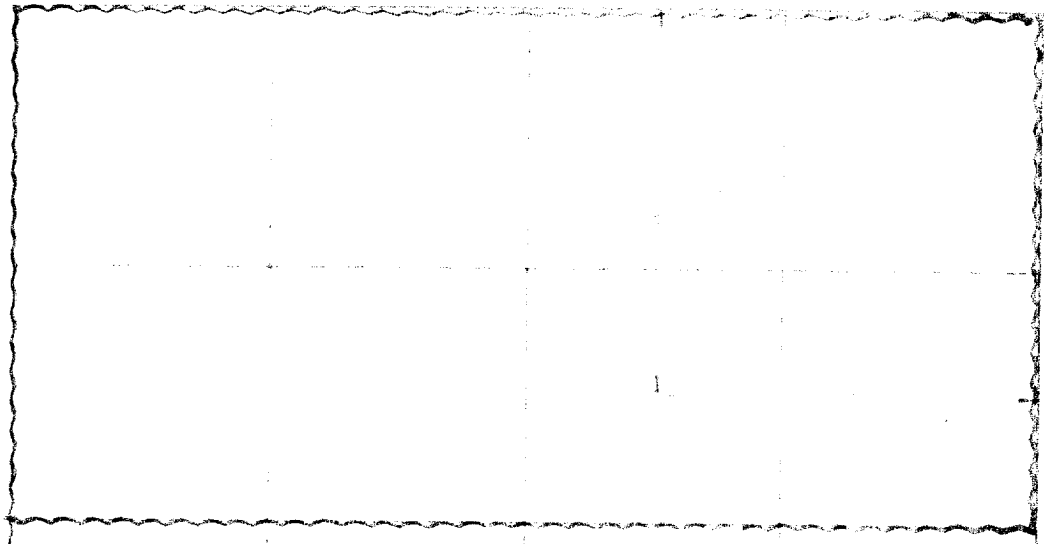
2. If more than one lease is dedicated to the well, outline each and identify the ownership thereof (both as to working interest and royalty).

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.



Working Interest
Amoco - 37.50%
*NAPeco - 62.5%

*NOTE: Sabine has a Farm Out Agreement with NAPeco

CERTIFICATION

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

Dennis Evans
Assist. Admin. Analyst
AMOCO Production Co
11-1-78

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: [illegible]

Registered Professional Engineer and/or Land Surveyor

Certificate No. John W. West 676
Ronald J. Eidson 3239

0 330 660 990 1320 1650 1980 2310 2640 2000 1500 1000 500 0

NMOCC COPY

United States Department of the Interior

GEOLOGICAL SURVEY
P. O. Drawer U
Artesia, New Mexico 88210

December 19, 1978

Amoco Production Company
P. O. Drawer A
Levelland, Texas 79336

AMOCO PRODUCTION COMPANY
Federal K No. 1
1980 FNL 1980 FEL Sec. 28, T25S, R27E
Eddy County Lease No. NM-26103
Above Data Required on Well Sign

Gentlemen:

Your APPLICATION FOR PERMIT TO DRILL the above-described well to a depth of 12,500 feet to test the Morrow is hereby approved subject to compliance with the OIL AND GAS OPERATING REGULATIONS (30 CFR 221) and the following conditions:

1. Drilling operations authorized are subject to compliance with the attached General Requirements for Oil and Gas Operations on Federal Leases, dated July 1, 1978.

2. Prior to commencing construction of road, pad, or other associated developments, operator will provide the dirt contractor with a copy of the Surface Use Plan and these Conditions of Approval including the attached General Requirements.

3. Submit a Daily Report of Operations from spud date until the well is completed and the Well Completion Report (form 9-330) is filed. The report should be not less than 8" x 5" in size and each page should identify the well.

4. All permanent above-ground structures and equipment shall be painted in accordance with the attached Painting Guidelines. The color used should simulate sandstone brown (Federal Standard Color No. 595A, color 20318 or 30318).

5. Before drilling below the 10-3/4" casing, the blowout preventer assembly will consist of a minimum of one annular type and two ram type preventers.

6. A kelly cock will be installed and maintained in operable conditions.

7. After setting the 10-3/4" casing string and before drilling into the Wolfcamp formation, the blowout preventers and related control equipment shall be pressure tested to rated working pressures by an independent service company. Any equipment failing to test satisfactorily shall be repaired or replaced. This office should be notified in sufficient time for a representative to witness the tests and shall be furnished a copy of the pressure test report.

8. Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be installed and operating before drilling into the Wolfcamp formation and used until production casing is run and cemented. Monitoring equipment shall consist of the following:

   (1) A recording pit level indicator to determine pit volume gains and losses.

   (2) A mud volume measuring device for accurately determining mud volume necessary to fill the hole on trips.

   (3) A flow sensor on the flow-line to warn of any abnormal mud returns from the well.

