

N.M.C.D. COPY  
UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

SUBMIT IN TRIPLICATE  
(Other instructions on  
reverse side)

Form approved.  
Budget Bureau No. 42-R1425.

30-015-22963

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK

1a. TYPE OF WORK  
DRILL ☒ DEEPEN ☐ PLUG BACK ☐  
b. TYPE OF WELL  
OIL WELL ☐ GAS WELL ☒ OTHER ☐  
2. NAME OF OPERATOR  
Amoco Production Company  
3. ADDRESS OF OPERATOR  
P. O. Box 68, Hobbs, NM 88240  
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)  
At surface  
660' FSL & 2310' FWL Sec. 35 (Unit N, SE 1/4 SW 1/4)  
At proposed prod. zone  
14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE  
15.9 miles Southeast of Loco Hills, NM  
15. DISTANCE FROM PROPOSED LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT.  
(Also to nearest drlg. unit line, if any)  
18. DISTANCE FROM PROPOSED LOCATION TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.  
21. ELEVATIONS (Show whether DF, RT, GR, etc.)  
3627.8 GL  
23. PROPOSED CASING AND CEMENTING PROGRAM

5. LEASE DESIGNATION AND SERIAL NO.  
LC-029392-A  
6. IF INDIAN, ALLOTTEE OR TRIBE NAME  
7. UNIT AGREEMENT NAME  
Greenwood Pregrayburg Unit  
8. FARM OR LEASE NAME  
Greenwood Pregrayburg Unit  
9. WELL NO.  
13  
10. FIELD AND POOL, OR WILDCAT  
Und. Shugart Penn  
11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA  
35-18-31  
12. COUNTY OR PARISH  
Eddy  
13. STATE  
NM  
17. NO. OF ACRES ASSIGNED TO THIS WELL  
320  
20. ROTARY OR CABLE TOOLS  
Rotary  
22. APPROX. DATE WORK WILL START  
7-20-79

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
17-1/2	13-3/8	54.5#	800'	Circulate to Surf
12-1/4	9-5/8	40#	4800'	Circulate to Surf
8-3/4	5-1/2	17,20,23#	12000'	Tie back to 9-5/8 csg.

Propose to drill and equip well in the Penn Formation. After reaching TD, logs will be run and evaluated and stimulated as necessary in attempting commercial production.

Mud Program 0-800' Native mud and fresh water  
800-4800' Native mud and brine water  
4800-10,500' Commercial mud and cut brine  
10,500-TD Commercial mud w/KCL for 6% system and cut brine  
Prior to Morrow penetration raise viscosity.

Archaeological Clearance Report attached.  
BOP Program is attached.  
Gas is not dedicated.

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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. If blowout preventer program, if any.

24. SIGNED Ray Cox TITLE Administrative Supervisor DATE 7-6-79  
(This space for Federal or State office use)

PERMIT NO. \_\_\_\_\_ APPROVAL DATE \_\_\_\_\_

APPROVED BY \_\_\_\_\_ TITLE \_\_\_\_\_ DATE \_\_\_\_\_

- CONDITIONS OF APPROVAL, IF ANY:  
0+5 - USGS, A  
1 - BD  
1 - Houston  
1 - Susp.  
1 - Cities Svc.  
1 - Conoco

\*See Instructions On Reverse Side

Tested & Back  
7-20-79

**N MEXICO OIL CONSERVATION COMMISS**  
**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 <b>AMOCO PRODUCTION COMPANY</b>			Lease <b>GREENWOOD PREGRAYBURG</b>		Well No. <b>13</b>
Unit Letter <b>N</b>	Section <b>35</b>	Township <b>18 SOUTH</b>	Range <b>31 EAST</b>	County <b>EDDY</b>	
Actual Footage Location of Well: <b>660</b> feet from the <b>SOUTH</b> line and <b>2310</b> feet from the <b>WEST</b> line					
Ground Level Elev. <b>3628.9</b>	Producing Formation <b>Morrow</b>		Pool <b>Shugart Penn Morrow</b>		Dedicated Acreage: <b>320</b> Acres

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

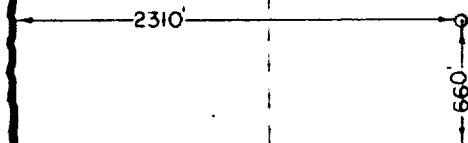
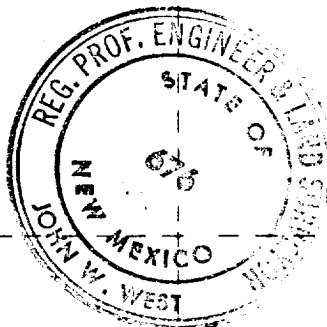
☒ Yes    ☐ No    If answer is "yes," type of consolidation Communitization

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

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

Working Interest	
Amoco	.47222
Conoco	.47222
Cities Service	.055556

Verbal approval concerning communitization granted by USGS  
 6-22-79 to our Mr. Allen.



