OPER. OGRID NO. 17	891	
PROPERTY NO. 9-3- POOL CODE 516	83	strict I
Form 3160-3 (April 2004) EFF. DATE AFI NO. <u>30-025</u>	- 37008	FORM APPROVED OMB No. 1004-0137 Expires March 31, 2007
Arrive.		Lease Serial No. NM-58940
BUREAU OF LAND MAN		6. If Indian, Allotee or Tribe Name
APPLICATION FOR PERMIT TO	DRILL OR REENTER	
la. Type of work: KX DRILL REENTE	SR	7 If Unit or CA Agreement, Name and No.
lb. Type of Well: XOil Well Gas Well Other	XXSingle Zone Multip	8. Lease Name and Well No. WBR Federa 1 #8
2. Name of Operator		9. API Well No.
Pogo Producing Company		30-025- <del>35819</del> 37008
	3b. Phone No. (include area code) 432-685-8100	10. Field and Pool, or Exploratory
P.O. Box 10340, Midland, TX		Red Tank Bone Spring
4. Location of Well (Report location clearly and in accordance with an At surface 330" FSL & 990' FWL	y State requirements.*) A	11. Sec., T. R. M. or Blk. and Survey or Area
	ilm	Sec 13, T22S, R32E
At proposed prod. zone 14. Distance in miles and direction from nearest town or post office*	<u>ALEIN</u>	12 County or Parish 13. State
Approximately 30 miles East of	Carlsbad	Lea County NM
15. Distance from proposed*	16. No. of acres in lease	17. Spacing Unit dedicated to this well
location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) 750	600	40
<ol> <li>Distance from proposed location* to nearest well, dulling, completed,</li> </ol>	19. Proposed Depth	20. BLM/BIA Bond No. on file
applied for, on this lease, ft. 1000	10,200	29771
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3715' GR	22. Approximate date work will star When Approved	
	24. Attachments C	arisbed Controlled Water Bacin
The following, completed in accordance with the requirements of Onshor	re Oil and Gas Order No.1, shall be a	tached to this form:
<ol> <li>Well plat certified by a registered surveyor.</li> <li>A Drilling Plan.</li> </ol>	4. Bond to cover the litem 20 above).	ne operations unless covered by an existing bond on file (see
3. A Surface Use Plan (if the location is on National Forest System SUPO shall be filed with the appropriate Forest Service Office).		specific information and/or plans as may be required by the
25. Signature Cathey Whight	Name (Printed/Typed) Cathy Wright	/ B Date, 11/03/04
Sr. Eng. Tech		ILED WED
Approved by (Signature) 5/ Kuss Sorensta	Name (Printed/Typed)	Sorensen Proper 2004
INGFIELD MANAGER		BAD FIELD OFFICE
Application approval does not warrant or certify that the applicant hole conduct operations thereon. Conditions of approval, if any, are attached.		PROVAL -OR 1 YEAR
Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a c States any false, fictitious or fraudulent statements or representations as	to any matter within its jurisdiction.	willfully to make to any department or agency of the United

\*(Instructions on page 2)

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Approval subject to General Requirements and Special Stipulations Attached

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#### WBR FEDERAL #8 Drilling Plan

- 1. Drill 25" hole to 40'. Set 40' of 20" conductor pipe and cmt to surface w/ Redimix.
- 2. Drill 17-1/2" hole to 1000'. Run & set 1000' of 13-3/8" 48# H-40 ST&C csg. Cmt w/ 1000 sks Cl "C" cmt + add. Circ cmt to surface.
- Drill 12-1/4" hole to 4700'. Run & set 4700' 8-5/8" 32# J-55 ST&C casing as follows: 500' 32# S-80 ST&C, 4200' 32# J-55 ST&C. Cmt w/ 1800 sks Cl "C" cmt + 2% CaCl2. Circ cmt to surface.
- Drill 7-7/8" hole to 10,200'. Run & set 10,200' of 5-1/2" csg as follows: 3200' 17# N-80 LT&C, 5000' 17# J-55 LT&C, 2000' 17# J-55 N-80 LT&C. Cmt in 2 stages w/ stage tool at 7000' ±. Cmt w/ 1200 sks Cl "H" + add. Est TOC 3000' from surface.



