RESUBMITTAL
New Mexico Oil Conservation Division, District I
1625 N. French Drive
Hobbs, NM 88240

Form 3160-3
(July 1992)

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

APPLICATION FOR PERMIT TO DRILL OR DEEPEN

1a. TYPE OF WORK: DRILL [x] DEEPEN [ ]

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

2. NAME OF OPERATOR: Pogo Producing Company <17891>

3. ADDRESS AND TELEPHONE NO.: P. O. Box 10340, Midland, TX 79702-7340 (432)685-8100

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*)
At surface: 1650' FNL & 330' FEL, Section 28,T22S,R32E
At proposed prod. zone: Same Unit I

5. LEASE DESIGNATION AND SERIAL NO.: NM-69377

6. IF INDIAN, ALLOTTEE OR TRIBE NAME:

7. UNIT AGREEMENT NAME:

8. FARM OR LEASE NAME, WELL NO.: Red Tank 28 Federal #5 <9342>

9. API WELL NO.: 30-025-~~34459~~ 37595

10. FIELD AND POOL, OR WILDCAT: Red Tank Bone Spring

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: Sec 28, T22S, R32E

12. COUNTY OR PARISH: Lea County

13. STATE: NM

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*: Approximately 30 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): 330'

16. NO. OF ACRES IN LEASE: 320

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.: 1320'

19. PROPOSED DEPTH: 8900'

20. ROTARY OR CABLE TOOLS: Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.): 3619' GR

22. APPROX. DATE WORK WILL START*: When approved

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	GRADE, SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
25"	20"	NA	40'	Cmt to surface w/ Redi-mix
14-3/4"	H-40 10-3/4"	32.75	800' WITNESS	800 sks - circ to surface
9-7/8"	J-55 7-5/8"	26.4	4550'	1100 sks - circ to surface
6-3/4"	J-55, N-80 4-1/2	11.6	8900'	1000 sks - Est TOC 4000

1. Drill 25" hole to 40'. Set 40' of 20" conductor pipe and cement to surface w/ Redi-mix.

2. Drill 14-3/4" hole to 800'. Run & set 800' of 10-3/4" 32.75# H-40 ST&C csg. Cmt w/ 800 sks Cl "C" cmt + additives. Circ cmt to surface.

3. Drill 9-7/8" hole to 4550'. Run & set 4550' of 7-5/8" 24.6#, J-55 ST&C. Cmt w/ 1100 sks Cl "C" cmt + additives. Circ cmt to surface.

CARLSBAD CONTROLLED WATER BASIN

4. Drill 6-3/4" hole to 8900'. Run & set 8900' 4-1/2" csg as follows: 2100' of 4-1/2" 11.6#, N-80, ST&C, 5400' of 4-1/2" 11.6# J-55 LT&C, 1400' of 4-1/2" 11.6# N-80 LT&C. Cmt w/ 1000 sks Cl "H" Premium cmt + add. Est TOC 4000' FS.

APPROVAL SUBJECT TO
GENERAL REQUIREMENTS
AND SPECIAL STIPULATIONS
ATTACHED

IN ABOVE SPACE DESCRIBE PROGRAM: If proposal is to deepen, 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 Cathy Wright TITLE Sr.Eng Tech DATE 09/19/05

(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 /s/ Joe G. Lara ACTING TITLE FIELD MANAGER DATE 12/9/05

*See Instructions On Reverse Side

APPROVAL FOR 1 YEAR

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

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

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

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

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

OIL CONSERVATION DIVISION
P.O. Box 2088
Santa Fe, New Mexico 87504-2088

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
30-025-37595	51683	RED TANK BONE SPRING

Property Code	Property Name	Well Number
9342	RED TANK 28 FEDERAL	5

OGRID No.	Operator Name	Elevation
17891	POGO PRODUCUNG COMPANY	3619

Surface Location

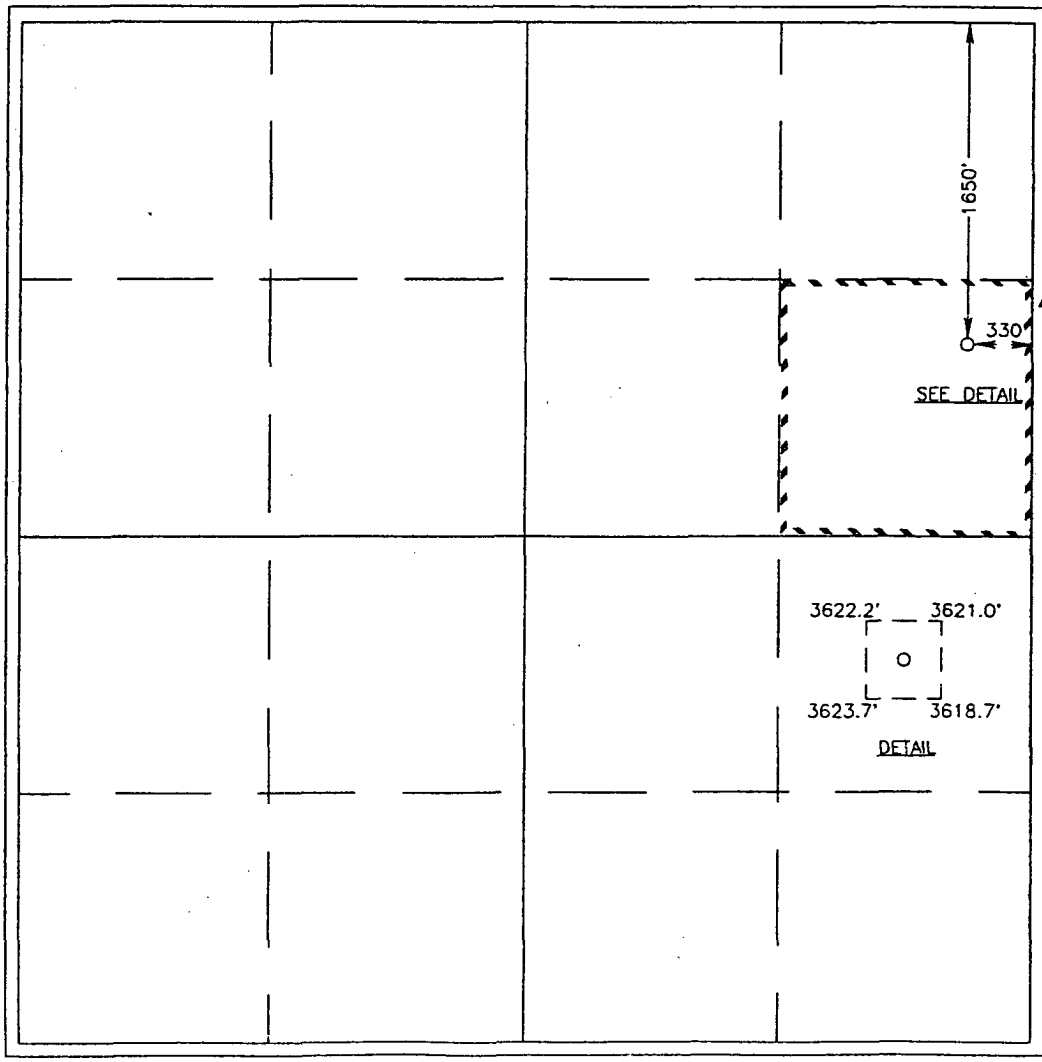
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
H	28	22 S	32 E		1650	NORTH	330	EAST	LEA

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	Joint or Infill	Consolidation Code	Order No.
40			

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 the the information contained herein is true and complete to the best of my knowledge and belief.

Signature

Joe T. Janica
Printed Name

Agent
Title

06/17/98
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 supervison, and that the same is true and correct to the best of my belief.

MAY 28, 1998
Date Surveyed

DMCC

Signature & Seal of Professional Surveyor

GARY L. JOHNSON
NEW MEXICO
REGISTERED PROFESSIONAL SURVEYOR

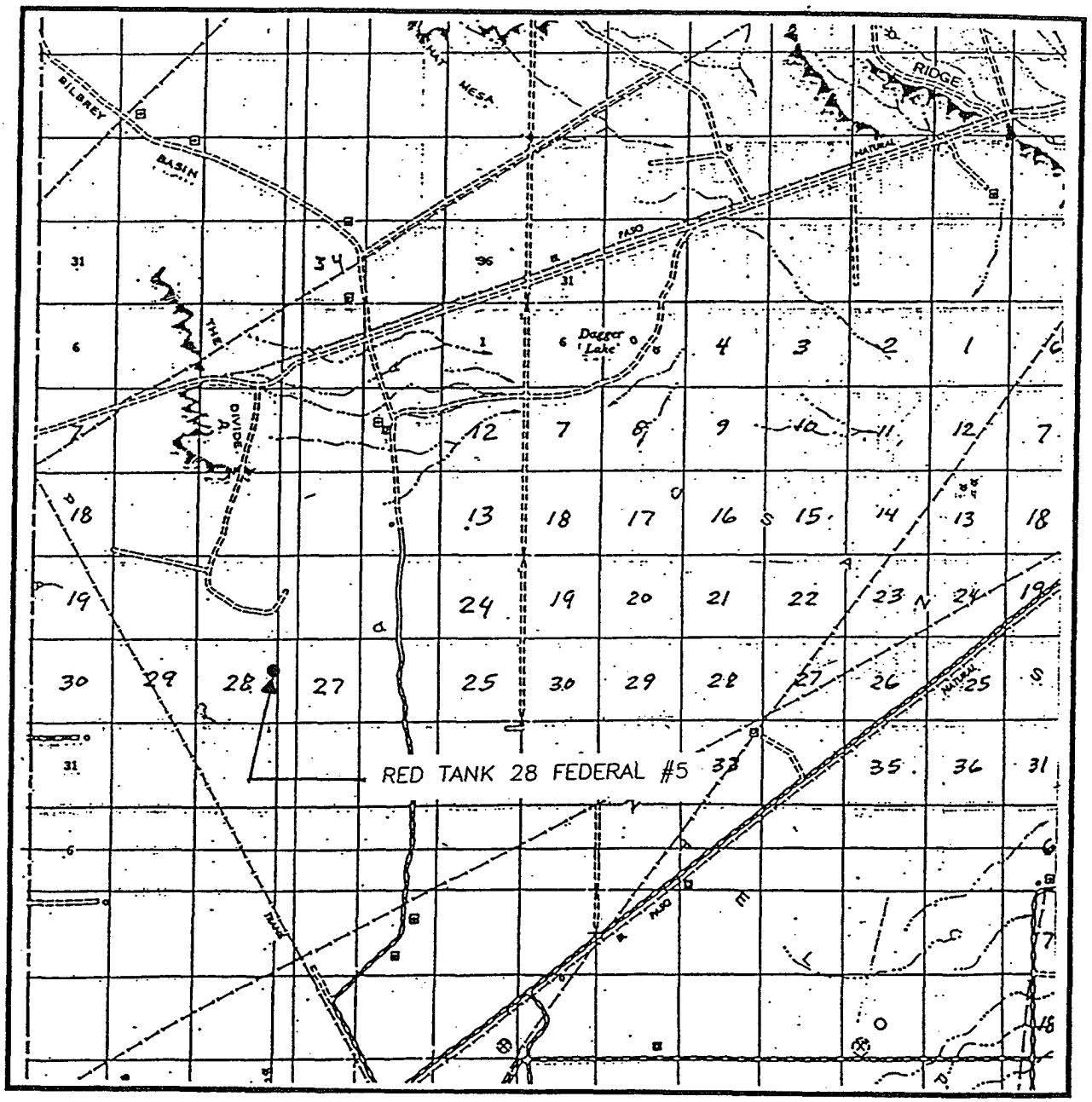
6-11-98

98-11-0855

Certificate No. RONALD J. EIDSON 3239
GARY L. JOHNSON 12641
JACON McDONALD 12185

EXHIBIT "A"

VICINITY MAP



SCALE: 1" = 2 MILES

SEC. 28 TWP. 22-S RGE. 32-E

SURVEY N.M.P.M.