Sincerely yours,

(Orig. Sgd.) ALBERT R. STALL

Albert R. Stall
Acting District Engineer

3000# W.P. TWO-RAM BOP

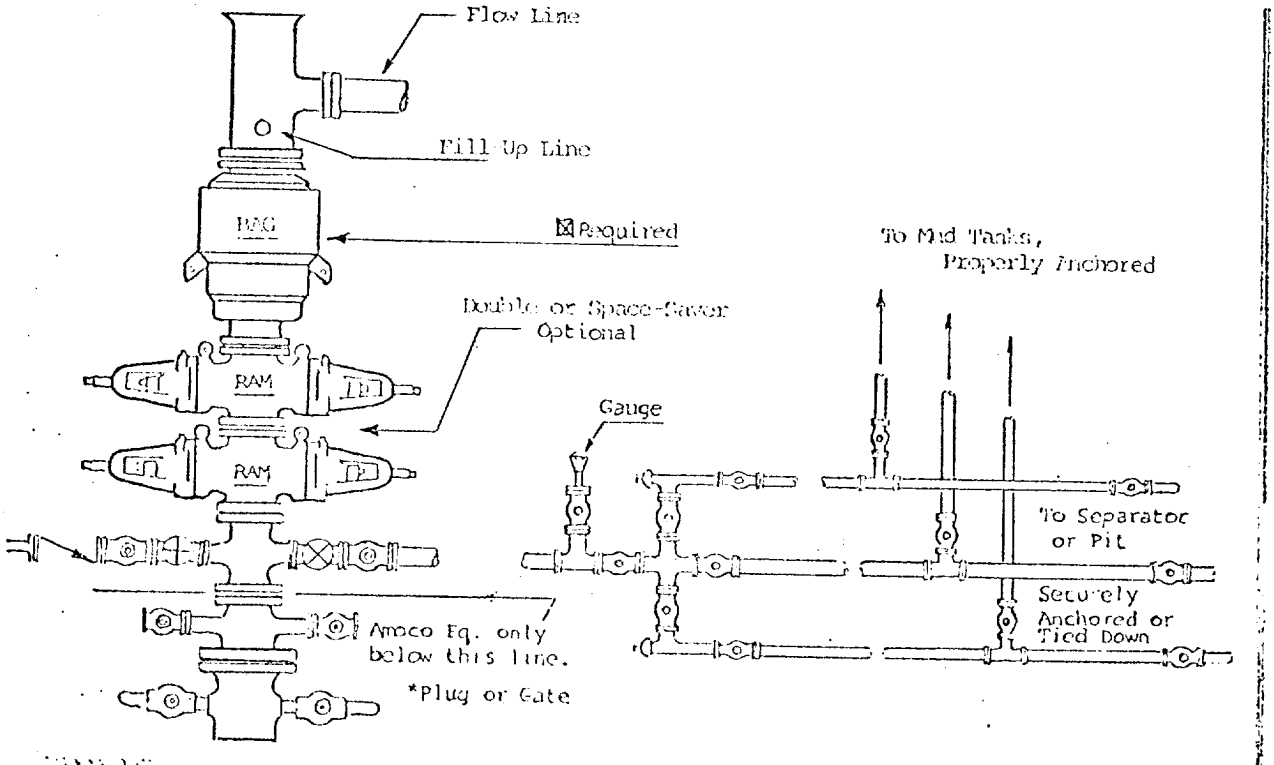
1. BOP'S TO BE FLUID OPERATED.
2. BOP'S AND ALL FITTINGS MUST BE IN GOOD CONDITION AND RATED AT 3000 PSI W.P. MINIMUM.
3. EQUIPMENT THROUGH WHICH BIT MUST PASS SHALL BE AT LEAST AS LARGE AS CASING SIZE BEING DRILLED THROUGH.
4. NIPPLE ABOVE BOP'S SHALL BE SAME SIZE AS LAST CASING SET.
5. UPPER KELLY COCK IS REQUIRED AND SHALL BE 3000# W.P. MINIMUM.
6. T. I. W. OR COMPARABLE SAFETY VALVE SHALL BE AVAILABLE ON RIG FLOOR WITH CONNECTION OR SUBS TO FIT ANY TOOL JOINT IN THE STRING. VALVE TO BE FULL BORE 5000# MIN.
7. VALVE NEXT TO SPOOL SHALL BE 4". OTHER EQUIPMENT MAY BE 3" OR 4". ALL CHOKE MANIFOLD EQUIPMENT SHALL BE FLANGED. FLOW LINE FROM MANIFOLD TO BE MINIMUM OF 3" AND STRAIGHT AS POSSIBLE WITH MINIMUM BENDS.
8. FLUID LINES FROM ACCUMULATOR TO BOP'S AND ALL REMOTE CONTROL FLUID LINES SHALL BE STEEL, AND RATED AT OR ABOVE MAXIMUM ACCUMULATOR PRESSURE. LINES SHALL BE ROUTED IN BUNDLES AND ADEQUATELY PROTECTED FROM DAMAGE.
9. USE RAMS IN FOLLOWING POSITIONS:*

	DRILLING	RUNNING CASING
UPPER RAM	DRILL PIPE	CASING
LOWER RAM	BLIND	BLIND

*AMOCO AREA SUPT. MAY REVERSE LOCATION OF RAMS.

