

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SUBMIT IN TRIPLICATE.
(Other instructions on
reverse side)

FORM APPROVED
OMB NO. 1004-0136
Expires: February 28, 1995

249

APPLICATION FOR PERMIT TO DRILL OR DEEPEN

1a. TYPE OF WORK

DRILL ☒

DEEPEN ☐

b. TYPE OF WELL

OIL WELL ☒

GAS WELL ☐

OTHER ☐

SINGLE ZONE ☒

MULTIPLE ZONE ☐

2. NAME OF OPERATOR

Pogo Producing Company

3. ADDRESS AND TELEPHONE NO.

P.O. Box 10340, Midland, Texas 79702

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.)*

At surface 1980' FNL & 1980' FWL of Section 36

At proposed prod. zone

Same

POTASH AREA

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE.

35 miles east of Carlsbad, New Mexico

15. DISTANCE FROM PROPOSED*

LOCATION TO NEAREST

PROPERTY OR LEASE LINE, FT.

(Also to nearest drlg. unit line, if any)

1980'

16. NO. OF ACRES IN LEASE

640

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

9100'

20. ROTARY OR CABLE TOOLS

Rotary

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

3709' Ground Level

22. APPROX. DATE WORK WILL START*

Upon Approval

23.

PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	GRADE, SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
14-3/4"	10-3/4" H-40	32.75#	750'	500 sx Class "C" (Circulate)
9-7/8"	7-5/8" J-55	26.40#	4,950'	1200 sx (Circulate)
6-3/4"	4-1/2" J-55, N-80	11.60#	9,100'	1200 sx (4700')

The Operator proposes to drill to a depth sufficient to test the Delaware and Bone Springs for oil. Specific programs are outlined in the following attachments:

DRILLING PROGRAM

SURFACE USE AND OPERATING PLAN

EXHIBIT "A" - ROAD MAP

EXHIBIT "B" - EXISTING WELL MAP

EXHIBIT "C" - LOCATION AND DEDICATION PLAT

EXHIBIT "C-1" - TOPO MAP

EXHIBIT "D" - DRILLING RIG LAYOUT

EXHIBIT "E" - 3M BOP EQUIPMENT

OPER. OGRID NO. 17891

PROPERTY NO. 22506

POOL CODE

EFF. DATE 2/16/98

API NO. 30-025-34303

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen, give data on present productive zone and proposed new productive zone. If proposal is to drill or deeper directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

24.

SIGNED

James M. C. Rutt

TITLE

Agent

DATE

1/12/98

(This space for Federal or State office use)

PERMIT NO.

APPROVAL DATE

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
CONDITIONS OF APPROVAL, IF ANY:

APPROVED BY

M J Chavez

TITLE

STATE Director

DATE

2-10-98

*See Instructions On Reverse Side

Title 18 U.S.C Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

DISTRICT I
P.O. Box 1980, Hobbs, NM 88241-1980

State of New Mexico
Energy, Minerals and Natural Resources Department

Form C-102
Revised February 10, 1994
Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

DISTRICT II
P.O. Drawer DD, Artesia, NM 88211-0719

DISTRICT III
1000 Rio Brazos Rd., Aztec, NM 87410

OIL CONSERVATION DIVISION
P.O. Box 2088

Santa Fe, New Mexico 87504-2088

☐ AMENDED REPORT

DISTRICT IV
P.O. BOX 2088, SANTA FE, N.M. 87504-2088

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number 30-025-34303	Pool Code ✓	Pool Name WILDCAT (BONE SPRINGS)
Property Code 22506	Property Name ARROW 36 FEDERAL	Well Number 1
OGRID No. 017891	Operator Name POGO PRODUCING CO.	Elevation 3709'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
F	36	21 S	32 E		1980	NORTH	1980	WEST	LEA

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
Dedicated Acres 40	Joint or Infill	Consolidation Code	Order No.						