DISTRICT I

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P.0. Box 1990. Hobbs, HM 86341-1980

DISTRICT II P.O. Bruwer DD, Artonia, NM 88211-0719

DISTRICT III

#### State of New Mexico

Rhorgy, Minarels and Hotural Resources Department

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

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

M 87410			-						
504-2085	WELL LO	CATION	AND	ACREA	GE DEDICATI	ON PLAT	AMENDED	REPORT	
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VICINITY MAP



SEC. <u>13</u> TWP.<u>22–S</u> RGE.<u>32–E</u> SURVEY\_\_\_\_\_\_N.M.P.M. COUNTY\_\_\_\_\_\_LEA DESCRIPTION <u>330'</u> FSL <u>& 990'</u> FWL ELEVATION\_\_<u>3715'</u> OPERATOR\_POGO\_PRODUCING\_COMPANY LEASE\_\_\_\_\_W.B.R. FEDERAL

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

# LOCATION VERFICATION MAP



DESCRIPTION <u>330' FSL & 990' FWL</u> ELEVATION <u>3715'</u>

OPERATOR POGO PRODUCING COMPANY LEASE W.B.R. FEDERAL

U.S.G.S. TOPOGRAPHIC MAP THE DIVIDE, N.M. JOHN WEST SURVEYING HOBBS, NEW MEXICO (505) 393-3117

#### APPLICATION TO DRILL

POGO PRODUCING COMPANY WBR FEDERAL # 8 UNIT "M" SECTION 13 T22S-R32E LEA CO. NM

In response to questions asked under Section II of Bulletin NTL-6 the following information on the above well is provided for your consideration.

- 1. Location: 330' FSL & 990' FWL SEC. 13 T22S-R32E LEA CO. NM
- 2. Elevation above Sea Level: 3715' GR.
- 3. Geologic name of surface formation: Quaternery Aeolian Deposits.
- 4. <u>Drilling tools and associated equipment:</u> Conventional rotary drilling rig using drilling mud as a circulating medium for solids removal from hole.
- 5. Proposed drilling depth: 10,200'
- 6. Estimated tops of geological markers:

Rustler Anhydrite	900'	Cherry Canyon	6000'
Basal Anhydrite	4500'	Brushy Canyon	7000'
Delaware	4842'	Bone Spring	8730'
Ramsey Sand	4920'	lst Bone Spring Sand	9850'

7. Possible mineral bearing formations:

Delaware	Oil	Brushy Canyon	0il
Cherry Canyon	Oil	Bone Spring	Oil

8. Casing program:

Hole size	Interval	OD of casing	Weight	Thread	Collar	Grade
25"	0-40	20"	NA	NA	NA	Conductor
17 <sup>1</sup> 2''	0-1000'	13 3/8"	48	8-R	ST&C	H-40
124"	0-4700'	8 5/8"	32	8-R	ST&C	J-55 S-80
7 7/8"	0-10,200'	5 <sup>1</sup> 2''	17	8-R	LT&C	N-80 J-55

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POGO PRODUCING COMPANY WBR FEDERAL # 8 UNIT "M" SECTION 13 T22S-R32E LEA CO. NM

9. CEMENTING & SETTING DEPTH:

20"	Conductor	Set 40' of 20" conductor pipe and cement to surface with Redi-mix.
13 3/8"	Surface	Set 1000' of 13 3/8" 48# H-40 ST&C casing. Cement with 1000 Sx. of Class "C" cement + additives circulate to surfa
8 5/8"	Intermediate	Set 4700' of 8 5/8" 32# J-55 ST&C casing. CEment with 1800 of Class "C" cement + 2% CaCl, + ½# Flocele/Sx. circulate cement to surface.
5½"	Production	Set 10,200' of $5\frac{1}{2}$ " casing as follows: 3200' of $5\frac{1}{2}$ " 17# N-80 LT&C, 5000' of $5\frac{1}{2}$ 17# J-55 LT&C, 2000' of $5\frac{1}{2}$ " 17# N-80 LT&C Cement in two stages,DV Tool at 7000'±, cement with 1200 Sx of Class "H" Premium Plus cement + additives, estimate top of cement 3000' from surface.