10. CHOKE MANIFOLD, BEYOND SECOND VALVE FROM CROSS MAY BE OPTIONALLY POSITIONED OUTSIDE OF SUBSTRUCTURE.
11. EXTENSIONS AND HAND WHEELS TO BE INSTALLED AND BRACED AT ALL TIMES.
12. TWO INCH (2") LINES AND VALVES ARE PERMITTED ON THE KILL LINE.

NOTE: ALL UNMARKED VALVES MAY BE PLUG OR GATE VALVE, METAL TO METAL SEAL.



3000# W.P.

Attachment to "Application for Permit to Drill", Form 9-331 C

Federal "K" Gas Com Well No. 1, 1980 FNL & 1980 FEL
Section 28, Eddy County, New Mexico
Unit G, T-25-S, R-27-E

1. Location

   See attached Form C-102

2. Elevation

   See attached Form C-102

3. Geologic name of surface formation.

   Ochoan

4. Type of drilling tools and associated equipment to be utilized.

   See Form 9-331 C

5. Proposed drilling depth.

   See Form 9-331 C

6. Estimated tops of important geologic markers.

Delaware	2000'	Strawn	11,200'
Bone Springs	5750'	Atoka	11,420'
Wolfcamp	8350'	Mid Morrow	12,300'

7. Estimated depths at which anticipated water, oil, gas or other mineral-bearing formations are expected to be encountered.

   Morrow 12,300'

8. Proposed casing program, including size, grade, and weight of each string and whether it is new or used.

Depth	Size	Weight	Grade	New or Used
600'	16"	65#	H-40 ST&C	New
2,000'	10 3/4"	40.5#	K-55 ST&C	New
11,000'	7 5/8"	33.7#-39#	S-95 LT&C	New
10,700'-12,500'	5"	17.93#	N-80	New

9. Proposed cementing program.

   16" Casing - Sufficient cement to circulate to surface.
   10 3/4" Casing - Sufficient cement to circulate to surface.
   7 5/8" Casing - Sufficient cement to tie back to 10 3/4"
   5" Liner - Sufficient cement to tie back to 7 5/8"

10. Blowout Preventer Program is attached.

11. Type and characteristics of the proposed circulating medium or meduims to be employed for rotary drilling, and the quantities and types of mud and weighting material to be maintained.

0'-600'	Native mud & fresh water
600'-2000'	Brine water, native mud
2000'-11,000'	Add fresh water to brine and commercial mud to maintain safe hole conditions.
11,000'-12,500'	Add KCL for 6% system. Use brine water for make up water. Raise viscosity and reduce water loss to 6.0 cc for Morrow penetration.

12. Testing, logging and coring programs to be followed with provisions made for required flexibility.

Surface to 12,500' - GR-CNL-FDC W/ Calipher
Surface to 12,500' - Dual Laterlog - Micto SFL X GR
Surface to 12,500' - BHC Sonic W/GR

13. Any anticipated abnormal pressure or temperatures expected to be encountered or potential hazards, such as hydrogen sulfide gas, along with plans for mitigating such hazards.

None anticipated.

14. Anticipated starting date and duration of operation.

Start December 15 , 1978. Complete January 24, 1978.

15. Other facets of the proposed operation operator wishes to point out for the Geological Survey's consideration of the application.

None

Proposed Development Plan for Surface Use

1. Existing roads including location of exit from main highway.

   Detailed map showing drillsite location in relation to the nearest town and all existing roads within one mile of the wellsite are shown on Exhibit A. From Malago go south on paved road 11.5 miles; 7.1 miles County road west; 4.2 miles North on County road to location.

2. Planned access roads.
   995' new road required.

3. Location of existing wells.

   All existing well within one mile radius are shown on Exhibit C.

4. Location of tank batteries and flow lines

   If the well is commercially productive, the production facilities (i.e. tanks. seperators, & treaters) will be located on the southeast end of the drilling pad. See Exhibit D.

5. Location and type of water supply.

   Fresh & brine water to be hauled by commercial hauler. B & E Inc. (Carlsbad NM)

6. Source of construction materials.

   Sufficient caliche can be obtained from well site when necessary.

7. WASTE DISPOSAL

   a. Drill cuttings will be disposed of in the reserve pit.
   b. Drilling fluids will be allowed to evaporate in the reserve pit until the pit is dry.

c. Trash, waste paper, garbage and junk will be burned or buried with a a minimum of 24" cover. Waste material will be contained to prevent scattering by wind prior to ultimate disposal.
d. Any produced water will be contained in tanks and be disposed of in an approved manner. Oil produced will be stored in tanks until sold, at which time it will be hauled from location.
e. Current laws and regulations pertaining to disposal of human waste will be complied with.
f. If productive, maintenance waste will be placed in special containers and buried or hauled away periodically.