COUNTY LEA

DESCRIPTION 1650' FNL & 330' FEL

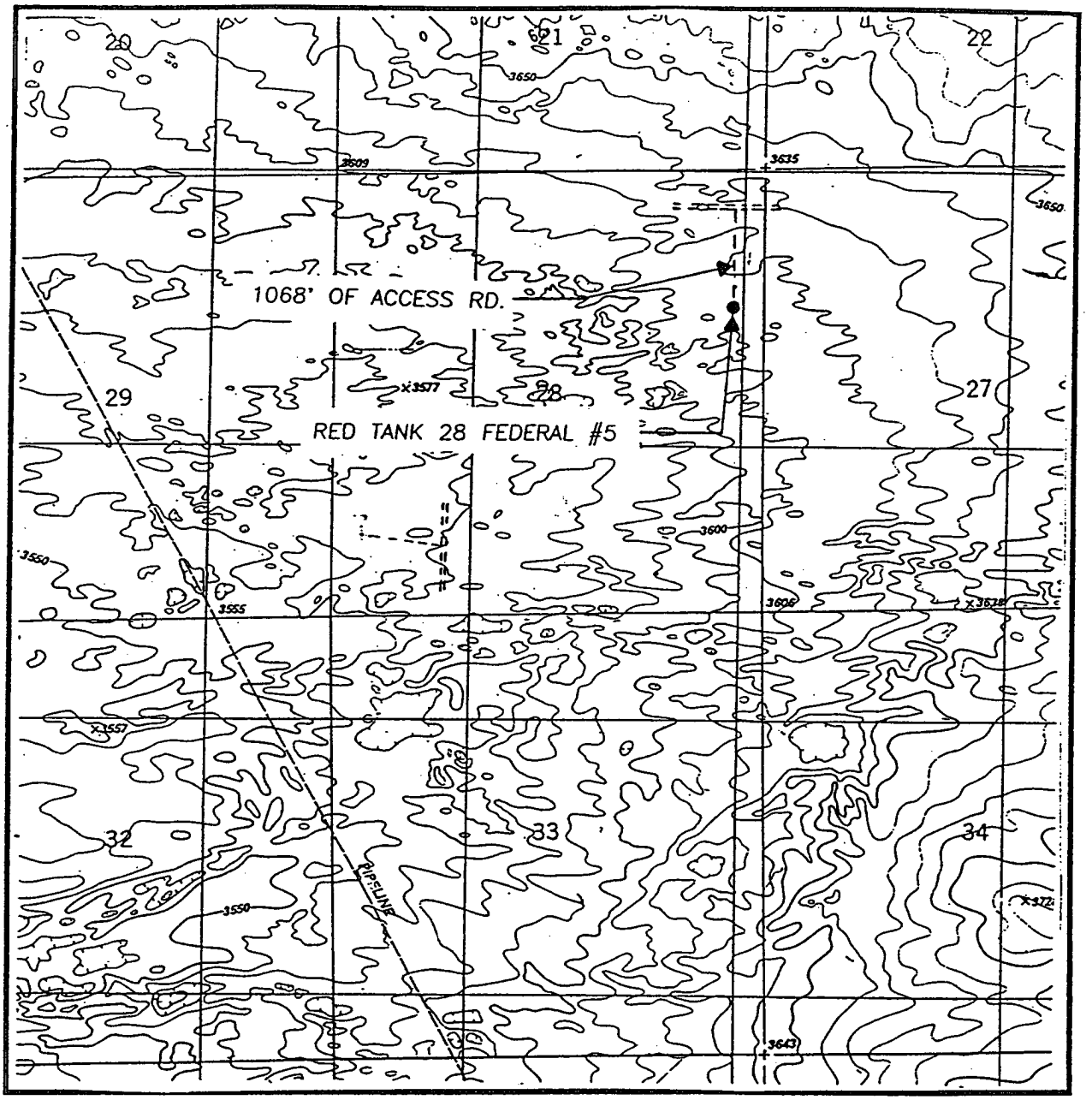
ELEVATION 3619

OPERATOR POGO PRODUCING COMPANY

LEASE RED TANK 28 FEDERAL

JOHN WEST ENGINEERING
HOBBS, NEW MEXICO
(505) 393-3117

LOCATION VERIFICATION MAP



SCALE: 1" = 2000'

CONTOUR INTERVAL:
BOOTLEG RIDGE – 10'

SEC. 28 TWP. 22-S RGE. 32-E

SURVEY N.M.P.M.

COUNTY LEA

DESCRIPTION 1650' FNL & 330' FEL

ELEVATION 3619

OPERATOR POGO PRODUCING COMPANY

LEASE RED TANK 28 FEDERAL

U.S.G.S. TOPOGRAPHIC MAP
BOOTLEG RIDGE, N.M.

JOHN WEST ENGINEERING
HOBBS, NEW MEXICO
(505) 393-3117

POGO PRODUCING COMPANY
RED TANK "28" FEDERAL # 5
UNIT "H" SECTION 28
T22S-R32E LEA CO. NM

In response to questions asked under Section II B of Bulletin NTL-6 the following information is provided for your consideration:

1. Location: 1650' FNL & 330' FEL SEC. 22 T22S-R32E LEA CO.

2. Elevation above sea level: 3619' GR.

3. Geologic name of surface formation: Quternary Aeolian Deposits.

4. Drilling tools and associated equipment: Conventional rotary drilling rig using fluid as a circulating medium for solids removal.

5. Proposed drilling depth: 8900'

6. Estimated tops of geological markers:

Rustler Anhydrite	775'	Brushy Canyon	7400'
Delaware Lime	4800'	Bone Spring	8800'
Cherry Canyon	6100'		

7. Possible mineral bearing formation:

Delaware	Oil
Bone Spring	Oil

8. Casing program:

Hole size	Interval	OD casing	Weight	Thread	Collar	Grade
25"	0-40-	20"	NA	NA	NA	Conductor
14 3/4"	0-800'	10 3/4"	32.75	8-R	ST&C	H-40
9 7/8"	0-4550'	7 5/8"	26.4	8-R	ST&C	J-55
6 3/4"	0-8900'	4½"	11.6	8-R	LT&C	J-55 N-80

POGO PRODUCING COMPANY
RED TANK "28" FEDERAL # 5
UNIT "H" SECTION 28
T22S-R32E LEA CO. NM

9. Casing Cementing and Setting Depth:

20"	Conductor	Set 40' of 20" conductor and cement to surface with Redi-mix.
10 3/4"	Surface	Set 800' of 10 3/4" H-40 32.75# ST&C casing. Cement with 800 Sx. of Class "C" + additives circulate cement to surface.
7 5/8"	Intermediate	Set 4550' of 7 5/8" J-55 26.4# ST&C casing. Cement with 1100 Sx. of Class "C" cement + additives, circulate cement to surface.
4½"	Production	Set 8900' of 4½" J-55 & N-80 11.6# LT&C casing. Cement with 1000 Sx. of Class "H" + additives, Tie cement back to 7 5/8" casing estimate top of cement 3500'.

10. Pressure Control Equipment: Exhibit "E", A 900 Series 3000 PSI working pressure B.O.P. consisting of a double ram type preventor with a bag type annular preventor will be used. The B.O.P. unit will be hydraulically operated. Exhibit "E-1" shows choke manifold and closing unit. B.O.P. will be nipplec up on 10 3/4" casing and will be operated at least once each 24 hour period while drilling and blind rams will be operated when out of hole during trips. Full opening stabbing valve and upper kelly cock will be utilized.

11. Proposed Mud Circulating System:

Depth	Mud Wt.	Visc.	Fluid Loss	Type Mud
40-800'	8.6-8.8	29-36	NC	Fresh water Spud mud, add pape to control seepage.
800-4550'	10-10.6	29-32	NC	Brine water add paper for seepage control and Lime for pH control, hole sweeps to to clean hole.
4550-8500'	8.6-8.8	29-32	NC	Fresh water add paper to control seepage.
8500-8900'	8.6-8.8	29-38	10 cc or less	Fresh water Drispac system add soda ash to control pH and and starch to control water los

Sufficient mud materials will be kept on location at all times in order to combat lost circulation and unexpected kicks. In order to run DST'S, open hole logs and casing the viscosity and water loss may have to be adjusted to meet these needs.

POGO PRODUCING COMPANY
RED TANK "28" FEDERAL # 5
UNIT "H" SECTION 28
T22S-R32E LEA CO. NM

12. Testing, Logging and Coring Program:

A. Mud logger will be on hole from 4550' to TD.

B. No cores or DST'S are planned.

C. Open hole logs will be run, Dual Induction, Gamma Ray, Caliper, Density and CNL. from TD to 4550'

D. Gamma Ray Neutron from 4550' to surface.

13. Potential Hazards:

No abnormal pressures or temperatures are expected. Hydrogen Sulfide gas may be encountered, H_2S detectors will be in place to detect any presence. No lost circulation is expected to occur. All personnel will be familiar with all aspects of safe operation of equipment being used. Estimated BHP 3700 PSI, estimated BHT 145° .

14. Anticipated Starting Date and Duration of Operation:

Road and location construction will begin after BLM approval of APD. Anticipated spud date as soon as approved. Drilling expected to take 20-25 days. If production casing is run an additional 30 days to complete and construct surface facility and place well on production.

15. Other Facets of Operations:

After running casing, cased hole gamma ray neutron collar logs will be run from total depth over possible pay intervals. The Bone Spring pay will be perforated and stimulated. The well will be swab tested and potentialed as an Oil well.

HYDROGEN SULFIDE DRILLING OPERATIONS PLAN

1. All Company and Contract personnel admitted on location must be trained by a qualified H_2S safety instructor to the following:

   A. Characteristics of H_2S
   B. Physical effects and hazzards
   C. Proper use of safety equipment and life support systems.
   D. Principle and operation of H_2S detectors, warning system and briefing areas.
   E. Evacuation procedure, routes and first aid.
   F. Proper use of 30 minute pressure demand air pack.

2. H_2S Detection and Alarm Systems

   A. H_2S detectors and audio alarm system to be located at bell nipple, end of blooie line (mud pit) and on derrick floor or doghouse.

3. Windsock and/or wind streamers

   A. Windsock at mudpit area should be high enough to be visible.
   B. Windsock at briefing area should be high enough to be visible.
   C. There should be a windsock at entrance to location.

4. Condition Flags and Signs

   A. Warning sign on access road to location.
   B. Flags to be displayed on sign at entrance to location. Green flag, normal safe condition. Yellow flag indicates potential pressure and danger. Red flag, danger, H_2S present in dangerous concentration. Only emergency personnel admitted to location.