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

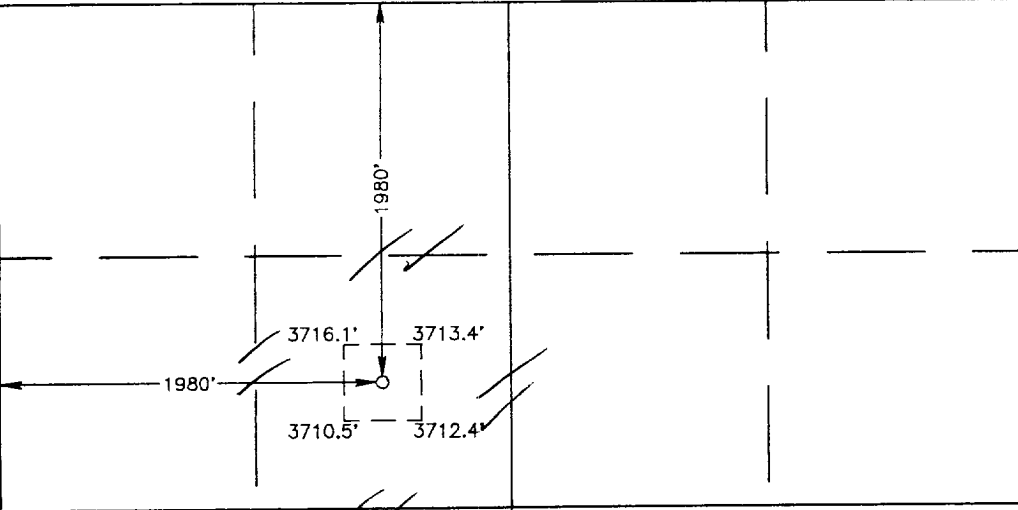
	OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief. <u>James M.C. Ritchie, Jr.</u> Signature <u>JAMES M.C. Ritchie, Jr.</u> Printed Name <u>AGENT</u> Title <u>1-12-98</u> Date
	SURVEYOR CERTIFICATION I hereby certify 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 belief. DECEMBER, 31 1997 Date Surveyed Signature & Seal of Professional Surveyor <u>Ronald J. Edson</u> 01-07-98 07-11-2108 Certificate No. RONALD J. EDSON 3239 GARY EDSON 12641

EXHIBIT "C"

DRILLING PROGRAM

Attached to Form 3160-3

Pogo Producing Company

Arrow "36" Federal No. 1
1980' FNL & 1980' FWL
Unit Letter F, SE/NW
Section 36, T21S, R32E
Lea County, New Mexico

1. Geologic Name of Surface Formation: Permian
2. Estimated Tops of Important Geologic Markers and
3. Estimated Depths of Fresh Water, Oil, and Gas:

<u>Formation</u>	<u>Depth</u>	<u>Fluid Content</u>
Permian	Surface	Fresh water at $\pm 250'$
Rustler Anhydrite	500'	-----
Top of Salt	900'	-----
Delaware Lime	4770'	-----
Bell Canyon	4920'	-----
Bone Springs	8770'	Oil
Total Depth	9100'	

No other formations are expected to give up oil, gas, or fresh water in measurable quantities. The surface fresh water sands will be protected by setting 10-3/4" casing at 750' into the Rustler anhydrite and circulating cement to surface. Potash will be protected by 7-5/8" intermediate casing at 4950' and circulating cement to surface.

4-1/2" production casing will be set at TD, and cement will be tied back to at least 200' into the 7-5/8" intermediate casing, thus ensuring that all zones are adequately isolated. The pore pressure gradient is normal (+8.4 ppg) down through the Delaware. No abnormal pressures are anticipated.

4. Casing and Cementing Program

<u>Hole Size</u>	<u>Casing</u>		<u>Casing OD</u>	<u>Weight, Grade, Coupling</u>
	<u>From</u>	<u>To</u>		
14-3/4"	0'	750'	10-3/4"	32.75# H-40 STC
9-7/8"	0'	4950'	7-5/8"	26.40# J-55 STC
6-3/4"	0'	1000'	4-1/2"	11.60# N-80 LTC
6-3/4"	1000'	7500'	4-1/2"	11.60# J-55 LTC
6-3/4"	7500'	9100'	4-1/2"	11.60# N-80 LTC

All used casing will be drifted and hydrostatically tested to at least 90% of new pipe rating.

Minimum Design Factors: Collapse 1.125, Burst 1.1, Tension 1.7

10-3/4" surface casing set at 750'

The surface casing will be set into the Rustler anhydrite to protect all fresh water formations.