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

**CERTIFICATION**

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

*Ray Cox*

Name \_\_\_\_\_  
 Position Administrative Supervisor  
 Company Amoco Production Company  
 Date 7-6-79

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  
**JULY 2ND, 1979**

Registered Professional Engineer and/or Land Surveyor

*John W. West*

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



# United States Department of the Interior

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

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O. C. C.  
ARTESIA, OFFICE

July 12, 1979

Amoco Production Company  
P. O. Box 68  
Hobbs, New Mexico 88240

Gentlemen:

AMOCO PRODUCTION COMPANY  
Greenwood PreGrayburg Unit No. 13  
660 FSL 2310 FWL Sec 35, T18S, R31E  
Eddy County Lease No. LC-029392-A

Above Data Required on Well Sign

Your APPLICATION FOR PERMIT TO DRILL the above-described well to a depth of 12,000 feet to test the Morrow Formation 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 not be less than 8" x 5" in size and each page should identify the well.
4. Before drilling below the 9-5/8" casing, the blowout preventer assembly will consist of a minimum of one annular type and two ram type preventers.
5. A kelly cock will be installed and maintained in operable condition.
6. After setting the 9-5/8" 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.



7. 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.
8. Notify the Survey in case a waterflow is encountered while drilling.
9. Cement behind the 13-3/8" and 9-5/8" casing must be circulated.
10. Your request to paint permanent above-ground structures, Amoco's standard gray color, is approved.
11. Please have anyone contacting the Survey in regard to this well to identify the well with all of the information required above for the well sign.

Sincerely yours,

(Orig. Sgd.) JOE G. LARA

Joe G. Lara  
Acting District Engineer

660' FSL & 2310 FWL Sec 35 T-18-S R-31-E Eddy County, NM

1. Location

See attached Form C-102

2. Elevation -

See attached Form C-102

3. Geologic name of surface formation.

Quaternary

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	4770'	Wolfcamp	9,855'	Penn	10,825'
Bone Springs	6345'	Strawn	10,565'	Miss.	11,850'

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

Penn 10,825 (Atoka 10,825' M. Morrow 11,410')

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
800'	13-3/8"	54.5#	K-55	New
4,800	9-5/8"	40#	K-55	New
12,000	5-1/2"	17#,20#,23#	K-55 & N-80	New

9. Proposed cementing program.

13-3/8" csg. - Circulate to surface  
9-5/8" csg. - circulate to surface  
5-1/2" csg. - sufficient to tie back to 9-5/8"

10. Blowout Preventer Program is attached.

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

0 -	800'	-	Native mud and fresh water
800 -	4,800'	-	Native mud and brine water
4,800 -	10,500'	-	Commercial mud and cut brine
10,500 -	TD	-	Commercial mud w/KCL for 6% system and cut brine water

Prior to Morrow penetration raise viscosity.

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

GR-CNL-FDC w/caliper surf to TD  
DLL w/Micro SFL-GR surf to TD

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.

7-16-79 to 8-30-79

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

Request exemptions from the painting stipulations of Sec. 102 (a) (8) of the "Federal Land Policy and Management Act of 1976" to paint any tanks, separators, and treaters required for the production of this well, Amoco's standard gray color. If a pumping unit is required for the continued production of this well it will be painted black with orange safety color coding which conforms with your current painting guidelines.

LEASE & WELL NUMBER Greenwood PreGrayburg Unit Federal No. 13

LOCATION Unit L 660' FSL & 2310 FWL Sec 35 T-18-S R-31-E Eddy County, NM

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 conformity with this plan and the terms and conditions under which it is approved.

DATE 7-6-79

J. H. Hawkins Drilling Supervisor  
NAME AND TITLE

Proposed Development Plan for Surface Use

Amoco Production Company's Greenwood PreGrayburg Unit Federal Well No. 13  
Unit N, 660' FSL & 2310' FWL, Sec. 35, T-18-S, R-31-E, Eddy County, NM.

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 Loco Hills go east on Highway 82, 5.8 miles, turn south on Highway 31 and go 7.9 miles. Turn east on dirt road and go 1.5 miles, turn north and go .5 miles. Turn east and go .2 miles. Location is south about 1060' from lease road.

2. Planned access roads.

Approximately 1060' of new road will be built from existing road to location. Caliche will be used. Exhibit B

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, separators, & treaters) will be produced into existing tank battery.