5. Well control equipment

   A. See exhibit "E"

6. Communication

   A. While working under masks chalkboards will be used for communication.
   B. Hand signals will be used where chalk board is inappropriate.
   C. Two way radio will be used to communicate off location in case of emergency help is required. In most cases cellular telephoned will be available at most drilling foreman's trailer or living quarters.

7. Drillstem Testing

   A. Exhausts will be watered.
   B. Flare line will be equipped with an electric ignitor or a propane pilot light in case gas reaches the surface.
   C. If location is near any dwelling a closed D.S.T. will be performed.

8. Drilling contractor supervisor will be required to be familiar with the effects H_2S has on tubular goods and other mechanical equipment.

9. If H_2S is encountered, mud system will be altered if necessary to maintain control of formation. A mud gas seperator will be brought into service along with H_2S scavengers if necessary.

SURFACE USE PLAN

POGO PRODUCING COMPANY
RED TANK "28" FEDERAL # 5
UNIT "H" SECTION 28
T22S-R32E LEA CO. NM

1. EXISTING ROADS. Area map, Exhibit "B" is a reproduction of the New Mexico General Hi-way Co. Map. Exhibit "C" is a reproduction of a topographic map. Existings roads and proposed roads are shown on each exhibit. All roads will be maintained in a condition equal to or better than of construction.

   A. Exhibit "A" shows the proposed development well as staked.

   B. From Hobbs, New Mexico take US Hi-way 62-180 West toward Carlsbad New Mexico go 40 miles to Co. Road C-29 turn South go 14 miles to Mills Ranch Road Turn East and follow oil field road for 5.1 miles turn Southeast go .4 miles turn Southwest go to well # 1 (500') turn South go 1000' to location.

   C. Lay 3" polyethelene pipeline to transport produced fluids to a common tank battery. Construct a 1250 KV electric power line along road ROW in order to produce oil and gas from this well.

2. PLANNED ACCESS ROADS: Approximately 1000' of new road will be constructed.

   A. The access road will be crowned and ditched to a 12'00" wide travel surface with 40' right-of-way.

   B. Gradient on all roads will be less than 5.00%.

   C. No turnouts will be necessary.

   D. If needed, road will be surfaced with a minimum of 4" of caliche. This material will be obtained from a local source.

   E. Centerline for the new access road has been flagged. Earthwork will be as required by field conditions.

   F. Culverts in the access road will not be used. The road will be constructed to utilize low water crossings for drainage as required by the Lopography.

3. LOCATION OF EXISTING WELLS IN A ONE-MILE RADIUS EXHIBIT "A-1"

   A. Water wells - None in the immediate area.
   B. Disposal wells - One approximately 1.5 miles North.
   C. Drilling wells - None known
   D. Producing wells - As shown on Exhibit "A-1"
   E. Abandoned wells - As shown on Exhibit "A-1"

4. If, upon completion, the well is a producer, Pogo Producing Company will furnish maps or plats showing On Well Pad facilities and Off well Pad facilities (if needed) on a Sundry Notice before construction of these facilities starts.

5. LOCATION AND TYPE OF WATER SUPPLY

Water will be purchased locally from a private source and trucked over the access roads or piped in flexible lines laid on top of the ground.

6. SOURCE OF CONSTRUCTION MATERIALS

If needed, construction materials will be obtained from the drill site's excavations or from a local source. These materials will be transported over the access route as shown on Exhibit "A".

7. METHODS FOR HANDLING WASTE DISPOSAL

A. 1. Drill cuttings will be disposed of in the reserve pit.

2. Trash, waste paper, and garbage will either be contained in a fenced trash trailer or in a trash pit, fenced with mesh wire to prevent wind-scattering during storage. When the rig moves out, all trash and debris left at the site will be contained to prevent scattering and will be buried at least 36" deep within a reasonable period of time.

3. Salts remaining after completion of the well will be picked up by the supplier, including broken sacks.

4. Sewage from trailer houses will drain into holes with minimum depth of 10'00". These holes will be covered during drilling and backfilled upon completion. A "porta John" will be provided for the rig crews. This will be properly maintained during the drilling operations and removed upon completion of the well.

B. Remaining drilling fluids will be allowed to evaporate in the reserve pit until the pit is dry enough for backfilling. In the event drilling fluids will not evaporate in a reasonable period of time they will be transported by tank truck to a state approved disposal site.

Water produced during testing of the well will be disposed of in the reserve pit. Oil produced during testing of the well will be stored in test tanks until sold and hauled from the site.

8. ANCILLARY FACILITIES

No camps or airstrips will be constructed.

9. WELL SITE LAYOUT

A. Exhibit "D" shows the proposed well site layout.

B. This exhibit indicated proposed location of reserve and sump pits and living facilities.

C. Mud pits in the active circulating system will be steel pits and the reserve pit is proposed to be unlined unless subsurface condition encountered during pit construction indicate that lining is needed for lateral containment of fluids.

D. If needed, the reserve pit is to be lined with polyethlene. The pit liner will be 6 mils thick. Pit liner will extend a minimum 2'00" over the reserve pits dikes where the liner will be anchored down.

E. The reserve pit will be fenced on three sides with four strands of barbed wire during drilling and completion phases. The fourth side will be fenced after all drilling operations have ceased. If the well is a producer, the reserve pit fence will be torn down. The reserve pit and those areas of the location not essential to production facilities will be reclaimed and seeded per BLM requirements.

10. PLANS FOR RESTORATION OF SURFACE

Rehabilitation of the location and reserve pit will start in a timely manner after all drilling operations cease. The type of reclamation will depend on whether the well is a producer or a dry hole.

However, in either event, the reserve pit will be allowed to dry properly, and fluid removed and disposed of in accordance with Article 7.B as previously noted. The pit area will then be leveled and contoured to conform to the original and surrounding area. Drainage systems, if any, will be reshaped to the original configuration with provisions made to alleviate erosion. These may need to be modified in certain circumstances to prevent inundation of the location's pad and surface facilities. After the area has been shaped and contoured, topsoil from the spoil pile will be placed over the disturbed area to the extent possible. Revegetation procedures will comply with BLM standards.

If the well is a dry hole, the pad and road area will be contoured to match the existing terrain. Topsoil will be spread to the extent possible. Revegetation will comply with BLM standards.

Should the well be a producer, the previously noted procedures will apply to those areas which are not required for production facilities.

POGO PRODUCING COMPANY
RED TANK "28" FEDERAL # 5
UNIT "H" SECTION 28
T22S-R32E LEA CO. NM

11. OTHER INFORMATION

A. Topography consists of sand dunes with a slight regional dip to the West. Soil supports native grasses mesquites and miniature oaks.

B. The surface is used mainly for grazing livestock. Surface is owned by The Department of Interior, BLM.

C. An Archeological survey will be conducted and copies will be sent to the BLM., Carlsbad Resource Area in Carlsbad, N.M.

D. There are no dwellings or habitation within three miles of this location.

12. OPERATOR'S REPRESENTATIVE

Field representative to contact regarding compliance with surface use plan:

Before Construction:	During and after Construction
Tierra Exploration Inc.	Pogo Producing Company
P.O. Box 2188	P.O. Box 10340
Hobbs, NM 88241	Midland, Tx 79702-7340
Office Phone: 505-392-2112	Office Phone: 915-685-8140
Joe T. Janica	Mr. Richard Wright

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 currently exist; that the statements made in this plan are to the best of my knowledge, are true and correct; and that the work associated with the operations proposed herein will be performed by Pogo Producing Company, its' Contractors/ Subcontractors in conformity with this plan and the terms and conditions underwhich it is approved. This statement is subject to the provision of 18 U.S.C. 1001 for the filing of a false statement.

NAME: Joe T Janica

TITLE: Agent

DATE: 06/17/98

SURFACE USE PLAN

POGO PRODUCING COMPANY
RED TANK 28 FEDERAL #5
UNIT H SECTION 28, T22S, R32E
LEA COUNTY, NM

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 currently exist; that the statements made in this plan are to the best of my knowledge, are true and correct; and that the work associated with the operations proposed herein will be performed by Pogo Producing Company, its' Contractors/Subcontractors in conformity with this plan and the terms and conditions under which it is approved. This statement is subject to the provisions of 18 U.S.C. 1001 for the filing of a false statement.

Name: Richard Wright

Title: Dist Opn Mgr

Date: 11-21-05

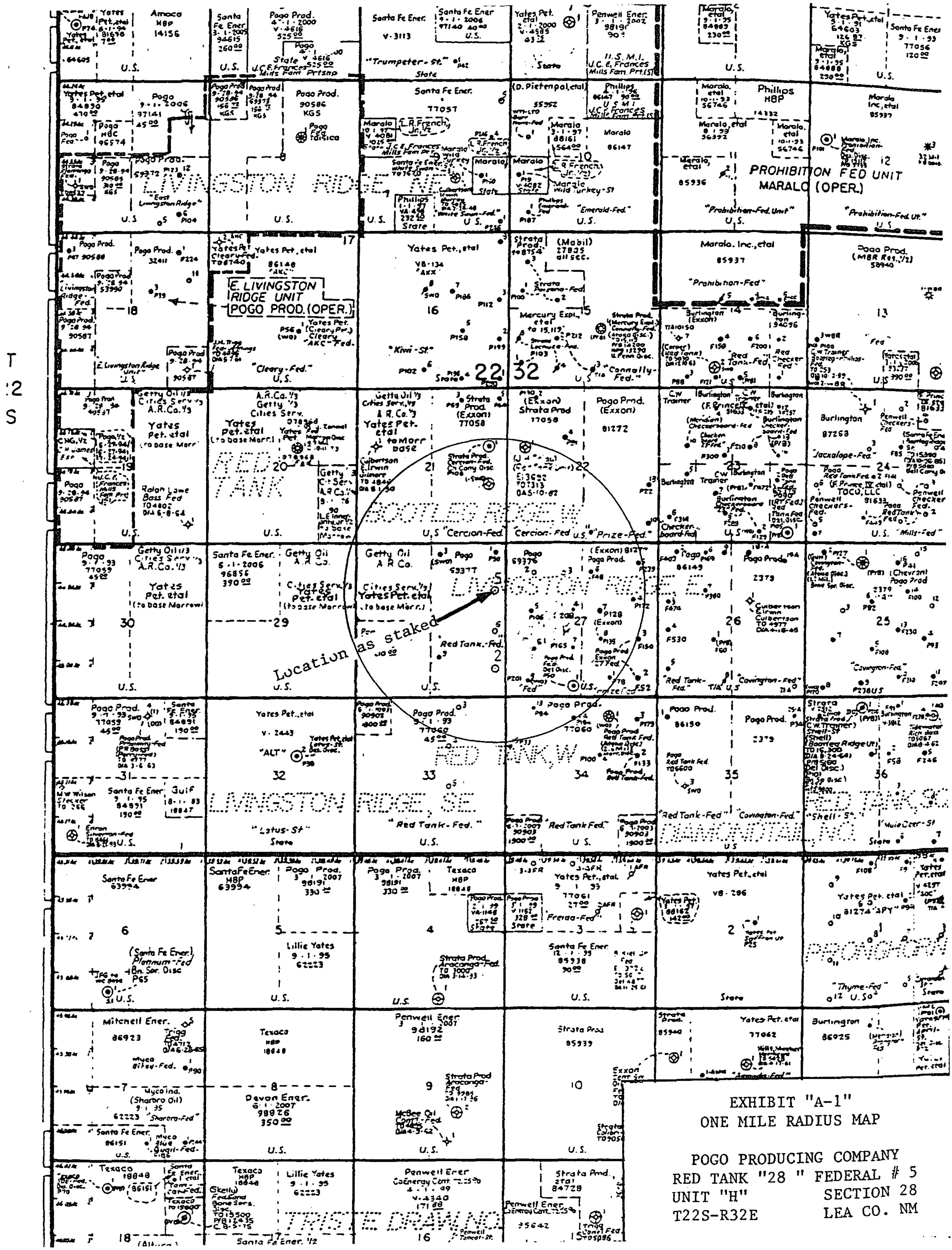


EXHIBIT "A-1"
ONE MILE RADIUS MAP
POGO PRODUCING COMPANY
RED TANK "28 " FEDERAL # 5
UNIT "H" SECTION 28
T22S-R32E LEA CO. NM
Location as staked
T 22 S
E. LIVINGSTON RIDGE UNIT
POGO PROD. (OPER.)
PROHIBITION FED UNIT
MARALO (OPER.)