8. ANCILLARY FACILITIES-

No camps, airstrips, etc. will be constructed.

9. WELLSITE LAYOUT-

a. Size of Drilling Pad - 220' X 150' X 6"
b. Compacted - Caliche
c. Surfaced - No
d. 450' square area around wellsite has been cleared by archaeologist.
e. See Exhibit "D".

10. RESTORATION OF SURFACE-

Producing Well - all pits will be cut, filled, and leveled as soon as practical to original condition with rehabilitation to commence following removal of drilling and completion equipment. Rehabilitation to be completed in 180 days if possible..

Dry Hole - same as above with dry hole marker to be installed and surface reseeded if required.

11. OTHER INFORMATION-

a. Terrain - Relatively flat with gullies and a network of draws to the SE and hills to the West.
b. Soil- Moderately deep, gypsiferous, fine grained clay loams.
c. Vegetation - Sparse - Cacti, yucca, tobosa, burrograss, dropseed, and other grass.
d. Surface Use - Grazing
e. Ponds and Streams - None
f. Water Wells
g. Residences and Building - None
h. Arroyos, Canyons, etc.-None
i. Well Sign - Posted at drill site
j. Open Pits - All pits containing liquid or mid will be fenced.
k. Archarological Resources - Drillsite, which is in low sand dune area, semi-arid, desert county, is in a low environmental risk area. The total effect of drilling and producing in this area would be minimal. No known archarological, historical, or cultural sites exist in the drill or road areas.

12. OPERATOR'S REPRESENTATIVE -

Field personnel responsible for compliance with development plan for surface use is:

J.H. Hankins, Senior Drilling Foreman
P.O. Drawer "A"
Levelland, TX 79336
Office Phone: 806-894-3163

LEASE & WELL NUMBER Federal "K" Gas Com No. 1

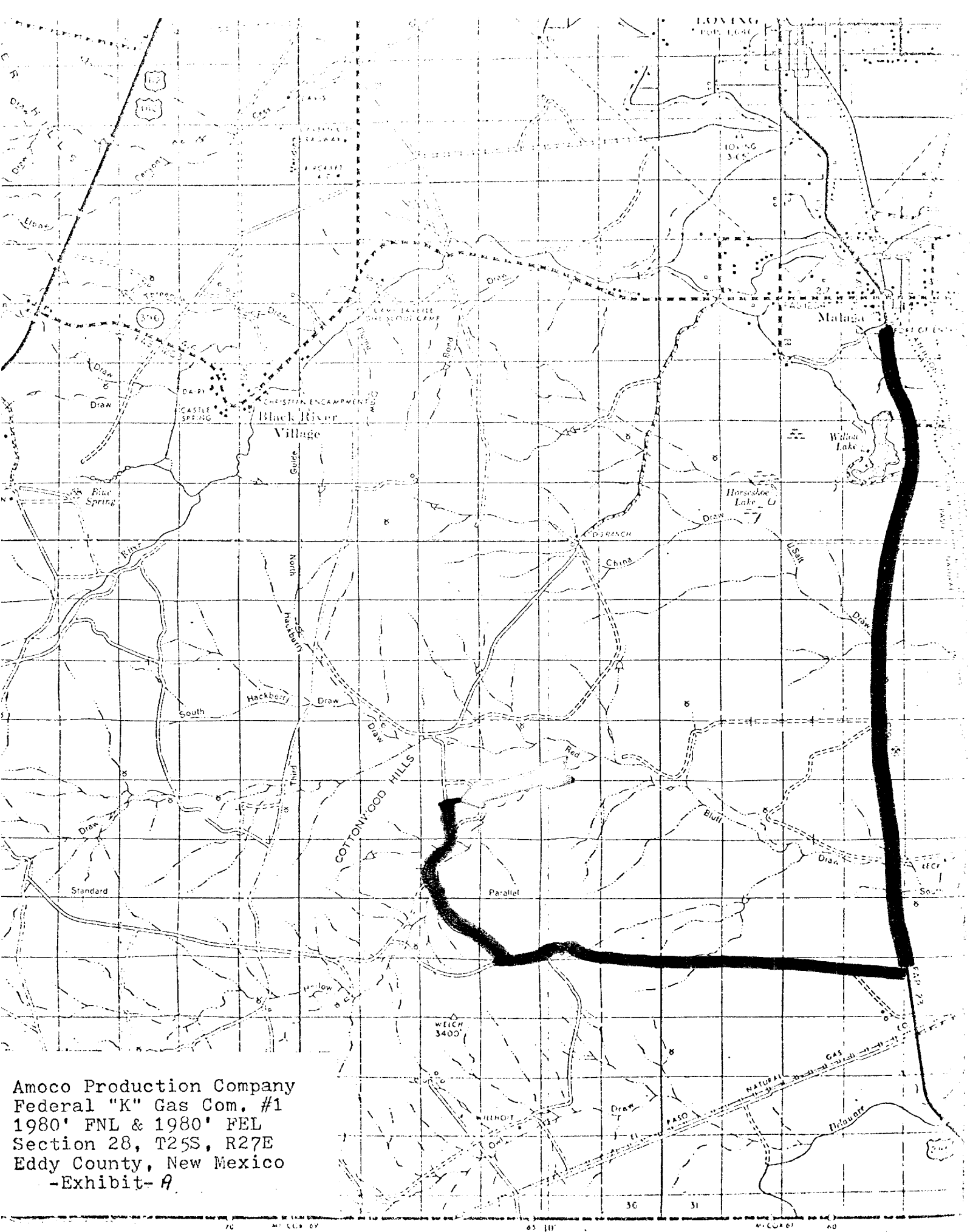
LOCATION Unit G 1980 FNL X 1980' FEL, Sec 28, T-25-S, R-27-E Lea COUNTY