5. Location and type of water supply.

Fresh & brine water to be hauled by commercial hauler.

6. Source of construction materials.

Caliche will be obtained from a pit in the SW/4 SW/4, Sec. 35, T-18-S R-31-E, Eddy County. Exhibit B

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.

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ARTESIA, NEW MEXICO



- c. Trash, waste paper, garbage and junk will be burned or buried with 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 - 330' x 210' 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 - Flat, featureless, plain with sand dunes
- b. Soil- Sandy loams
- c. Vegetation- Mesquite, Broom Snake Weed, Yucca, Oakbrush, Burrograss, Gramagrass
- d. Surface Use-Grazing
- e. Ponds and Streams - None
- f. Water Wells - None
- 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 mud will be fenced
- k. Archaeological Resources - Drill site which is in a flat plain, is in a low environmental risk area. The total effect of drilling and producing would be minimal. No known archaeological, historical, or cultural sites exist in drill or road area.

12. OPERATOR'S REPRESENTATIVE -

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

J. H. Hankins, Drilling Supervisor  
P. O. Box 68  
Hobbs, New Mexico 88240  
Office Phone: (505) 393-1781

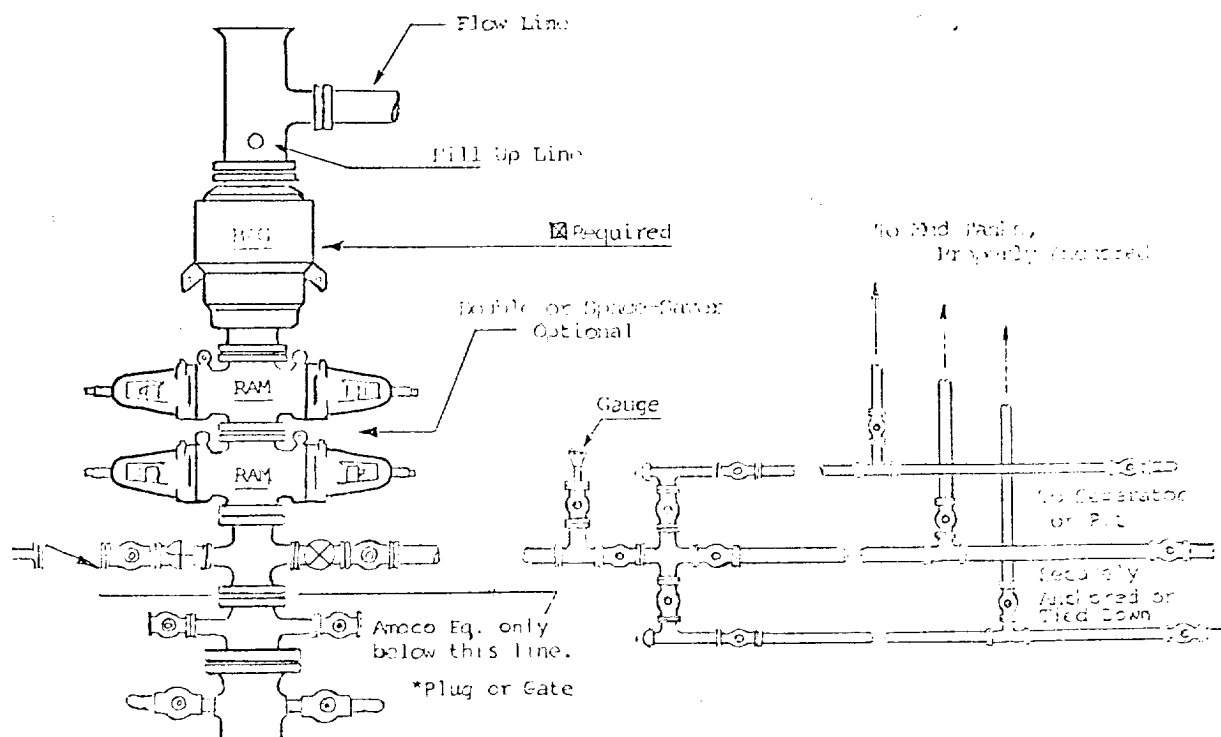
1. BOP'S TO BE FLUID OPERATED.
2. BOP'S AND ALL FITTINGS MUST BE IN GOOD CONDITION AND RATED AT 3000 PSI W.P. MINIMUM.
3. EQUIPMENT THROUGH WHICH BIT MUST PASS SHALL BE AT LEAST AS LARGE AS CASING SIZE BEING DRILLED THROUGH.
4. NIPPLE ABOVE BOP'S SHALL BE SAME SIZE AS LAST CASING SET.
5. UPPER KELLY 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:\*