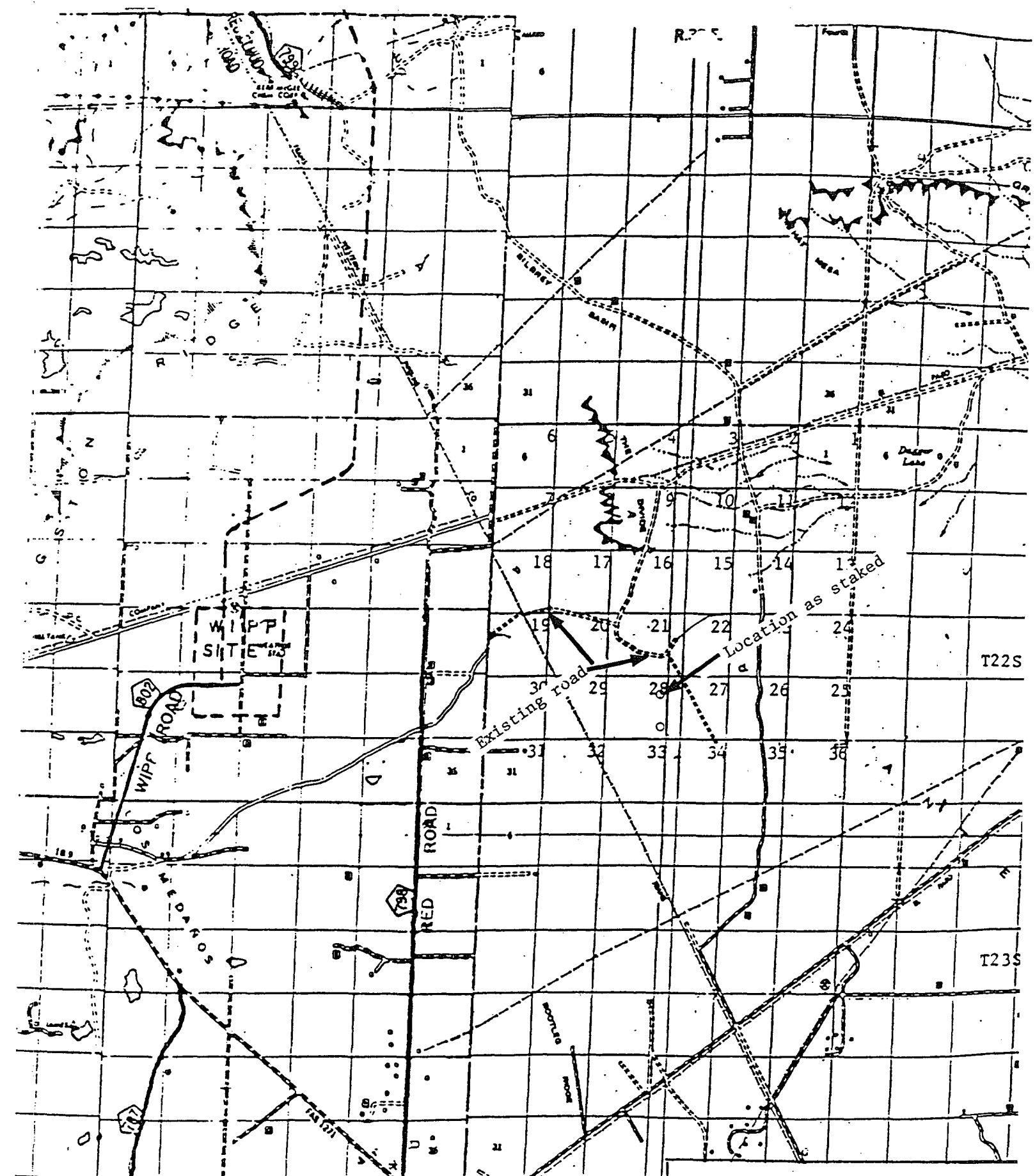


EXHIBIT "B"
LOCATION & ACCESS ROAD MAP

POGO PRODUCING COMPANY
RED TANK "28" FEDERAL # 5
UNIT "H" SECTION 28
T22S-R32E LEA CO. NM

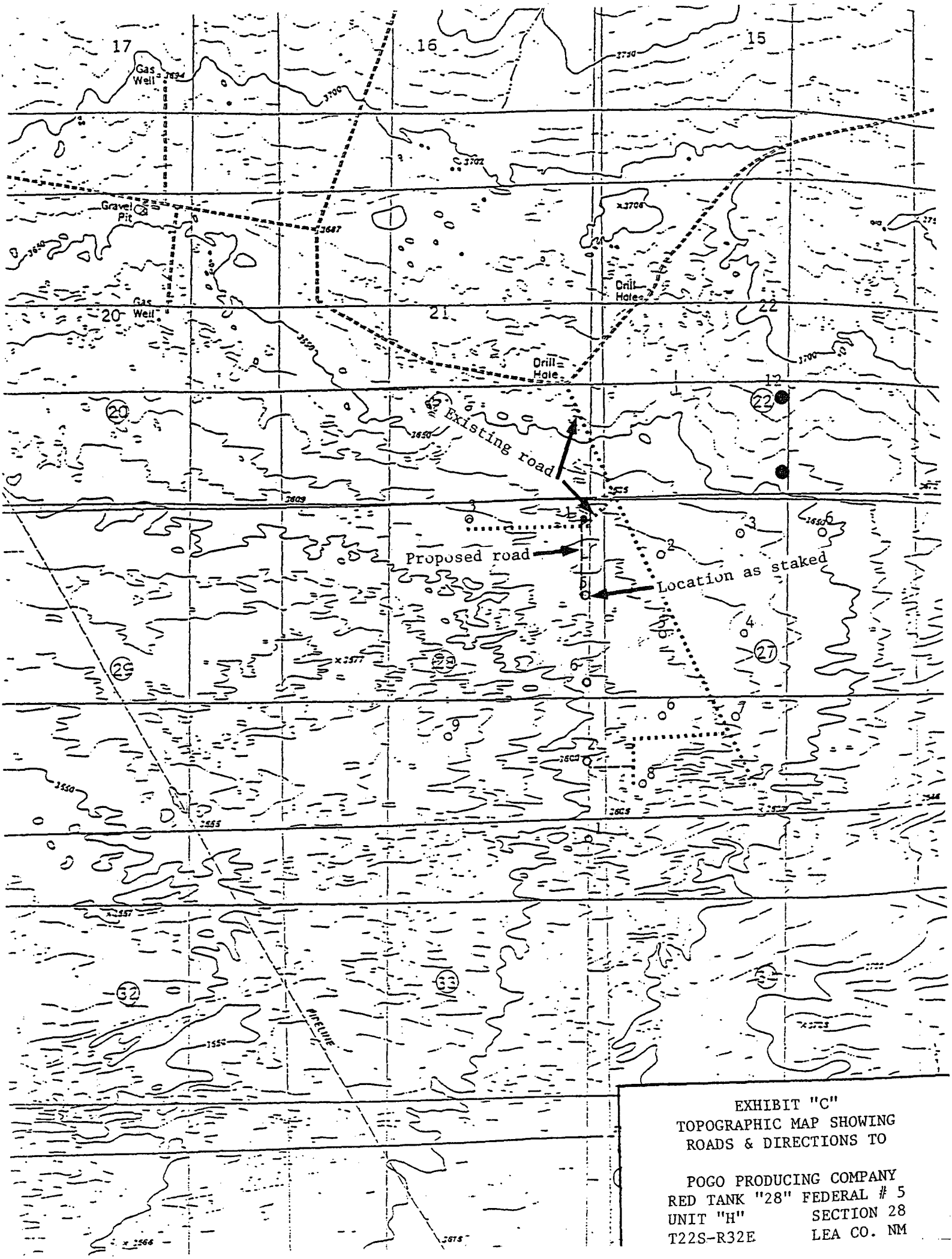
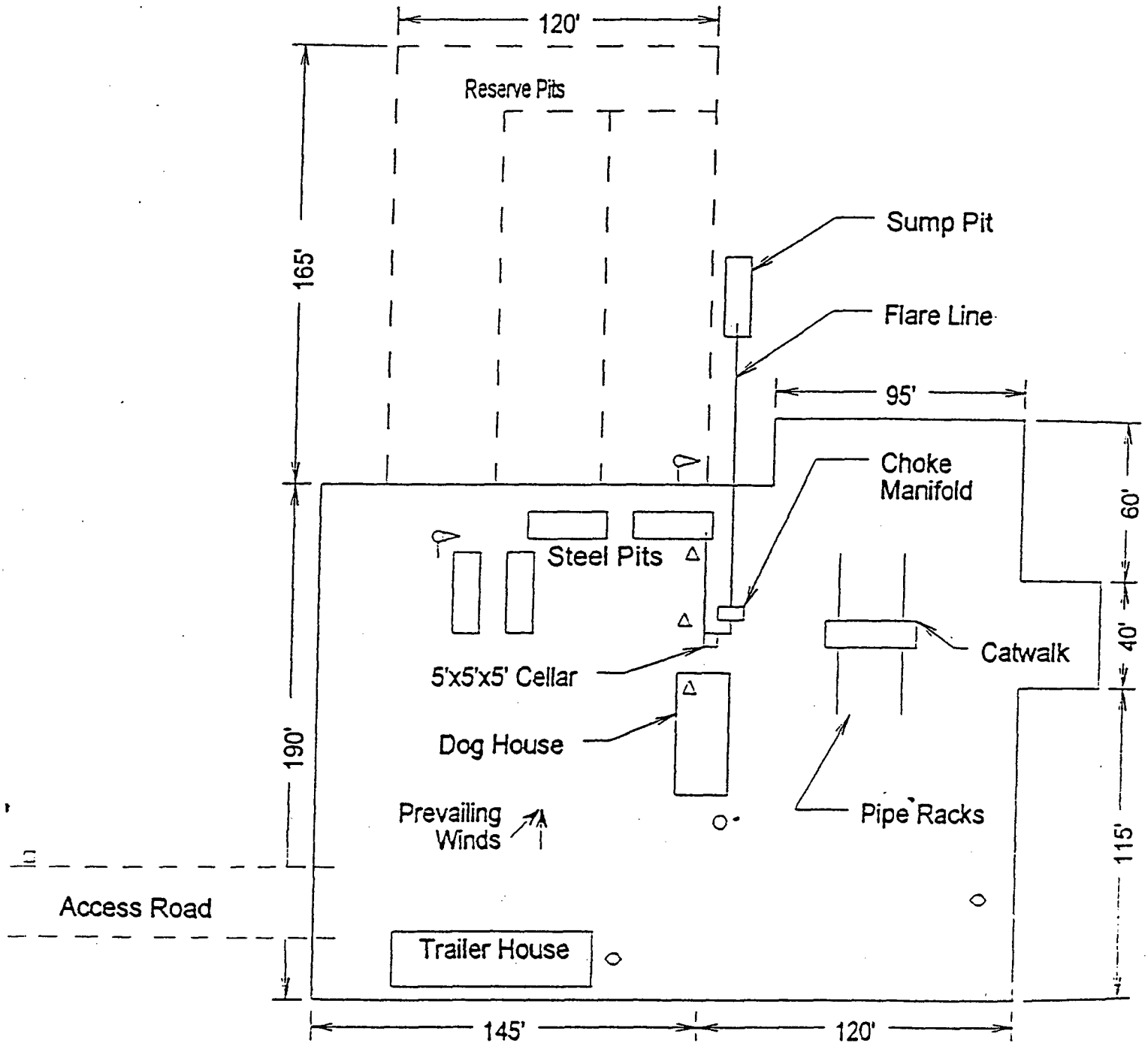