Certification: The following statement is to be incorporated in the plan and must be signed by the lessee's or operator's field representative who is identified in Item No. 12 of the plan.

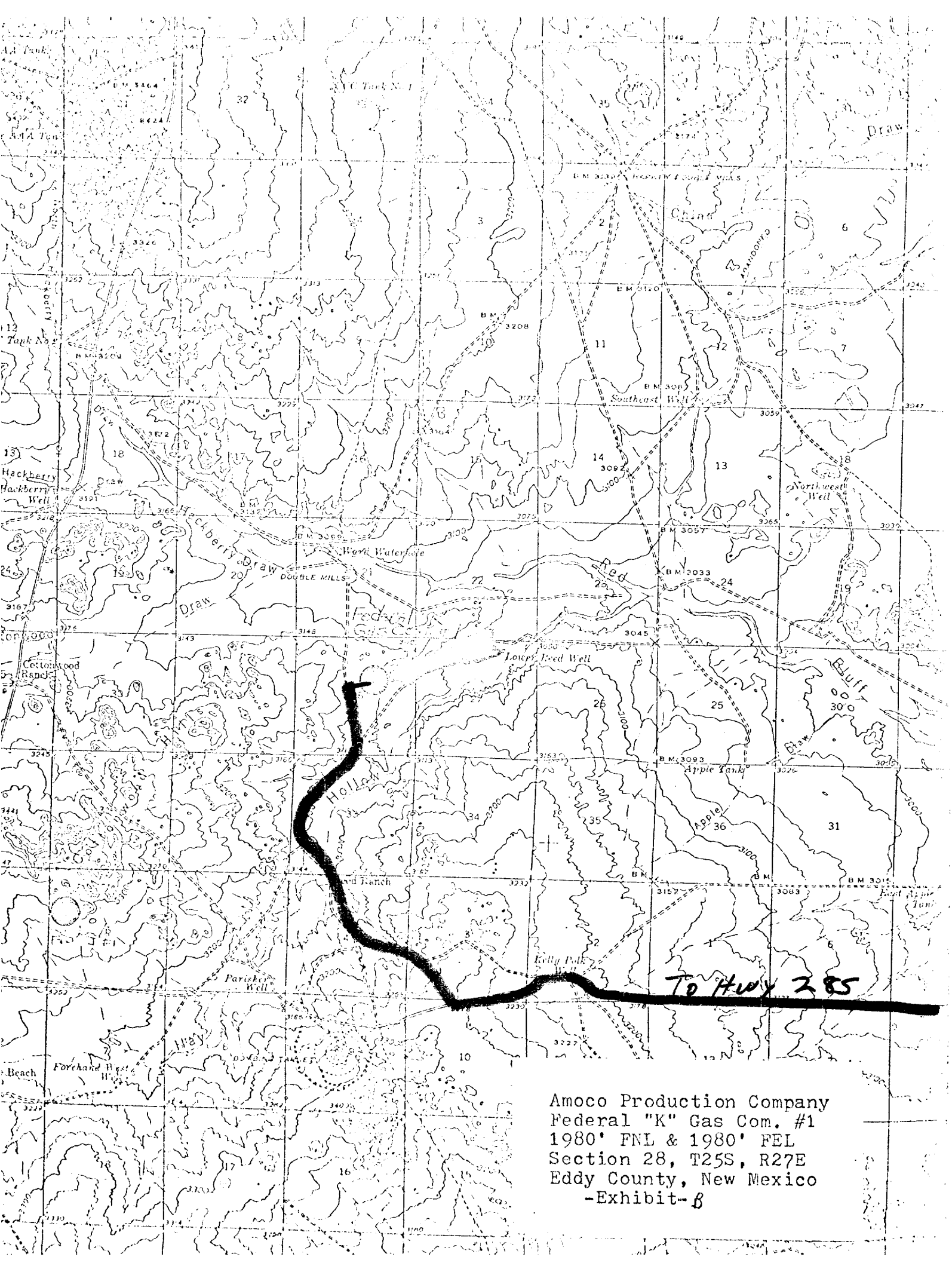
I hereby certify that I, or persons under my direct supervision have inspected the proposed drillsite and access route; that I am familiar with the conditions which presently exist; that the statements made in this plan are, to the best of my knowledge, true and correct; and, that the work associated with the operations proposed herein will be performed by AMOCO PRODUCTION COMPANY and its contractors and subcontractors in comformity with this plan and the terms and conditions under which it is approved.