Centralize the bottom 3 joints and every 4th joint to surface.

Cement to surface with 500 sx of Class C cement.

7-5/8" intermediate casing set at 4950'

The intermediate casing will be set within 100' of the top of the Delaware to isolate all salt stringers. Centralize the bottom 3 joints and every third joint thereafter. Cement to surface with 1200 sx Class "C" cement.

4-1/2" production casing set at 9100'

Centralize the bottom 3 joints and every third thereafter to the bottom of the intermediate casing. Cement to tie back into 7-5/8" intermediate casing at least 200'. Cement with 1200 sx Class "H" cement.

5. Minimum Specifications for Pressure Control:

9-7/8" hole

The following BOP equipment will be nipped up on the 10-3/4" casing and used continuously until TD is reached for the 9-7/8" hole.

The blowout preventer equipment (BOP) shown in Exhibit E will consist of a 3000-psi WP double ram type preventer. BOP will be hydraulically operated. H2S trim will not be required.

Before drilling out from under the 10-3/4" surface casing, all BOP's and accessory equipment will be tested to 1500 psi. Pipe rams will be operationally checked each 24-hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets.

BLM method to calculate minimum BOP requirements:

$(.052)(10.0 \text{ ppg})(4950') - (0.22 \text{ psi/ft})(4950') = 1485 \text{ psi}$

Minimum BOP requirements: 2M BOP stack and manifold system

6-3/4" hole

The following BOP equipment will be nipped up on the 7-5/8" casing and used continuously until TD is reached for the 6-3/4" hole.

The blowout preventer equipment (BOP) shown in Exhibit E will consist of a 3000-psi WP double ram type preventer. BOP will be hydraulically operated. H2S trim will not be required.

Before drilling out from under the 7-5/8" intermediate casing, the BOP and accessory equipment will be tested to 2000 psi. Pipe rams will be operationally checked each 24-hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets.

BLM method to calculate minimum BOP requirements:
 $(.052)(8.4 \text{ ppg})(9100') - (0.22 \text{ psi/ft})(9100') = 1973 \text{ psi}$
Minimum BOP requirements: 2M BOP stack and manifold system

6. Proposed Mud System:

The well will be drilled to TD with a combination of fresh water and 10# brine. The applicable depths and properties of this system are as follows:

<u>Depth</u>	<u>Type</u>	<u>Weight (ppg)</u>	<u>Viscosity (sec)</u>	<u>Water Loss (cc)</u>
0-750'	Fresh water	8.4	28	NC
750'-4950'	Brine	10.0	29	NC
4950'-TD	Fresh	8.4	28-32	20

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

7. Auxiliary Well Control and Monitoring Equipment:

- A kelly cock will be kept in the string at all times.
- A full opening drill pipe stabbing valve (TIW/inside BOP) with proper drill pipe connections will be on the rig floor at all times.
- An electronic pit volume totalizer system will not be used.
The drilling fluids system will be visually monitored at all times.
- A mudlogging unit might be monitoring drilling penetration rate and hydrocarbon shows from 4950' to TD.

8. Logging, Testing, and Coring Program:

- Drillstem tests will be run on the basis of drilling shows.

- b) The electric logging program will consist of:
 - 1) 6-3/4" hole - Gamma ray, dual induction log, compensated neutron and litho-density logs.
- c) No conventional cores are planned. Selected intervals may be sidewall cored based upon shows and openhole logs.
- d) Further testing procedures will be determined after the 4-1/2" production casing has been cemented at TD.

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

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

No hydrogen sulfide or other hazardous gases or fluids have been encountered, reported, or are known to exist at this depth in this area. No major lost circulation zones have been reported in offsetting wells.