EXHIBIT "C"
TOPOGRAPHIC MAP SHOWING
ROADS & DIRECTIONS TO

POGO PRODUCING COMPANY
RED TANK "28" FEDERAL # 5
UNIT "H" SECTION 28
T22S-R32E LEA CO. NM



- Wind Direction Indicators (wind sock or streamers)
- △ H2S Monitors (alarms at bell nipple and shale shaker)
- ◇ Briefing Areas
- ○ Remote BOP Closing Unit
- ⊏ Sign and Condition Flags

EXHIBIT "D"
RIG LAYOUT PLAT

POGO PRODUCING COMPANY
RED TANK "28" FEDERAL # 5
UNIT "H" SECTION 28
T22S-R32E LEA CO. NM

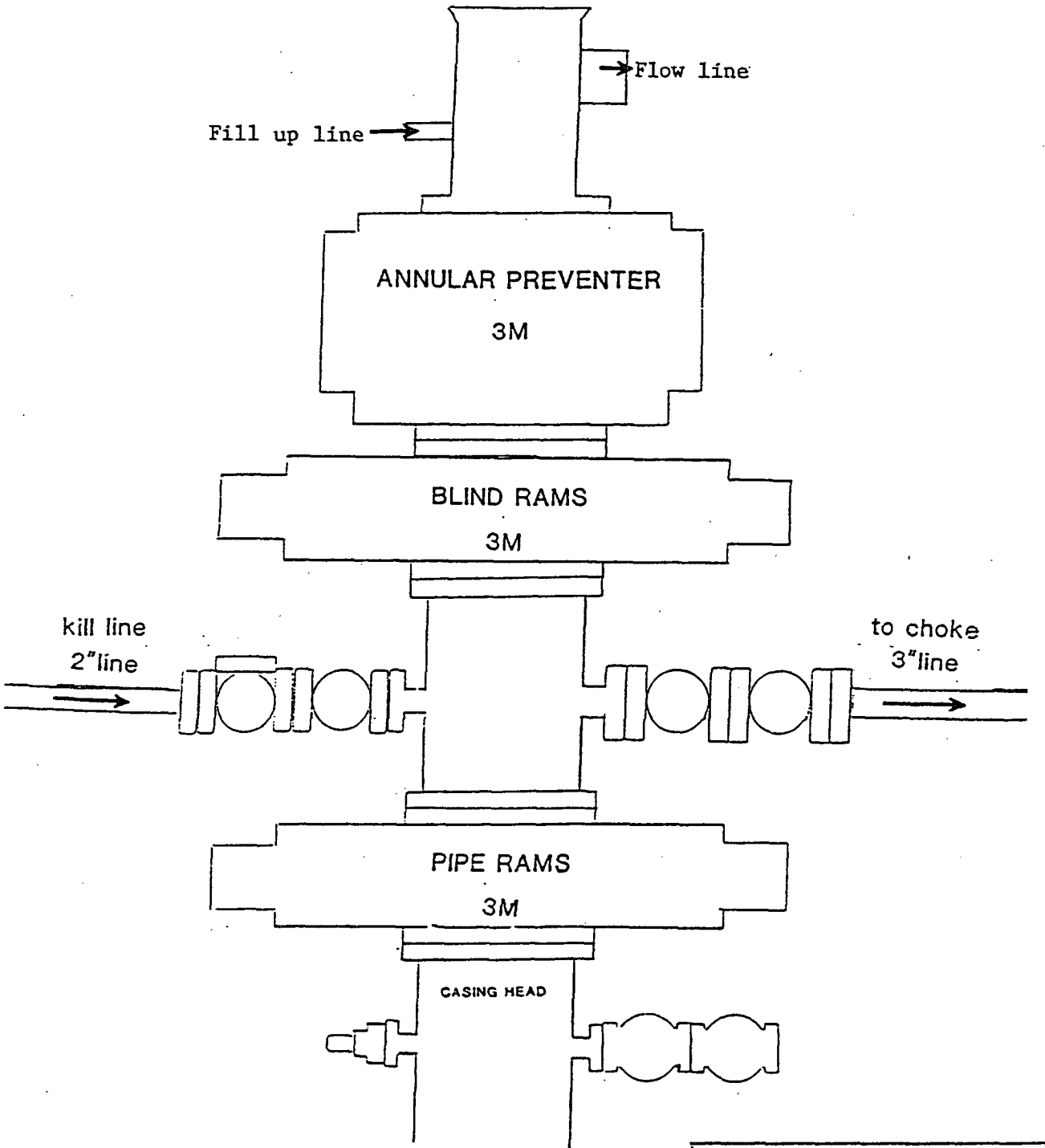
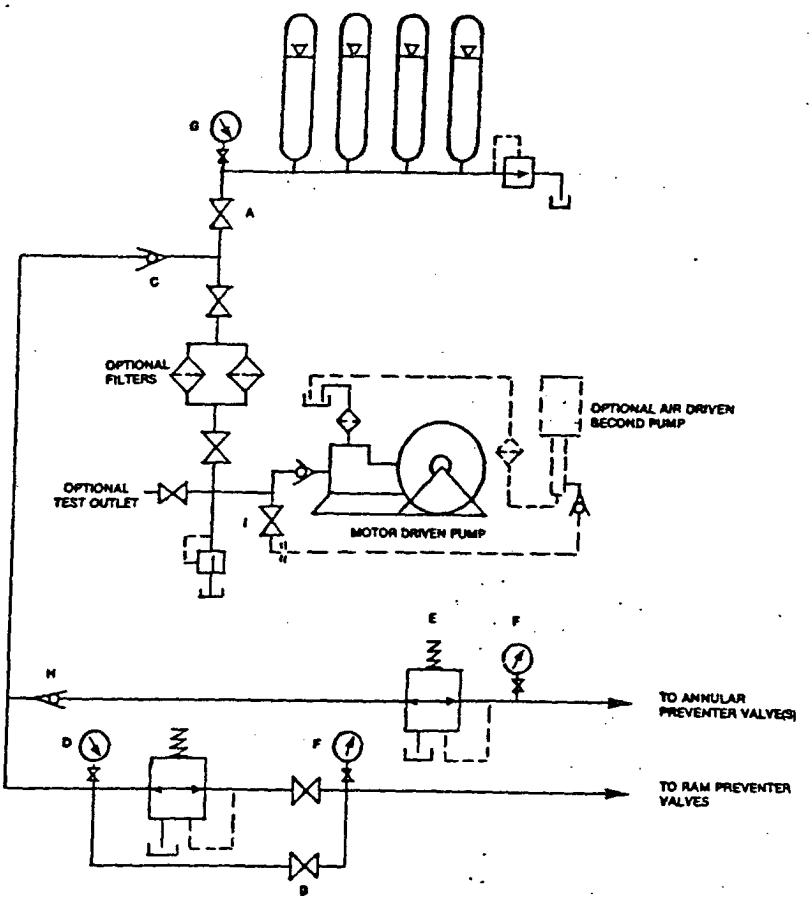


EXHIBIT "E"
B.O.P. SKETCH TO BE USED ON

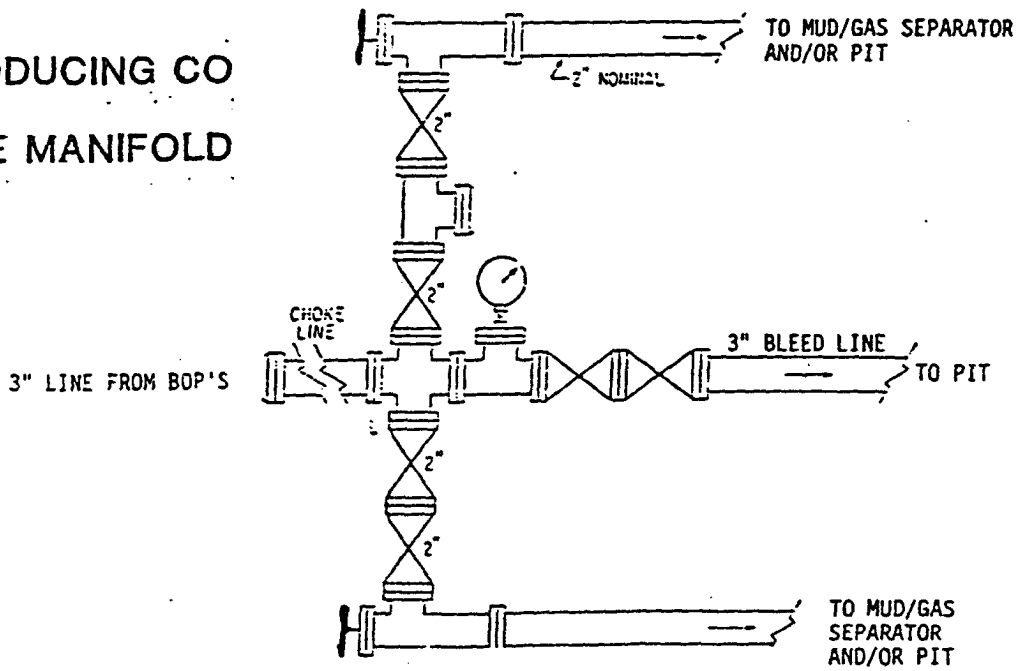
POGO PRODUCING COMPANY
RED TANK "28" FEDERAL # 5
UNIT "H" SECTION 28
T22S-R32E LEA CO. NM



HAND AJUSTABLE CHOKE

POGO PRODUCING CO

3M CHOKE MANIFOLD



HAND AJUSTABLE CHOKE

EXHIBIT "E-1"
CHOKE MANIFOLD & CLOSING UNIT

POGO PRODUCING COMPANY
RED TANK "28" FEDERAL # 5
UNIT "H" SECTION 28
T22S-R32E LEA CO. NM

SPECIAL DRILLING STIPULATIONS

THE FOLLOWING DATA IS REQUIRED ON THE WELL SIGN

Operator's Name Pogo Producing Co. Well Name & No. Red Tank 28 Federal #5
Location 1650 F N L & 330 F E L Sec. 28, T. 22 S, R 32 E.
Lease No. NM-69377 County Lea State New Mexico

The Special stipulations check marked below are applicable to the above described well and approval of this application to drill is conditioned upon compliance with such stipulations in addition to the General Requirements. The permittee should be familiar with the General Requirements, a copy of which is available from a Bureau of Land Management office. EACH PERMITTEE HAS THE RIGHT OF ADMINISTRATIVE APPEAL TO THESE STIPULATIONS PURSUANT TO TITLE 43 CRF 3165.3 AND 3165.4.