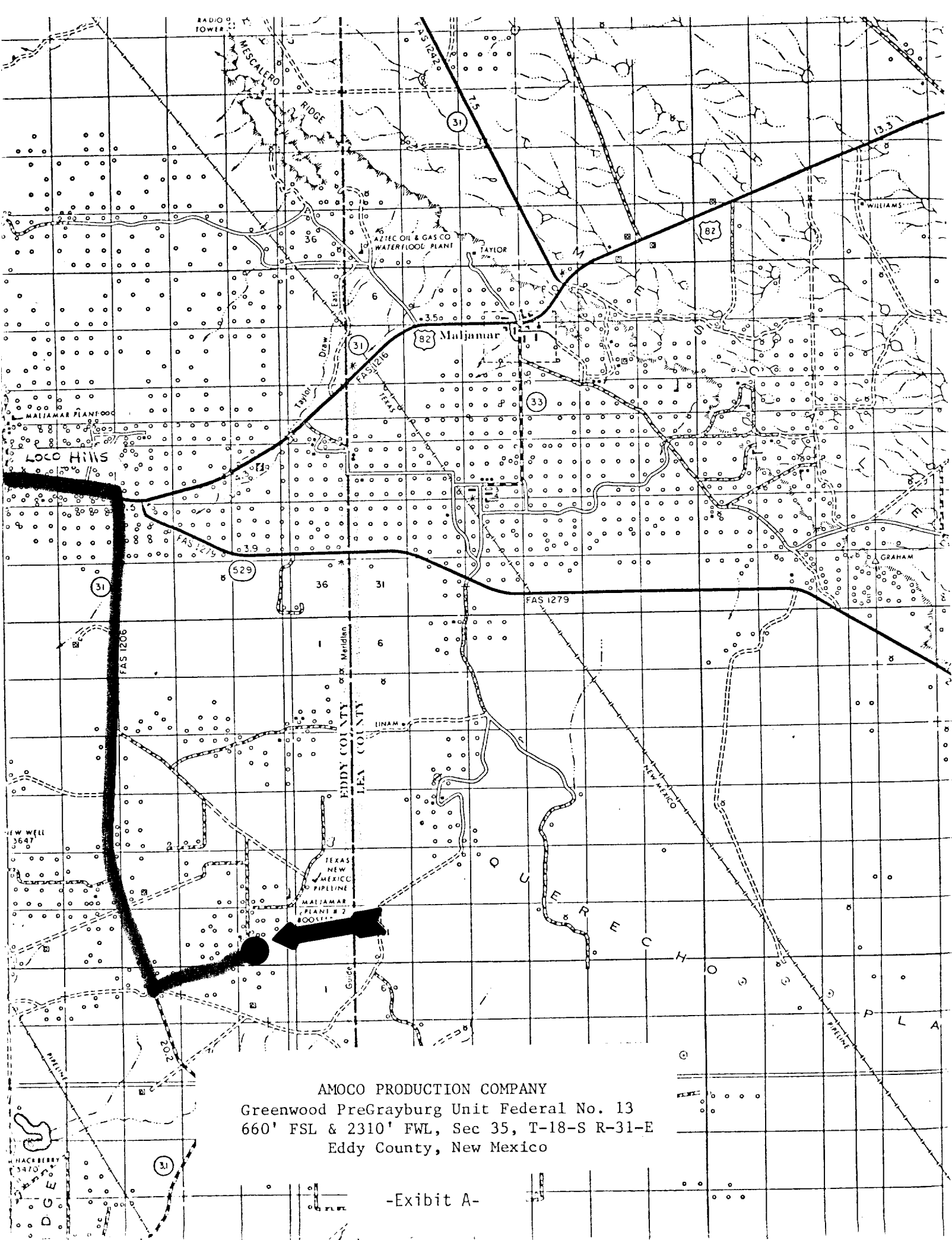
	<u>DRILLING</u>	<u>RUNNING CASING</u>
UPPER RAM	DRILL PIPE	CASING
LOWER RAM	BLIND	BLIND

\*AMOCO AREA SUPT. MAY REVERSE LOCATION OF RAMS.