12-4-78
DATE

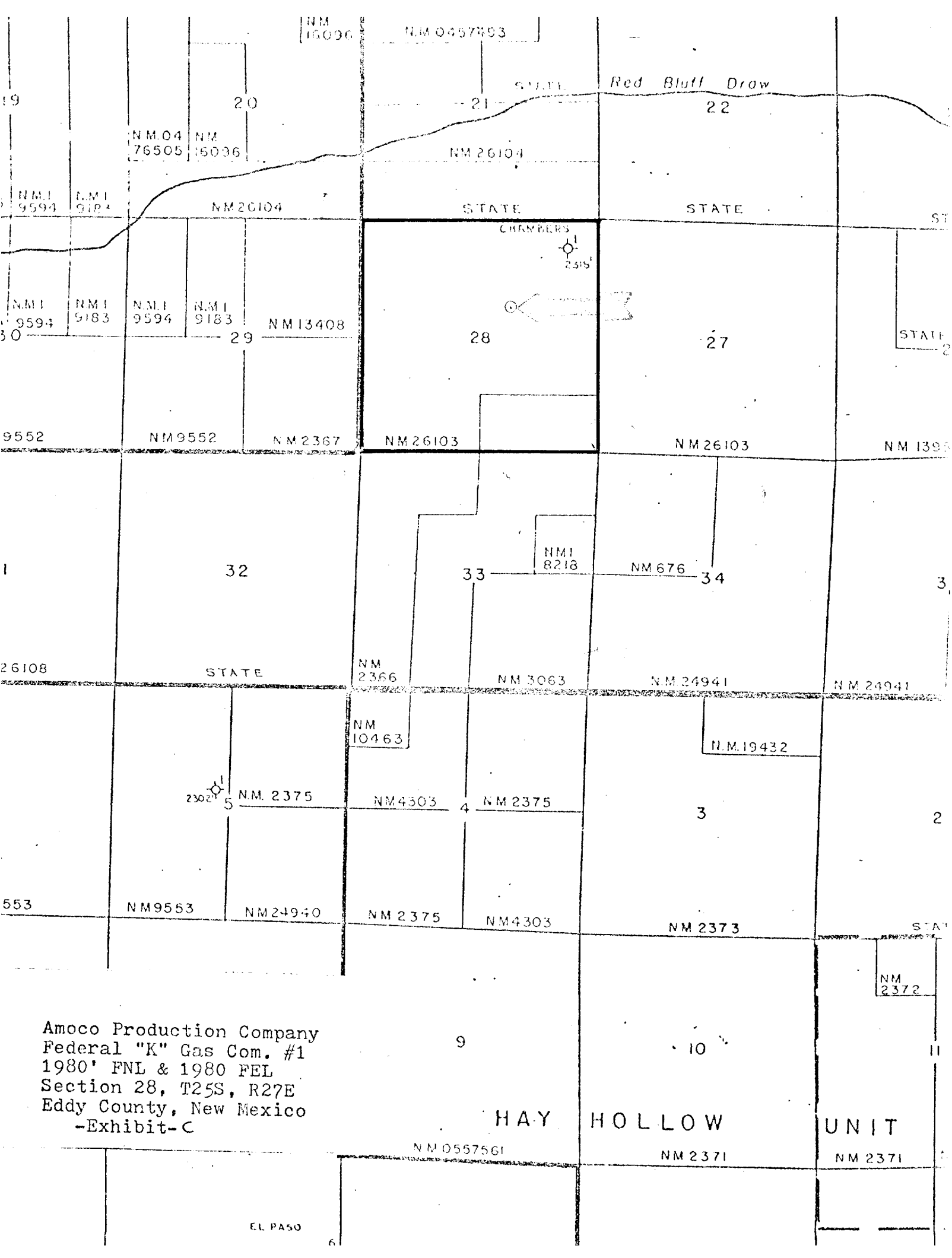
J. L. Hawkins Sr. Drilling Foreman
NAME AND TITLE



Amoco Production Company
Federal "K" Gas Com. #1
1980' FNL & 1980' FEL
Section 28, T25S, R27E
Eddy County, New Mexico
-Exhibit- A