This permit is valid for a period of one year from the date of approval or until lease expiration or termination whichever is shorter.

I. SPECIAL ENVIRONMENT REQUIREMENTS

(X) Lesser Prairie Chicken (stips attached)
( ) San Simon Swale (stips attached)
( ) Flood plain (stips attached)
( ) Other

II. ON LEASE - SURFACE REQUIREMENTS PRIOR TO DRILLING

(X) The BLM will monitor construction of this drill site. Notify the (X) Carlsbad Field Office at (505) 234-5972 ( ) Hobbs Office (505) 393-3612, at least 3 working days prior to commencing construction.

(X) Roads and the drill pad for this well must be surfaced with 6 inches of compacted caliche.

( ) All topsoil and vegetation encountered during the construction of the drill site area will be stockpiled and made available for resurfacing of the disturbed area after completion of the drilling operation. Topsoil on the subject location is approximately _____inches in depth. Approximately _____cubic yards of topsoil material will be stockpiled for reclamation.

( ) Other.

III. WELL COMPLETION REQUIREMENTS

( ) A Communlitization Agreement covering the acreage dedicated to the well must be filed for approval with the BLM. The effective date of the agreement must be prior to any sales.

(X) Surface Restoration: If the well is a producer, the reserve pit(s) will be backfilled when dry, and cut-and-fill slopes will be reduced to a slope of 3:1 or less. All areas of the pad not necessary for production must be re-contoured to resemble the original contours of the surrounding terrain, and topsoil must be re-distributed and re-seeded with a drill equipped with a depth indicator (set at depth of ½ inch) with the following seed mixture, in pounds of Pure Live Seed (PLS), per acre.

( ) A. Seed Mixture 1 (Loamy Sites)
Side Oats Grama (*Bouteloua curtipendula*) 5.0
Sand Dropseed (*Sporobolus cryptandrus*) 1.0

(X) B. Seed Mixture 2 (Sandy Sites)
Sand Dropseed (*Sporobolus crptandrus)* 1.0
Sand Lovegrass (*Eragostis trichodes*) 1.0
Plains Bristlegrass (*Setaria magrostachya*) 2.0

( ) C. Seed Mixture 3 (Shallow Sites)
Side oats Grama (*Boute curtipendula*) 1.0

( ) D. Seed Mixture 4 (Gypsum Sites)
Alkali Sacaton (*Sporobollud airoides*) 1.0
Four-Wing Saltbush (*Atriplex canescens*) 5.0

( ) OTHER SEE ATTACHED SEED MIXTURE

Seeding should be done either late in the fall (September 15 - November 15, before freeze up, or early as possible the following spring to take advantage of available ground moisture.

( ) Other.

RESERVE PIT CONSTRUCTION STANDARDS

The reserve pit shall be constructed entirely in cut material and lined with 6 mil plastic.

Mineral material extracted during construction of the reserve pit may be used for development of the pad and access road as needed. Removal of any additional material on location must be purchased from BLM.

Reclamation: Reclamation of this type of deep pit will consist of pushing the pit walls into the pit when sufficiently dry to support track equipment. The pit liner is NOT TO BE RUPTURED to facilitate drying; a ten month period after completion of the well is allowed for drying of the pit contents.

The pit area must be contoured to the natural terrain with all contaminated drilling mud buried with at least 3 feet of clean soil. The reclaimed area will then be seeded as specified in this permit.

OPTIONAL PIT CONSTRUCTION STANDARDS

The reserve pit may be constructed in predominantly fill material if:

(1) Lined as specified above and

(2) A borrow/caliche/gravel pit can be constructed immediately adjacent to the reserve pit and it capable of containing all reserve pit contents. The mineral material removed in the process can be used for pad and access road construction. However, a material sales contract must be purchased from the BLM prior to removal of the material.

Reclamation of the reserve pit consists of bulldozing all reserve pit contents and contaminants into the borrow pit and covering with a minimum of 3 feet of clean soil material. The entire area must be recontoured, all trash removed, and reseeded as specified in this permit.

CULTURAL

Whether or not an archaeological survey has been completed and notwithstanding that operations are being conducted as approved, the lessee/operator/grantee shall notify the BLM immediately if previously unidentified cultural resources are observed during surface disturbing operations. From the time of the observation, the lessee/operator/grantee shall avoid operations that will result in disturbance to these cultural resources until directed to processed by BLM.

TRASH PIT STIPS

All trash, junk, and other waste material shall be contained in trash cages or bins to prevent scattering and will be removed and deposited in an approved sanitary landfill. Burial on site is not permitted.

PRAIRIE CHICKENS

No surface use is allowed during the following time periods; unless otherwise specified, this stipulation does not apply to operation and maintenance of production facilities.

On the lands described below: All of Section 28 T. 22 S., R. 32 E.

For the purpose of: Protecting Prairie Chickens:

Drilling for oil and gas, and 3-D geophysical exploration operations will not be allowed in Lesser Prairie Chicken Habitat during the period of March 15 through June 15, each year. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, geophysical exploration other than 3-D operations, and pipeline, road, and well pad construction, will be allowed except between 3:00 a.m. and 9:00 a.m. The 3:00 a.m. and 9:00 a..m. restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during the period. Additionally, no new drilling will be allowed within up to 200 meters of leks know at the time of permitting. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 feet from the source of the noise.

CONDITIONS OF APPROVAL - DRILLING

Operator's Name: Pogo Producing Company Well No. 5 - Red Tank 28 Federal
Location: 1650' FNL & 330' FEL sec. 28, T. 22 S., R. 32 E.
Lease: NM-69377

.....

I. DRILLING OPERATIONS REQUIREMENTS:

1. The Bureau of Land Management (BLM) is to be notified at (505) 393-3612 in sufficient time for a representative to witness:

A. Spudding

B. Cementing casing: **10-3/4** inch **7-5/8** inch **4-1/2** inch

2. A Hydrogen Sulfide Contingency Plan should be activated prior to drilling in the **Cherry Canyon** formation. A copy of the plan shall be posted at the drilling site.

3. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.

4. Include the API No. assigned to well by NMOCD on the subsequent report of setting the first casing string.

II. CASING:

1. **10-3/4** inch surface casing should be set **at approximately 800 feet in the Rustler Anhydrite**, below usable water and circulate cement to the surface. If cement does not circulate to the surface this BLM office shall be notified and a temperature survey or cement bond log shall be run to verify the top of the cement. Remedial cementing shall be completed prior to drilling out that string.

2. Minimum required fill of cement behind the **7-5/8** inch intermediate casing is **sufficient to circulate to the surface.**

3. Minimum required fill of cement behind the **4-1/2** inch production casing is **sufficient to tie back 200 feet into the 7-5/8 inch intermediate casing set at approximately 4550 feet.**

III. PRESSURE CONTROL:

1. Before drilling below the **10-3/4** inch surface casing, the blowout preventer assembly shall consist of a minimum of One Annular Preventer or Two Ram-Type Preventers and a Kelly Cock/Stabbing Valve. Before drilling below the **7-5/8** inch intermediate casing, the blowout preventer assembly shall consist of a minimum of One Annular Preventer, Two Ram-Type Preventers, and a Kelly Cock/Stabbing Valve.

2. Before drilling below the **10-3/4** inch surface casing, minimum working pressure of the blowout preventer and related equipment (BOPE) shall be **2000** psi. Before drilling below the **7-5/8** inch intermediate casing, minimum working pressure of the blowout preventer and related equipment (BOPE) shall be **3000** psi.

3. The BOPE shall be installed before drilling below the **7-5/8** inch intermediate casing and shall be tested as described in Onshore Order No. 2. Any equipment failing to test satisfactorily shall be repaired or replaced.

A. The results of the test will be reported to the BLM Hobbs Office at 414 West Taylor, Hobbs, New Mexico 88240.

B. Testing fluid must be water or an appropriate clear liquid suitable for sub-freezing temperatures. Use of drilling mud for testing is not permitted since it can mask small leaks.

C. Testing must be done in a safe workman like manner. Hard line connections shall be required.

BLM Serial Number: NM-69377
Company Reference: pogo Producing Co.
Well No. & Name: Red Tank 28 Federal #5

STANDARD STIPULATIONS FOR PERMANENT RESOURCE ROADS
CARLSBAD FIELD OFFICE

A copy of the grant and attachments, including stipulations and map, will be on location during construction. BLM personnel may request to view a copy of your permit during construction to ensure compliance with all stipulations.

The holder/grantee/permittee shall hereafter be identified as the holder in these stipulations. The Authorized Officer is the person who approves the Application for Permit to Drill (APD) and/or Right-of-Way (ROW).

GENERAL REQUIREMENTS

A. The holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.

B. The holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976, as amended (15 U.S.C. 2601, *et. seq.*) with regard to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized by this grant. (See 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation and Liability Act, Section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the Authorized Officer concurrent with the filing of the reports to the involved Federal agency or State government.

C. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, *et. seq.* or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, *et. seq.*) on the right-of-way (unless the release or threatened release is wholly unrelated to the right-of-way holder's activity on the right-of-way). This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

D. If, during any phase of the construction, operation, maintenance, or termination of the road, any oil or other pollutant should be discharged, impacting Federal lands, the control and total removal, disposal, and cleaning up of such oil of other pollutant, wherever found, shall be the responsibility of the holder, regardless of fault. Upon failure of the holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages to Federal lands resulting there from, the Authorized Officer may take such measures as deemed necessary to control and cleanup the discharge and restore the area, including, where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the holder. Such action by the Authorized Officer shall not relieve the holder of any liability or responsibility.

E. The holder shall minimize disturbance to existing fences and other improvements on public domain surface. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times.

The holder will make a documented good-faith effort to contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence.

F. The Holder shall ensure that the entire right-of-way, including the driving surface, ditching and drainage control structures, road verges and any construction sites or zones, will be kept free of the following plant species: Malta starthistle, African rue, Scotch thistle and salt cedar.

Holder agrees to comply with the following stipulations:

1. ROAD WIDTH AND GRADE

The road will have a driving surface of 14 feet (all roads shall have a minimum driving surface of 12 feet, unless local conditions dictate a different width). The maximum grade is 10 percent unless the box below is checked. Maximum width of surface disturbance from construction will be 30 feet.

/__/ Those segments of road where grade is in excess of 10% for more than 300 feet shall be designed by a professional engineer.