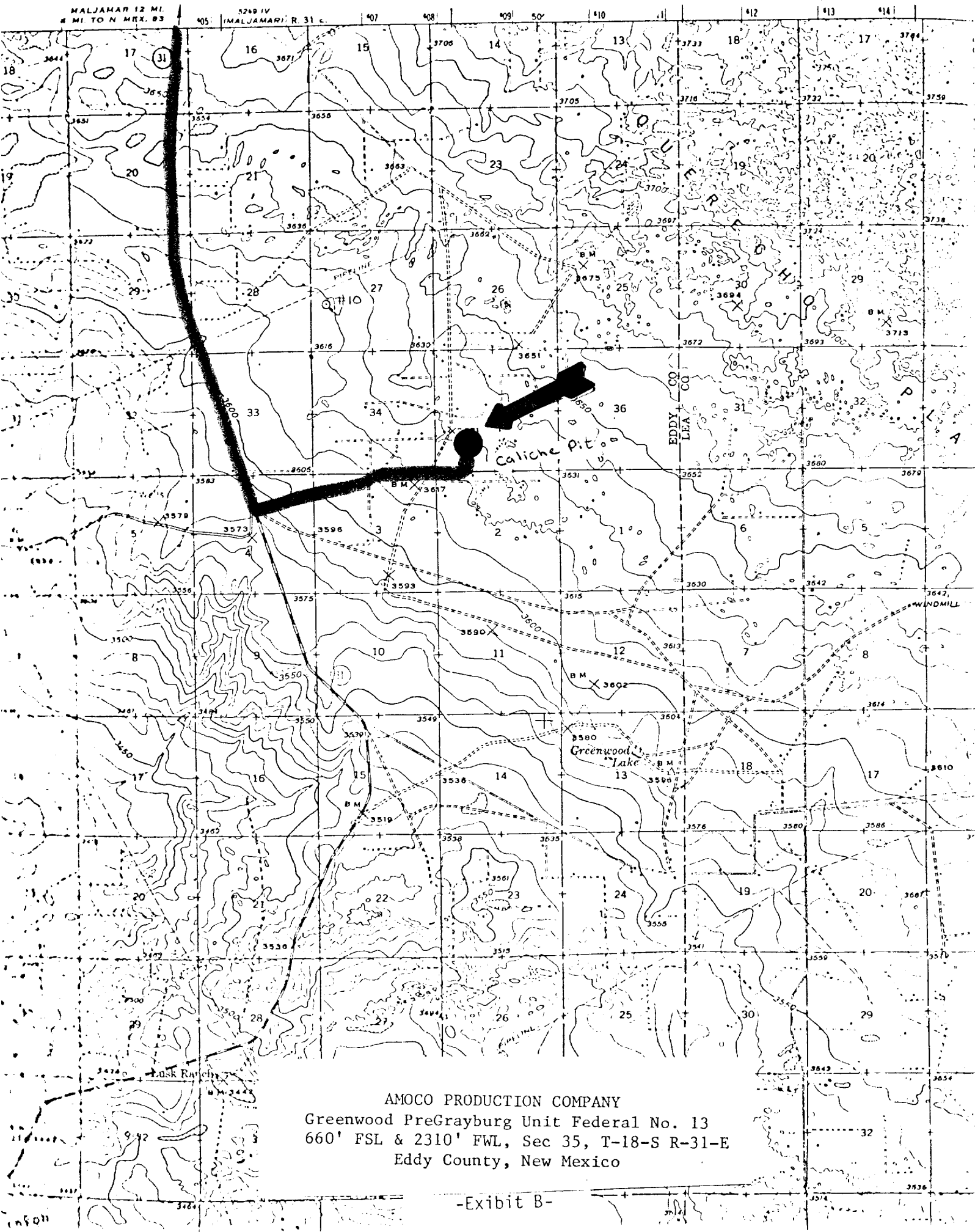
10. CHOKE MANIFOLD, BEYOND SECOND VALVE FROM CROSS MAY BE OPTIONALLY POSITIONED OUTSIDE OF SUBSTRUCTURE.
11. EXTENSIONS AND HAND WHEELS TO BE INSTALLED AND BRACED AT ALL TIMES.
12. TWO INCH (2") LINES AND VALVES ARE PERMITTED ON THE KILL LINE.