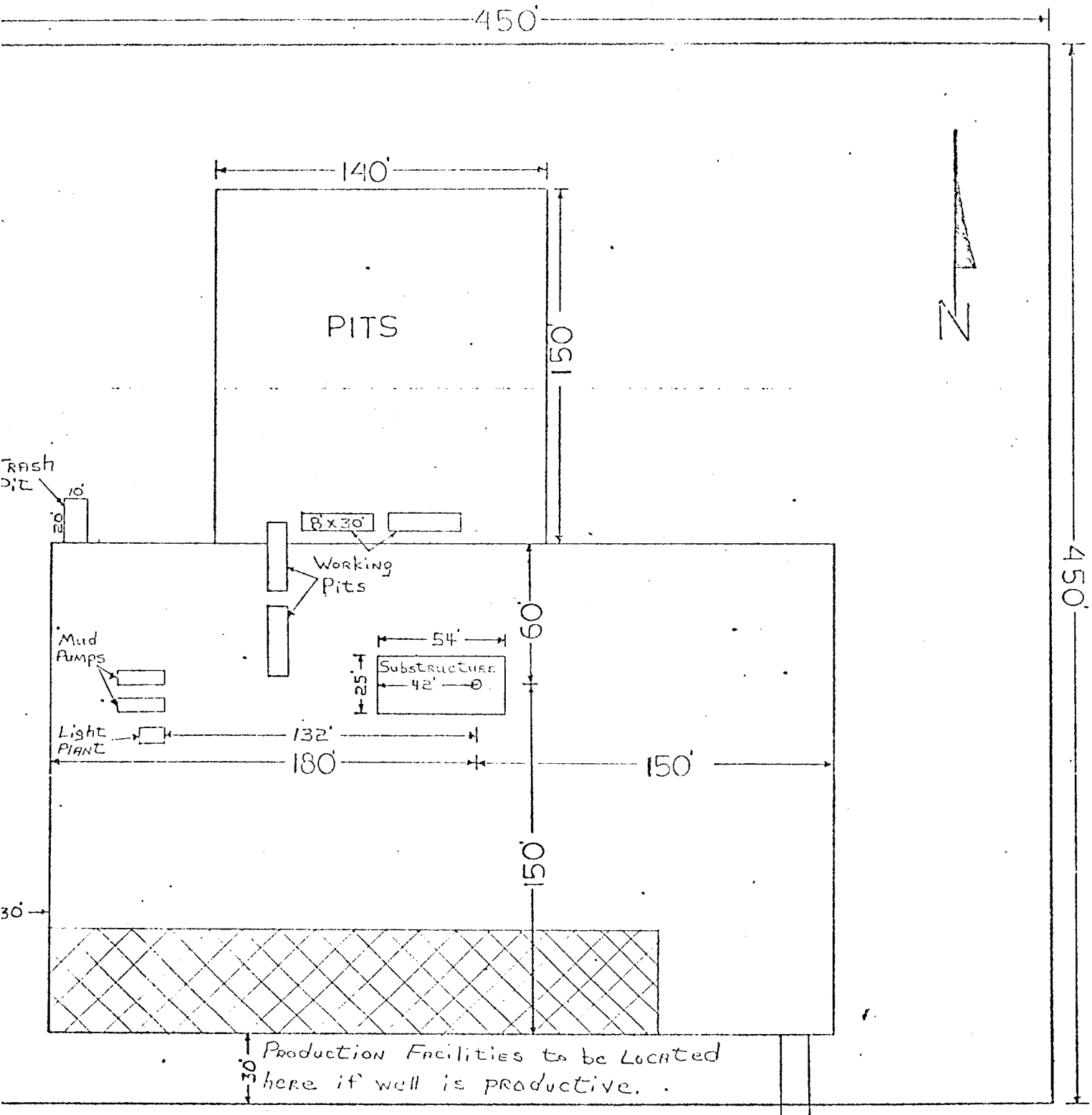


Amoco Production Company
Federal "K" Gas Com. #1
1980' FNL & 1980' FEL
Section 28, T25S, R27E
Eddy County, New Mexico
-Exhibit- B



Amoco Production Company
Federal "K" Gas Com. #1
1980' FNL & 1980 FEL
Section 28, T25S, R27E
Eddy County, New Mexico
-Exhibit-C

DRILL SITE DIMENSIONS
8,000' TO 14,000'



Amoco Production Co.
Federal "K" Well No. 1
1980 FNL & 1980 FEL
Sec. 28, T-25-S, R-27-E
Exhibit "D"

Archaeological Clearance Report

for

Amoco Production Company

Federal K Gas Com. Well No.1

Prepared

By

Dr. J. Loring Haskell

Submitted

By

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

28 November 1978

Permit No. 78-NM-120

Introduction

On 28 November 1978, New Mexico Archaeological Services, NMAS, Carlsbad, conducted an archaeological reconnaissance for Amoco Production Company on lands administered by the Bureau of Land Management in Eddy County, New Mexico. The reconnoitered areas will be impacted by the construction of a drill location and an associated access roads. This project was administered by Mr. Dennis Evans, Assistant Administrative Analyst, Amoco Production Company, and Dr. J. Loring Haskell, Principal Investigator, NMAS. Dr. Haskell conducted the reconnaissance for Amoco under excellent field and weather conditions.