2. CROWNING AND DITCHING

Crowning with materials on site and ditching on one side of the road on the uphill side will be required. The road cross-section will conform to the cross section diagrams in Figure 1. If conditions dictate, ditching may be required for both sides of the road; if local conditions permit, a flat-bladed road may be considered (if these conditions exist, check the appropriate box below). The crown shall have a grade of approximately 2% (i.e., 1" crown on a 12' wide road).

/_X_/ Ditching will be required on both sides of the roadway as shown on the attached map or as staked in the field.

/__/ Flat-blading is authorized on segment(s) delineated on the attached map.

3. DRAINAGE

Drainage control shall be ensured over the entire road through the use of borrow ditches, outsloping, insloping, natural rolling topography, lead-off (turnout) ditches, culverts, and/or drainage dips.

A. All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval for lead-off ditches shall be determined according to the following table, but may be amended depending upon existing soil types and centerline road slope (in %):

SPACING INTERVAL FOR TURNOUT DITCHES

Percent slope	Spacing interval
0% - 4%	400' - 150'
4% - 6%	250' - 125'
6% - 8%	200' - 100'
8% - 10%	150' - 75'

A typical lead-off ditch has a minimum depth of 1 foot below and a berm 6 inches above natural ground level. The berm will be on the down-slope side of the lead-off ditch. The ditch end will tie into vegetation whenever possible.

For this road the spacing interval for lead-off ditches shall be at

/_x_/ 400 foot intervals.

/__/ _____ foot intervals.

/__/ locations staked in the field as per spacing intervals above.

/__/ locations delineated on the attached map.

B. Culvert pipes shall be used for cross drains where drainage dips or low water crossings are not feasible. The minimum culvert diameter must be 18 inches. Any culvert pipe installed shall be of sufficient diameter to pass the anticipated flow of water. Culvert location and required diameter are shown on the attached map (Further details can be obtained from the Roswell District Office or the appropriate Resource Area Office).

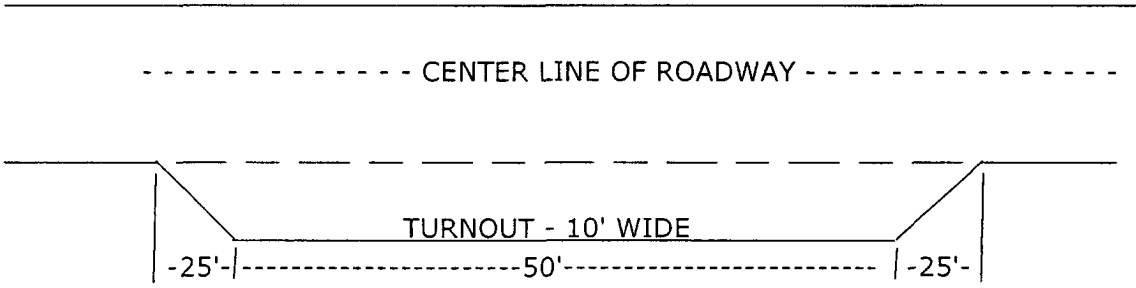
C. On road slopes exceeding 2%, drainage dips shall drain water into an adjacent lead-off ditch. Drainage dip location and spacing shall be determined by the formula:

$$\text{spacing interval} = \frac{400'}{\text{road slope in \%}} + 100'$$

Example: 4% slope: spacing interval = $\frac{400}{4} + 100 = 200$ feet

4. TURNOUTS

Unless otherwise approved by the Authorized Officer, vehicle turnouts will be required. Turnouts will be located at 2000-foot intervals, or the turnouts will be intervisible, whichever is less. Turnouts will conform to the following diagram:



STANDARD TURNOUT - PLAN VIEW

5. SURFACING

Surfacing of the road or those portions identified on the attached map may, at the direction of the Authorized Officer, be required, if necessary, to maintain traffic within the right-of-way with caliche, gravel, or other surfacing material which shall be approved by the Authorized Officer. When surfacing is required, surfacing materials will be compacted to a minimum thickness of six inches with caliche material. The width of surfacing shall be no less than the driving surface. Prior to using any mineral materials from an existing or proposed Federal source, authorization must be obtained from the Authorized Officer.

A sales contract for the removal of mineral materials (caliche, sand, gravel, fill dirt, etc.) from an authorized pit, site, or on location must be obtained from the BLM prior to using any such mineral material from public lands. Contact the BLM solid minerals staff for the various options to purchase mineral material.

6. CATTLEGUARDS

Where used, all cattleguard grids and foundation designs and construction shall meet the American Association of State Highway and Transportation Officials (AASHTO) Load Rating H-20, although AASHTO U-80 rated grids shall be required where heavy loads (exceeding H-20 loading), are anticipated (See BLM standard drawings for cattleguards). Cattleguard grid length shall not be less than 8 feet and width of not less than 14 feet. A wire gate (16-foot minimum width) will be provided on one side of the cattleguard unless requested otherwise by the surface user.

7. MAINTENANCE

The holder shall maintain the road in a safe, usable condition. A maintenance program shall include, but not be limited to blading, ditching, culvert installation, culvert cleaning, drainage installation, cattleguard maintenance, and surfacing.

8. PUBLIC ACCESS

Public access along this road will not be restricted by the holder without specific written approval being granted by the Authorized Officer. Gates or cattleguards on public lands will not be locked or closed to public use unless closure is specifically determined to be necessary and is authorized in writing by the Authorized Officer.

9. CULTURAL RESOURCES

Any cultural and/or paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on the holder's behalf, on public or Federal land shall be immediately reported to the authorized officer. The holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the authorized officer. An evaluation of the discovery will be made by the authorized officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to the proper mitigation measures will be made by the authorized officer after consulting with the holder.

10. SPECIAL STIPULATIONS:

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-144
June 1, 2004

For drilling and production facilities, submit to appropriate NMOCD District Office.
For downstream facilities, submit to Santa Fe office

Pit or Below-Grade Tank Registration or Closure

Is pit or below-grade tank covered by a "general plan"? Yes ☐ No ☒
Type of action: Registration of a pit or below-grade tank ☒ Closure of a pit or below-grade tank ☐

Operator: Pogo Producing Company Telephone: 432-685-8100 e-mail address: wrightc@pogoproducing.com
Address: P.O. Box 10340, Midland, TX 79702-7340
Facility or well name: Red Tank 28 Fed #5 API #: 30-025-~~34459~~ 37595 U/L or Qtr/Qtr H Sec 28 T 22S R 32E
County: Lea Latitude 32:21:55N Longitude 103:40:18W NAD: 1927 ☒ 1983 ☐
Surface Owner: Federal ☒ State ☐ Private ☐ Indian ☐

Pit
Type: Drilling ☒ Production ☐ Disposal ☐
Workover ☐ Emergency ☐
Lined ☒ Unlined ☐
Liner type: Synthetic ☒ Thickness 12 mil Clay ☐
Pit Volume 1600 bbl

Below-grade tank
Volume: ____ bbl Type of fluid: _____
Construction material: _____
Double-walled, with leak detection? Yes ☐ If not, explain why not.

Depth to ground water (vertical distance from bottom of pit to seasonal high water elevation of ground water.)	Less than 50 feet	(20 points)	
	50 feet or more, but less than 100 feet	(10 points)	
	100 feet or more X	(0 points)	0
Wellhead protection area: (Less than 200 feet from a private domestic water source, or less than 1000 feet from all other water sources.)	Yes	(20 points)	
	No X	(0 points)	0
Distance to surface water: (horizontal distance to all wetlands, playas, irrigation canals, ditches, and perennial and ephemeral watercourses.)	Less than 200 feet	(20 points)	
	200 feet or more, but less than 1000 feet	(10 points)	
	1000 feet or more X	(0 points)	0
	Ranking Score (Total Points)		0

If this is a pit closure: (1) Attach a diagram of the facility showing the pit's relationship to other equipment and tanks. (2) Indicate disposal location: (check the onsite box if your are burying in place) onsite ☐ offsite ☐ If offsite, name of facility_____. (3) Attach a general description of remedial action taken including remediation start date and end date. (4) Groundwater encountered: No ☐ Yes ☐ If yes, show depth below ground surface_____ft. and attach sample results. (5) Attach soil sample results and a diagram of sample locations and excavations.

Additional Comments:

I hereby certify that the information above is true and complete to the best of my knowledge and belief. **I further certify that the above-described pit or below-grade tank has been/will be constructed or closed according to NMOCD guidelines ☒, a general permit ☐, or an (attached) alternative OCD-approved plan ☐.**

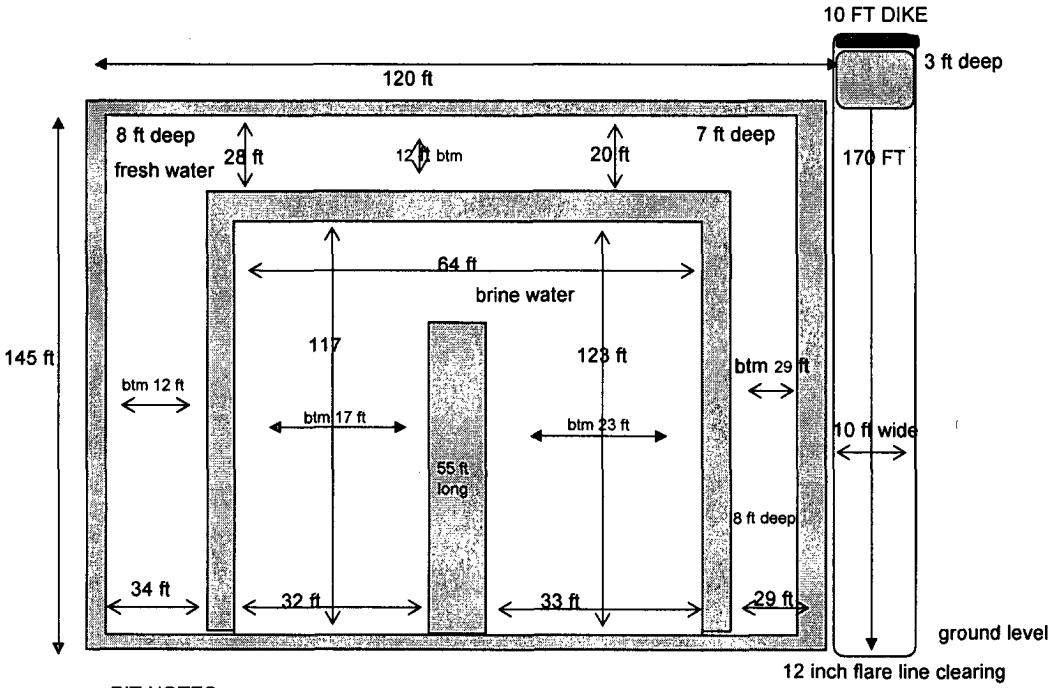
Date: 12/15/05
Printed Name/Title Cathy Wright, Sr Eng Tech Signature Cathy Wright

Your certification and NMOCD approval of this application/closure does not relieve the operator of liability should the contents of the pit or tank contaminate ground water or otherwise endanger public health or the environment. Nor does it relieve the operator of its responsibility for compliance with any other federal, state, or local laws and/or regulations.