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

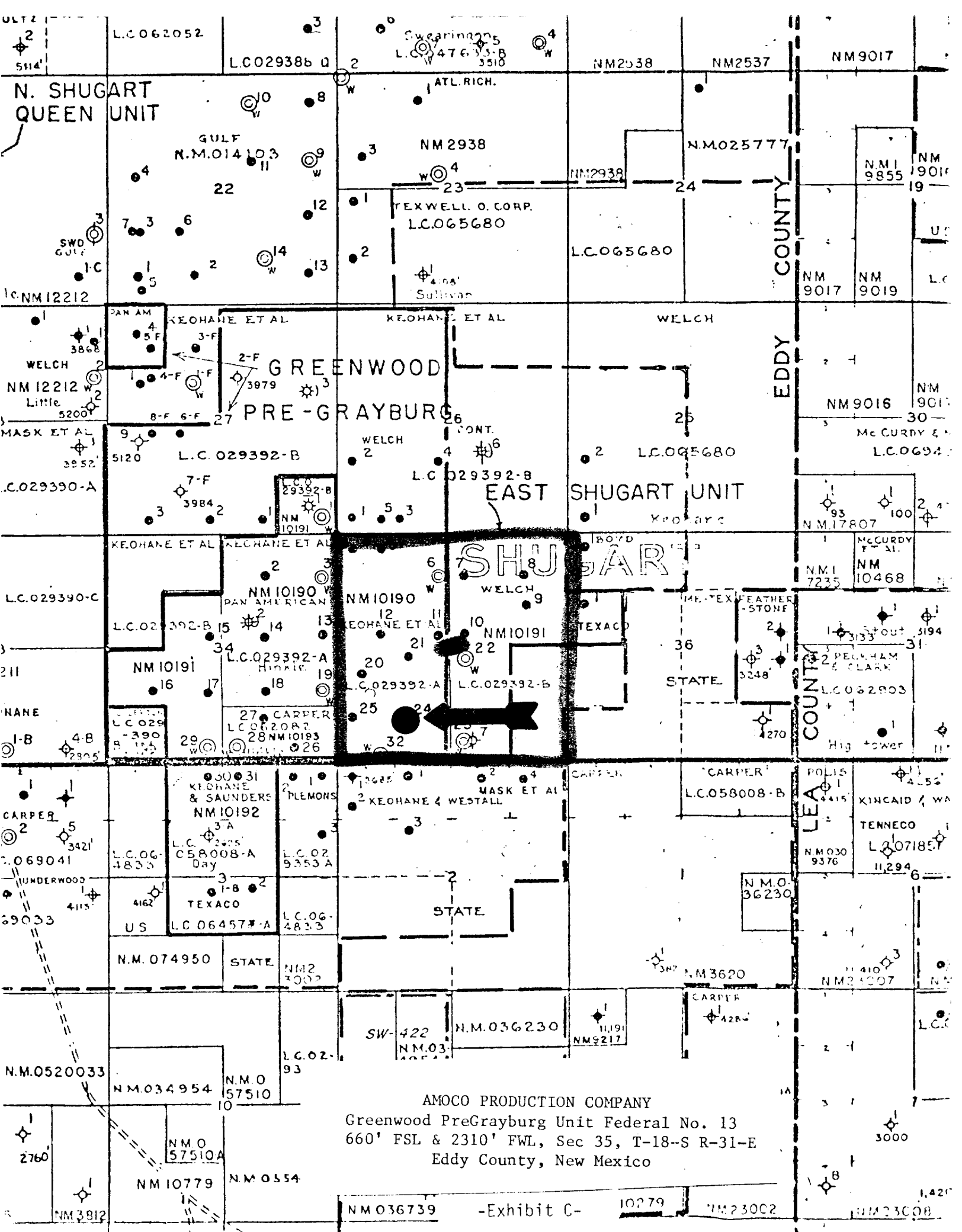




AMOCO PRODUCTION COMPANY  
Greenwood PreGrayburg Unit Federal No. 13  
660' FSL & 2310' FWL, Sec 35, T-18-S R-31-E  
Eddy County, New Mexico