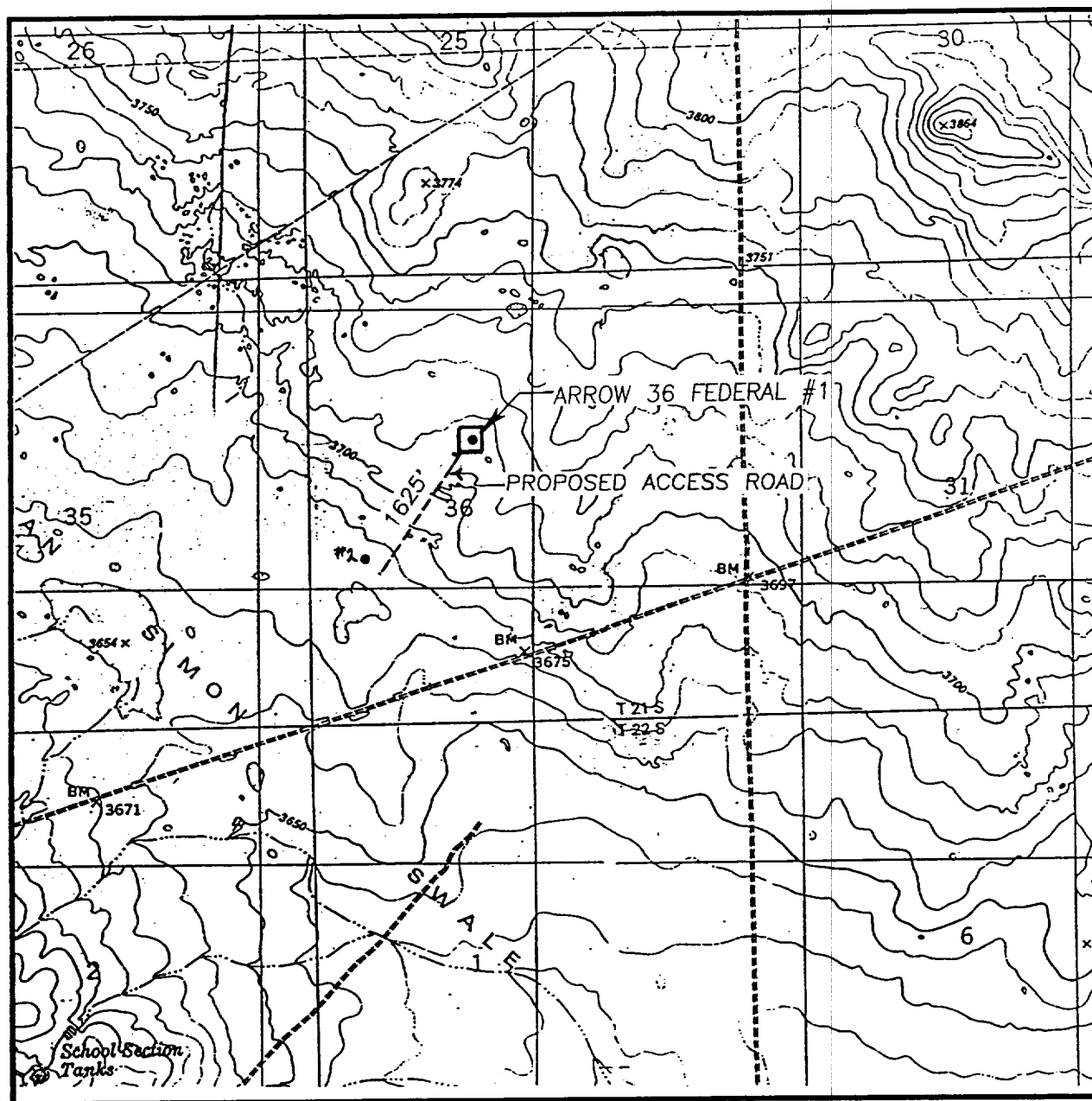
The maximum anticipated bottom hole pressure is approximately 3940 psi. (9100' x .433 psi/ft = 3940 psi.)

The maximum anticipated bottom hole temperature is 118° F.

10. Anticipated Starting Date and Duration of Operations:

Road and location work will not begin until approval has been received from the BLM. The anticipated spud date is February 20, 1998. Once commenced, the drilling operation should be complete in 15 days. If the well is productive, an additional 30 days will be required for completion, testing, and installation of permanent facilities.

LOCATION VERIFICATION MAP



SCALE: 1" = 2000'

CONTOUR INTERVAL - 10'

SEC. 36 TWP. 21-S RGE. 32-E

SURVEY N.M.P.M.

COUNTY LEA

DESCRIPTION 1980' FNL & 1980' FWL

ELEVATION 3709'

OPERATOR POGO PRODUCING CO.