Approval:
Printed Name/Title PAUL F. KAUTZ PETROLEUM ENGINEER Signature _____ Date: DEC 19 2005

POGO Producing Company
Red Tank 28 Federal #5
Approximate Pit Dimensions

H/28/22S/32E, Lea County, New Mexico



PIT NOTES:

Pit will be lined with 12 mil Black plastic w/ UV protection.
Pit walls are 6 ft to 8 ft wide.
Pit is 8 ft deep below ground level plus 2 ft walls
Pit walls are 2 ft above ground level.
Caliches mined from pit used to make Well Pad.
Fresh Water volume to ground level = ± 7950 bbls
Brine Water volume to ground level = ± 7730 bbls
12 inch Flare line laid on gradual descending graded ROW away from rig to avoid fluid trapping
Fresh water well = (Nad 27) 32° 23' 14" N & 103° 38' 43" W "Published data"
This well produces from a depth greater than 100 ft.

Pit equals approx 16000 bbls

Water Resources

Data Category: Site Information | Geographic Area: New Mexico | go

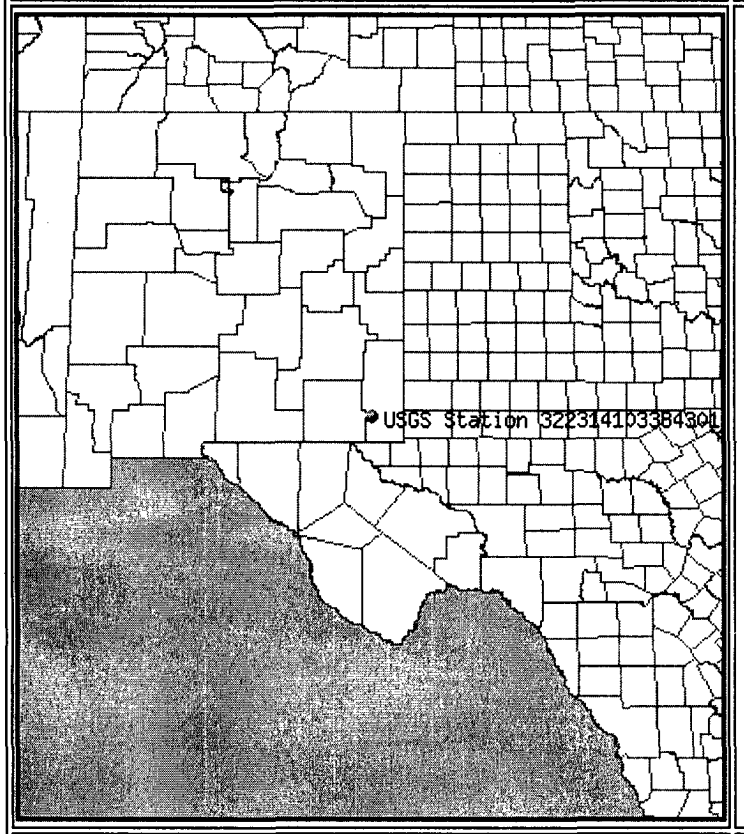
Site Map for New Mexico

USGS 322314103384301 22S.32E.14.32322

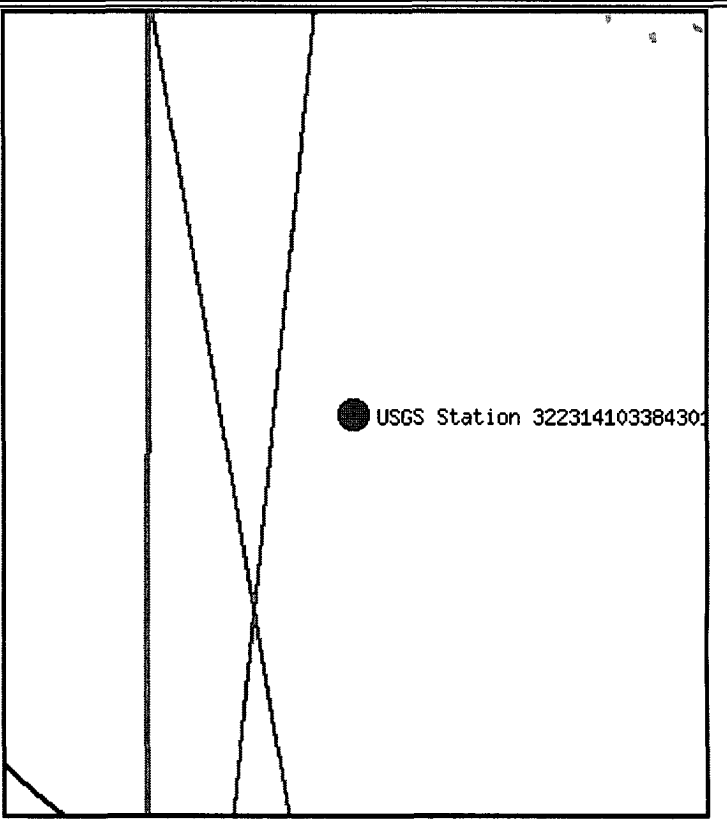
Available data for this site: site map | GO

Lea County, New Mexico
Hydrologic Unit Code
Latitude 32°23'14", Longitude 103°38'43" NAD27
Land-surface elevation 3,717.00 feet above sea level NGVD29
The depth of the well is 435 feet below land surface.
This well is completed in the SANTA ROSA SANDSTONE (231SNRS) local aquifer.

Location of the site in New Mexico.



Site map.



ZOOM IN 2X, 4X, 6X, 8X, or ZOOM OUT 2X, 4X. 6X. 8X.

Maps are generated by US Census Bureau TIGER Mapping Service.

Questions about data — New Mexico NWISWeb Data Inquiries
Feedback on this website — New Mexico NWISWeb Maintainer
Top
Explanation of terms

NWIS Site Inventory for New Mexico: Site Map
http://waterdata.usgs.gov/nm/nwis/nwismap?

Retrieved on 2005-12-15 12:14:00 EST
Department of the Interior, U.S. Geological Survey
USGS Water Resources of New Mexico

Water Resources

Data Category: Ground Water | Geographic Area: New Mexico | go

Ground-water levels for New Mexico

Search Results -- 1 sites found

Search Criteria

site_no list = • 322314103384301

Save file of selected sites to local disk for future upload

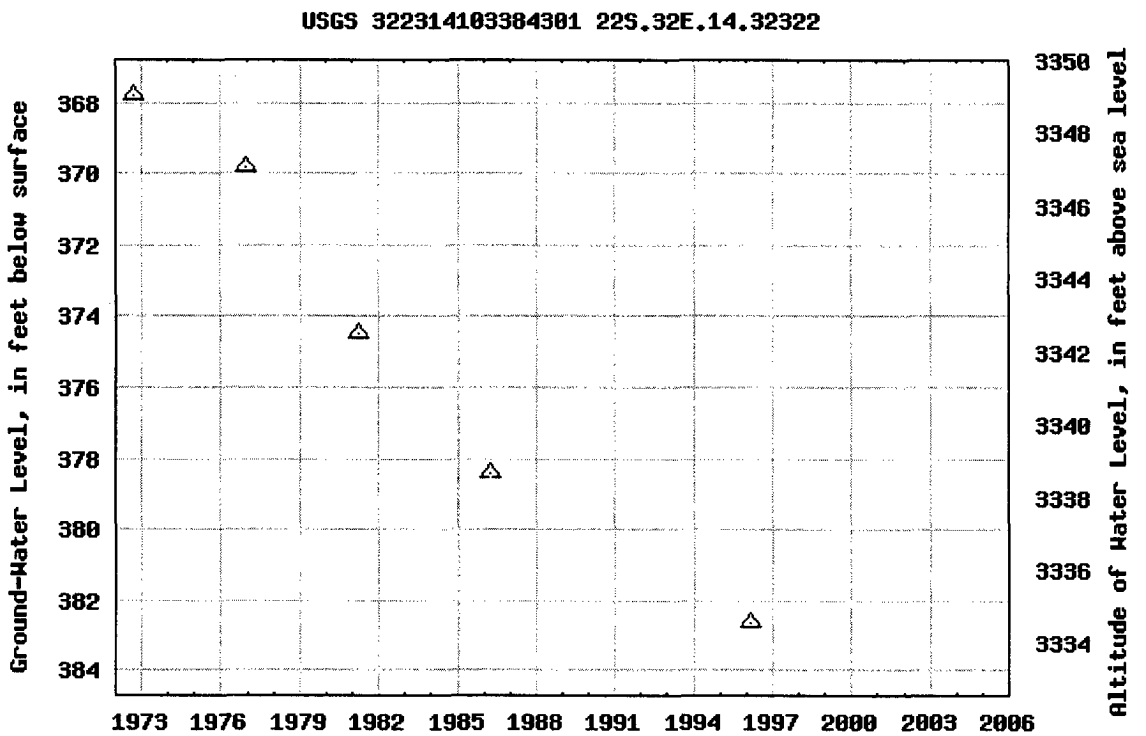
USGS 322314103384301 22S.32E.14.32322

Available data for this site: Ground-water: Levels | GO

Lea County, New Mexico
Hydrologic Unit Code
Latitude 32°23'14", Longitude 103°38'43" NAD27
Land-surface elevation 3,717.00 feet above sea level NGVD29
The depth of the well is 435 feet below land surface.
This well is completed in the SANTA ROSA SANDSTONE (231SNRS) local aquifer.

Output formats

- Table of data
- Tab-separated data
- Graph of data
- Reselect period



Breaks in the plot represent a gap of at least one calendar year between two consecutive points.
Download a presentation-quality graph

Questions about data New Mexico NWISWeb Data Inquiries
Feedback on this website New Mexico NWISWeb Maintainer

Top
Explanation of terms

Great Circle Calculator.

By Ed Williams

You need Javascript enabled if you want this page to do anything useful! For Netscape, it's under Options/Network Preferences/Languages.

Compute true course and distance between points.

Enter lat/lon of points, select distance units and earth model and click "compute". Lat/lons may be entered in DD.DD, DD:MM.MM or DD:MM:SS.SS formats.

Note that if either point is very close to a pole, the course may be inaccurate, because of its extreme sensitivity to position and inevitable rounding error.

Input Data

Lat1		Lon1	
32:23:14	N	103:38:43	W
Lat2		**Lon2**	
32:21:55	N	103:40:18	W

Output

Course 1-2	Course 2-1	Distance
225.45045(	45.4363198	1.87662619

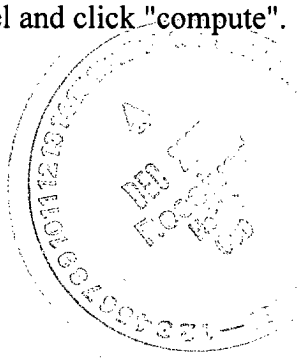
Distance Units: nm Earth model: Spherical (1'=1nm)

Compute Reset

Compute lat/lon given radial and distance from a known point

Enter lat/lon of initial point, true course and distance. Select distance units and earth model and click "compute". Lat/lons may be entered in DD.DD, DD:MM.MM or DD:MM:SS.SS formats.

Note that the starting point cannot be a pole.



Input data

Lat1		Lon1	
0:00.00	N	0:00.00	W
Course 1-2		Distance 1-2	
360		0.0	