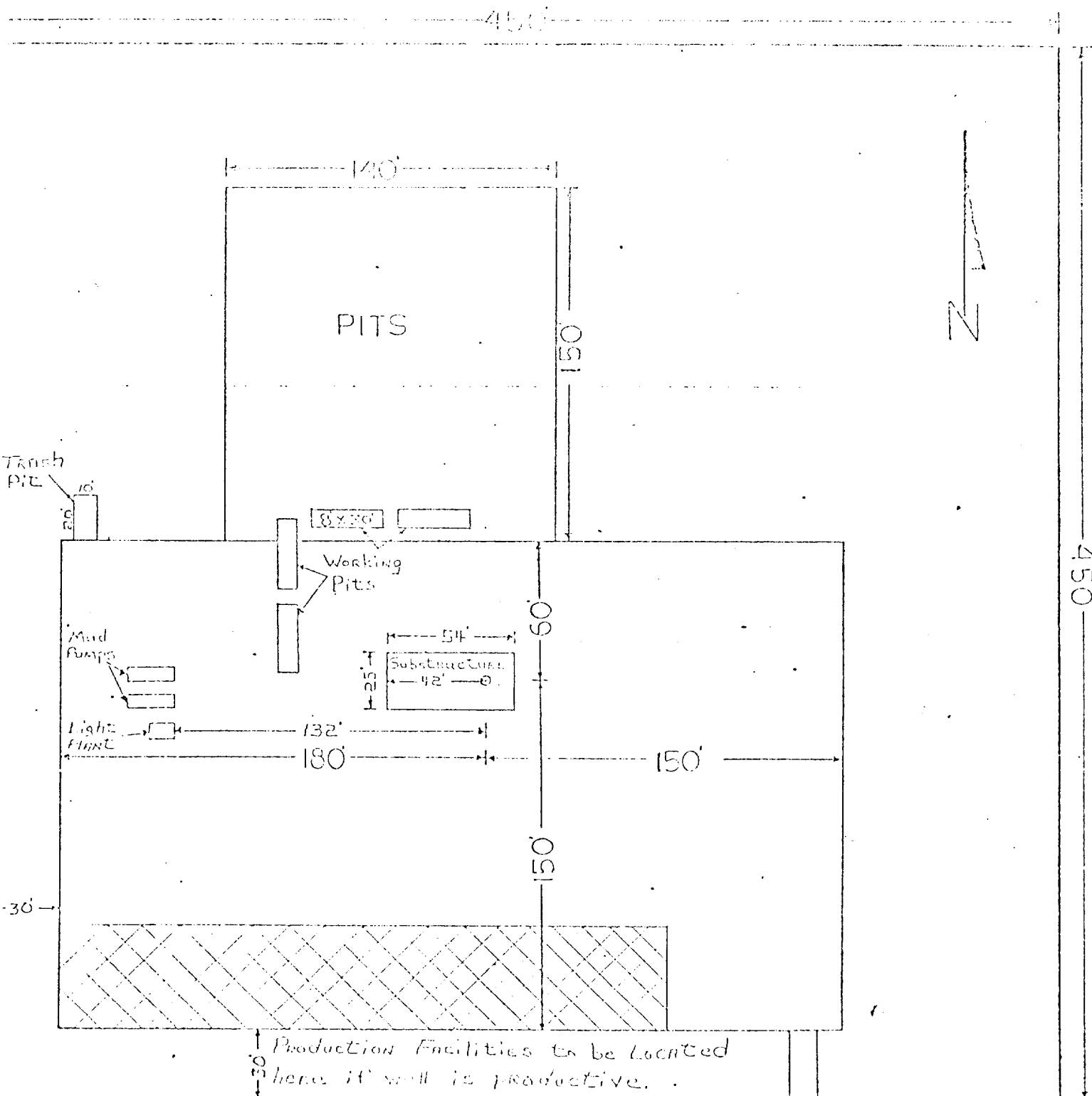
AMOCO PRODUCTION COMPANY  
Greenwood PreGrayburg Unit Federal No. 13  
660' FSL & 2310' FWL, Sec 35, T-18-S R-31-E  
Eddy County, New Mexico



# DRILL SITE DIMENSIONS

8000' TO 14000'

450'



AMOCO PRODUCTION COMPANY  
Greenwood PreGrayburg Unit Federal No. 13  
660' FSL & 2310' FWL, Sec 35, T-18-S R-31-E  
Eddy County, New Mexico

Archaeological Clearance Report  
for

Amoco Production Company

Greenwood Pregrayburg Well No. 13  
Pecos Federal 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

5 July 1979

Permit No. 78-nm-120



## Introduction

On 5 July 1979, New Mexico Archaeological Services, Inc., (NMAS), Carlbad, undertook for Amoco Production Company, Hobbs, an archaeological reconnaissance of lands administered by the Bureau of Land Management in Eddy County, New Mexico. Reconnoitered areas will be impacted by the construction of two drill locations and their accompanying access roads. This project was advanced by Mr. Bob Davis, Assistant Administrative Analyst, Amoco Production Company, and expedited by Dr. J. Loring Haskell.

## Survey Technique

For this investigation, Amoco Production Company's proposed locations were investigated for evidence of man's past activities by walking them in a series of 20ft wide, close interval ( $15^{\circ}$  or less), zigzag transects. In addition, an added zone embracing 20 ft on each side of both locations, and hence lying outside the parameters of their proposed work areas, was reconnoitered by a similar means as was their accompanying access roads. Methodologically, these procedures serve to promote optimal conditions for the visual examination of areas to be impacted by construction-related activities.