- 10. PRESSURE CONTROL EQUIPMENT: Exhibit "E" shows a 1500 Series 5000 PSI working pressure B.O.P. consisting of an annular bag type preventor, middle blind rams and bottom pipe rams. The B.O.P. will be nippled up on the 13 3/8" casing and tested to API specifications. The B.O.P. will be operated at least once in each 24 hour period and the blind rams will be operated when drill pipe is out of hole on trips. Full opening stabbing valve and upper kelly cock will be utilized. Exhibit "E-1" shows a hydraulically operated closing unit and a 2" 5000 PSI choke manifold with dual adjustable chokes. No abnormal pressures or temperatures are expected. 3" CHOKE LINES/VALVES
- 11. PROPOSED MUD CIRCULATING SYSTEM:

DEPTH	MUD WT.	VISC.	FLUID LOSS	TYPE MUD SYSTEM
40-1000'	8.4-8.7	29-38	NC	Fresh water mud add paper to control seepage and use high viscosity sweeps to clean hole
1000-4700'	10.2-10.3	29-38	NC	Brine water using high viscosí: sweeps to clean hole.
4700-10,200'	8.4-8.8	29-39	NC	Fresh water using high viscosi sweeps to clean hole. water lo: may be needed to run logs and/c casing, if needed use a polyme: system to accomplish this

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

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#### APPLICATION TO DRILL

POGO PRODUCING COMPANY WBR FEDERAL # 8 UNIT "M" SECTION 13 T22S-R32E LEA CO. NM

#### 12. Testing, Logging and Coring Program:

A. Open hole logs: Dual Induction, SNP, LDT, Sonic, Caliper & Gamma Ray from TD to 4700'. Run Gamma Ray, Neutron from 4700' to surface.

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B. Mud logger will be put on hole at 4700'± and remain on hole to TD.

C. No DST's or cores are plnned at this time

#### 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 5000 PSI, estimated BHT 175° •

#### 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  $\frac{40}{2}$  days. If production casing is run an additional 30 days will be required to complete and construct surface facilities.

#### 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.

- 1. All Company and Contract personnel admitted on location must be trained by a qualified H<sub>2</sub>S safety instructor to the following:
  - A. Characteristics of H<sub>2</sub>S
  - B. Physical effects and hazzards
  - C. Proper use of safety equipment and life support systems.
  - D. Principle and operation of H<sub>2</sub>S 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<sub>2</sub>S Detection and Alarm Systems
  - A. H<sub>2</sub>S 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<sub>2</sub>S 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 the location is near to a dwelling a closed DST will be performed.

- 8. Drilling contractor supervisor will be required to be familiar with the effects H2S has on tubular goods and other mechanical equipment.
- 9. If H<sub>2</sub>S 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<sub>2</sub>S scavengers if necessary.

#### SURFACE USE PLAN

POGO PRODUCING COMPANY WBR FEDERAL # 8 UNIT "M" SECTION 13 T22S-R32E LEA CO. NM

- <u>EXISTING ROADS</u>: Area maps, Exhibit "B" is a reproduction of a County General Highway Map. Exhibit "C" is a reproduction of a USGS Topographic Map, showing existing roads and proposed roads. All existing roads will be maintained in a condition equal to or better than current conditions. Any new roads will be constructed to BLM specifications.
  - A. Exhibit "A" shows the proposed well site as staked.
  - B. From Hobbs, New Mexico take U.S. Hi-way 62-180 West toward Carlsbad New Mexico go 38 miles to Cr-29 turn South go 14 miles to Mills Ranch road, turn East follow road 8 ± miles turn South go by well # 2 turn East go 660' to location.
  - C. Lay flowlines & construct powerlines along roads or along existing R-O-W's.
- 2. PLANNED ACCESS ROADS: Approximately 600' of new road will be constructed.
  - A. The access road will be crowned and ditched to a 12'00" wide travel surface with a 40' right-of-way.
  - B. Gradient on all roads will be less than 5.00%.
  - C. Turn outs will be constructed where 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 Topography.
- 3. LOCATION OF EXISTING WELLS IN A ONE-MILE RADIUS EXHIBIT "A-1"

A. Water wells	-	Water well approximately 1 mi North
B. Disposal wells	-	None known
C. Drilling wells	-	None Known
D. Producing wells	-	As shown on Exhibit "A-1"
E. Abandoned wells	-	As shown on Exhibit "A-1"

POGO PRODUCING COMPANY WBR FEDERAL # 8 UNIT "M" SECTION 13 T22S-R32E LEA CO. NM

4. If, upon completion this well is a producer Pogo Producing Company will furnish maps and/or plats showing on site facilities or off site facilities if needed. This will be accompanied with a Sundry Notice.

## 5. LOCATION AND TYPE OF WATER SUPPLY:

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

## 6. SOURCE OF CONSTRUCTION MATERIAL:

If possible construction will be obtained from the excavation of drill site, if additional material is needed it will be purchased from a local source and transported over the access route as shown on Exhibit "C".