LEASE ARROW 36 FEDERAL

U.S.G.S. TOPOGRAPHIC MAP

GRAMA RIDGE, THE DIVIDE, NM

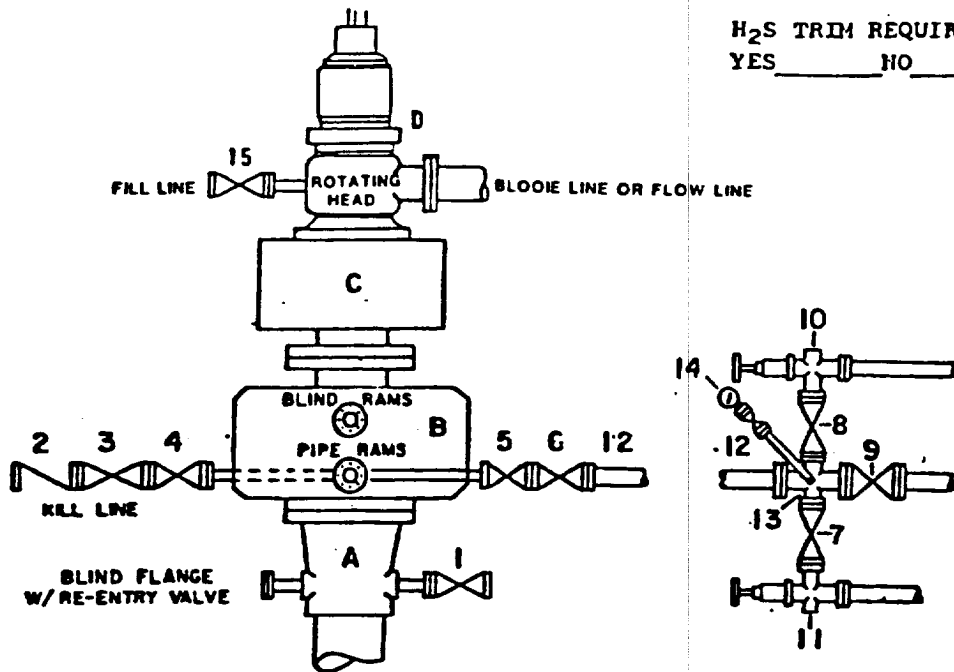
EXHIBIT "C-1"

JOHN WEST ENGINEERING

HOBBS, NEW MEXICO

(505) 393-3117

DRILLING CONTROL **CONDITION III-B 3000 PSI WP**



H₂S TRIM REQUIRED
YES _____ NO _____

DRILLING CONTROL

MATERIAL LIST - CONDITION III - B

- | | |
|------------|---|
| A | Wellhead |
| B | 3000# W.P. Dual ram type preventer, hydraulic operated with 1" steel, 3000# W.P. control lines (where sub-structure height is adequate, 2 - 3000# W.P. single ram preventers may be utilized with 3000# W.P. drilling spool with 2" minimum flanged outlet for kill line and 3" minimum flanged outlet for choke line. The drilling spool is to be installed below the single ram type preventers). |
| C | 3000# W.P. Annular Preventer with 1" steel, 3000# W.P. control lines. |
| D | Rotating Head with fill up outlet and extended Bloopie line. |
| 1,3,4,7,8, | 2" minimum 3000# W.P. flanged full opening steel gate valve, or Halliburton Lo Torc Plug valve. |
| 2 | 2" minimum 3000# W.P. back pressure valve. |
| 5,6,9 | 3" minimum 3000# W.P. flanged full opening steel gate valve, or Halliburton Lo Torc Plug valve. |
| 12 | 3" minimum Schedule 80, Grade B, seamless line pipe. |
| 13 | 2" minimum x 3" minimum 3000# W.P. flanged cross. |
| 10,11 | 2" minimum 3000# W.P. adjustable choke bodies. |
| 14 | Cameron Mud Gauge or equivalent (location optional in Choke line). |
| 15 | 2" minimum 3000# W.P. flanged or threaded full opening steel gate valve, or Halliburton Lo Torc Plug valve. |

SCALE	DATE	EST. NO	DRG NO.
DRAWN BY			
CHECKED BY			
APPROVED BY			

EXHIBIT E