Survey Technique

For this project, Amoco's proposed location was investigated by walking it in a series of south to north, 20 ft wide, close interval (15° or less), zigzag corridors. In addition, a zone measuring an additional 20 ft on each side of the location was reconnoitered as well. As for the access road, it was traversed in a tight, 20 ft wide, zigzag pattern. Combined these techniques served to maximize the visual examination of lands to be impacted on a primary and secondary basis.

Federal K Gas Com. Well No. 1

Location

Amoco's proposed location will measure 450 X 450 ft and will be situated 1980 ft from the north line and 1980 ft from the east line of:

Section 28, T25S, R27E, NMPM, Eddy County, New Mexico (BLM)

Thus it will be situated in the:

SW¼NE¼, Section 28, T25S, R27E, NMPM, Eddy County, NM (BLM)

Federal K Gas Com. Well No. 1's proposed access road will measure 12 X 995 ft and will cross federal lands in the:

SE¼NW¼, Section 28, T25S, R27E, NMPM, Eddy County, NM (BLM)
SW¼NE¼, Section 28, T25S, R27E, NMPM, Eddy County, NM (BLM)

Map Reference: USGS Malaga Quadrangle, 15 Minute Series, 1945.

Terrain

Topographically, Amoco's location is situated on the south-facing slope of a generally east-west oriented ridge. On the west, the local landform is demarcated by the Cottonwood Hills and on the east by several low eminences. Drainage is toward the southeast via a network of rills and small gullies which empty into Hay Hollow Draw, a tertiary watercourse of the Pecos. In general, dolomitic limestone cobbles, derived from the Permian-aged Rustler Formation, occur on a sporadic basis and in particular on the northern quadrant of the location. This material is notable for its abundance of spherical vugs which characterize its cortex. Local soils exhibit sharp differences between adjoining soil subgroups with the former being most characteristic of the area as a whole. These soils tend to be moduately deep, gypsiferous, fine-grained, clay loams derived from the highly weathered remains of the Rustler and Castile Formations.

Floristics

Within the bounds of the reconnaissance, Typic Gypsiorthids host an assemblage dominated by Coldenia canescens, Anulocaulis gypsogenus, Mentzelia humilis, Nama carnosum, Dicranocarpus parviflora, Lepidium sp., Nerisyrenia linearifolia, Haplocsthes

gregii, Leiostrophe villosa, and Senecio longilobus. In addition, Yucca elata, interestingly, occurs on an occasional basis in this association. Observed Graminoae is limited to Bouteloua breviseta. Elsewhere, Calcic Gypsiorthids are characterized by an often heavy cover of Hilaria mutica and Schleropogon brevifolius. Larrea tridentata, Acacia constricta, Koeberlinia spinosa, and Krameria sp. constitute the floral community's overstory and occur most frequently on soils derived from the Rustler Formation. In addition to the aforementioned grasses, Sporobolus flexuosus, Muhlenbergia sp., Tridens pulchellus and Munroa squarrosa are present on a common to infrequent basis. Forbs are represented principally by Senecio spartoides, Solanum elaeagnifolium, Euphorbia sp., Cirsium sp., Croton pottsii, and Perezia nana. Most of these latter plants have been browned by the season's first frost of 27 November. Cactaceae is limited to Opuntia macrocentra, Opuntia leptocaulis, Echinocactus texansis, and Mammillaria sp. Several specimens of Prosopis juliflora, albeit diminutive, and Ephedra trifurca also occur on Calcic Gypsiorthids.

Cultural Resources

No archaeological sites, or isolated manifestations, were recorded during this reconnaissance. Contemporary detritus is limited to several short lengths of barbed wire. The lack of cultural resources within the investigated area can be attributed an absence of lithic material suitable for tool manufacture, a soil association hosting a floral assemblage unsuited for milling operations, and a lack of potable water. In terms of probability,

archaeological sites are more apt to occur locally on the bluffs overlooking principal water courses such as Hay Hollow Draw and in particular the Delaware River to the south and southeast. Within the bounds of the surveyed area, the single most limiting factor regulating human occupation is water. Although water does occur in the form of seeps and springs in the Cottonwood Hills, it is immotable for man's needs; however, it is suitable for stock raising purposes and hence game. Excepting environmental limitations and a paucity of floral and lithic resources, the immediate vicinity undoubtedly was visited by scores of social units on an occasional, albirt brief, basis since Archaic times. Evidence of their passage should manifest itself as isolated projectile points or solitary cores and associated debitage attributable to activities pursuant with hunting.

Recommendations

NMAS recommends clearance for Amoco's proposed Federal K Gas Com. Well No. 1 and suggests that work-related activities proceed according to existing plans.