Greenwood Pregrayburg Well No. 13

## Location

This location will measure 400 X 400 ft on federal lands and will be situated 660 ft from the south line and 2310 ft from the west line of:

Section 35, T18S, R31E, NMPM, Eddy County, NM

Thus it will be situated in the:

SE $\frac{1}{4}$ SW $\frac{1}{4}$ , Section 35, T18S, R31E, NMPM, Eddy County, NM

Its accompanying access road will measure 12 X 1056 ft on federal lands and will be situated in the:

SE $\frac{1}{4}$ SW $\frac{1}{4}$ , Section 35, T18S, R31E, NMPM, Eddy County, NM  
NE $\frac{1}{4}$ NW $\frac{1}{4}$ , Section 2, T19S, R31E, NMPM, Eddy County, NM

Map Reference:

USGS Clayton Basin Quadrangle, 15 Minute Series, 1942.

Terrain

This Location is situated on an undulating plain which is overlain by a thick deposit of aeolian material of probable Holocene age. Overall, this landform is coextensive with the Querecho Plains. Coppice-type dunes and associated deflation basins mantle the immediate area and average 1.5m and 5m in height and breadth respectively. More prominent dunes lie to the north and east. Soil individuals uniformly belong to the Typic Torripsamment subgroup and are composed of loose sandy loams and loamy sands invariably lacking lithic inclusions.

Floristics

The local floral community is distinguished by a largely unbroken stand of Quercus havardii which is associated on a sporadic basis with Yucca Glauca. Artemisia filifolia, while present, is confined to deeper loamy sands and hence occurs principally on dunes. Prosopis juliflora and Chrysothamnus pulchellus range from rare to infrequent. Observed forbs include Hymenoxys sp., Euphorbia sp., Suaeda sp., Oenothera sp., Tradescantia sp., Monarda punctata, Hoffmanseggia sp., Pentstemon sp., Shrankia occidentalis, Dalea sp., and Senecio spartioides. The grasses are represented by Aristida sp.,

Sporobolus spp., Andropogon glomeratus, and Cenchrus incertus.

### Cultural Resources

No cultural resources were recorded during this reconnaissance. The overall absence of cultural resources can be attributed to a lack of lithic inclusions in local soils, the high porosity of peds, thereby limiting the availability of surface water, a floral assemblage generally non-conducive to collecting-type activities, and its remoteness from localities bearing these resources. Prehistoric use of the landform was limited to task specific social units engaged in hunting pursuits.

### Recommendations

NMAS recommends clearance for Amoco Production Company's proposed Greenwood Pregrayburg Well No. 13 and access road and suggests that work-related activities proceed in accordance with company plans.

Pecos Federal Gas Com. Well No. 1

### Location

This location will measure 400 X 400 ft on federal lands and will be situated 1980 ft from the south line and 1980 ft from the west line of:

Section 35, T24S, R28E, NMPM, Eddy County, NM

Thus it will be situated in the:

NE $\frac{1}{4}$ SW $\frac{1}{4}$ , Section 35, T24S, R28E, NMPN, Eddy County, NM

The accompanying access road will measure 12 X 2640 ft on federal lands and will be situated in the:

NE $\frac{1}{4}$ SW $\frac{1}{4}$ , Section 35, T24S, R28E, NMPM, Eddy County, NM

SE $\frac{1}{4}$ SW $\frac{1}{4}$ , Section 35, T24S, R28E, NMPM, Eddy County, NM

SW $\frac{1}{4}$ SW $\frac{1}{4}$ , Section 35, T24S, R28E, NMPM, Eddy County, NM

## Map Reference:

USGS Malaga Quadrangle, 15 Minute Series, 1945.

## Terrain

This location is situated on the east-facing slope of a low ridge which trends in the direction of the Pecos River. In general, this landform is subject to ephemeral sheetwash and is distinguished by a system of integrated rills and gullies. Small hummocks, averaging .25m or less, mark this locality as a whole. Areal soils belong to the Typic Calciorthid subgroup and consist of silt loams and silty clay loams generally lacking lithic inclusions. Soils are also subject to puddling.

## Floristics

Locally, the floral overstory is dominated by Larrea Tridentata, Flourencina cernua, Prosopis juliflora, and Atriplex canescens. Observed forbs include Mentzelia sp., Gutierrezia sarothrae, Lesquerella sp., Solanum sp., Phacelia sp., Senecio longilobus, Perezia nana, and Euphorbia sp. The Gramineae is represented by Muhlenburgia porteri, Aristida sp., Hilaria mutica, and Scleroneuron brevifolius.

## Cultural Resources

No archaeological resources were recorded during this reconnaissance. Locally, the archaeological record indicates prehistoric usage of this landform was limited to sporadic occupations by bands of itinerant hunters. Cultural residues indicative of this pattern consist of light scatters of primary and secondary decortication flakes, utilized flakes, and occasional fire hearths.

### Recommendations

NMAS recommends clearance for Amoco Production Company's proposed Pecos Federal Gas Com. Well No. 1 and access road and suggests that work-related activities proceed in accordance with company plans.