### 7. METHODS OF HANDLING WASTE MATERIAL:

- A. Drill cuttings will be disposed of in the reserve pit.
- B. All trash, junk and other waste material will be contained in trash cages or bins to prevent scattering. When the job is completed all contents will be removed and dispused of in a approved sanitary land fill.
- C. Salzs remaining after completion of well will be picked up by supplier including broken sacks.
- D. Sewage from living quarters will drain into holes with a minium depth of 10'. These holes will be covered during drilling and will be back filled upon completion. A Ports-John will be provided for the rig crews. This equipment will be properly maintained during the drilling operations and removed upon completion of the well.
- E. Remaining drilling fluids will be allowed to evaporate in the reserve pituntil the pit is dry enough for breaking out. In the event that drilling fluids do not evaporate in a reasonable time they will be hauled off by transports and be disposed of at a state approved disposal facility. Later pits will be broken out to speed drying. Water produced during testing will be put in reserve pits. Any oil or condensate produced will be stored in test tanks until sold and hauled from the site.
- 8. ANCILLARY FACILITIES:
  - A. No camps or airstrips to be constructed.

#### SURFACE USE PLAN

POGO PRODUCING COMPANY WBR FEDERAL # 8 UNIT "M" SECTION 13 T22S-R32E LEA CO. NM

- 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 & 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 polyethelene. 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 WBR FEDERAL # 8 UNIT "M" SECTION 13 T22S-R32E LEA CO. NM

- 11. OTHER INFORMATION:
  - A. Topography consists of sand dunes with a slight dip toward the West. Deep sandy soil supports native grasses, mesquite, and shinnery Oak.
  - B. Surface is owned by the Bureau of Land Management U.S. Department of Interior. Surface is used for grazing of livestock and is leased to ranchers for this purpose.
  - C. An archaeological survey will be conducted and copies of the survey will be filed in the Carlsbad Office of The Bureau of Land Management.
  - D. There are no dwellings or habitation within three miles of this location.

#### 12. OPERATORS REPRESENTIVE:

Before construction:

TIERRA EXPLORATION INC. P.O. BOX 2188 HOBBS, NEW MEXICO 88241 OFFICE PHONE 505-391-8503 JOE T. JANICA

#### During and after construction:

POGO PRODUCING COMPANY P.O. BOX 10340 MIDLAND, TEXAS 79702-7340 OFFICE PHONE 915-685-8100 MR. RICHARD WRIGHT 915-685-8140

13. <u>CERTIFICATION:</u> - 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, true and correct; and that the work associated with the operations proposed herein will be performed by Pogo Producing company, its contractors/subcontractors is in the conformity with this plan and the terms and conditions under which it is approved. This statement is subject to the provincion of U.S.C. 1001 for the filing of a false statement.

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#### ARRANGEMENT SRRA

1500 Series 5000# Working Pressure

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

> > POGO PRODUCING COMPANY WBR FEDERAL # 8 UNIT "K" SECTION 13 T22S-R32E LEA CO. NM

## DRILLING MANUAL





FIGURE K6-1. The schematic sketch of an accumulator system shows required and optional components.



FIGURE K4-2. Typical choke manifold assembly for 5M rated working pressure service -- surface installation.

EXHIBIR "E-1" CHOKE MANIFOLD & CLOSING UNIT POGO PRODUCING COMPANY \*WBR FEDERAL \$ 8 UNIT "K" SECTION 13 T22S-R32E LEA CO. NM

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District I 1625 N. French Dr., Hobbs, NM 88240 District II 1201 M. Combined and M. States and State	State of New Mexico Form C-14 March 12, 20
1301 W. Grand Avenue, Artesia, NM 88210 <u>District III</u> 1000 Rio Brazos Road, Aztec, NM 87410 <u>District IV</u> 1220 S. St. Francis Dr., Santa Fe, NM 87505	Oil Conservation DivisionFor drilling and production facilities, submit to appropriate NMOCD District Office.1220 South St. Francis Dr. Santa Fe, NM 87505For downstream facilities, submit to Santa Fe office
Pit or Below-g Is pit or below-g Type of action: Registration	-Grade Tank Registration or Closure de tank covered by a "general plan"? Yes D No 🕅 If a pit or below-grade tank 🖾 Closure of a pit or below-grade tank D
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Pit         Type:       Drilling X Production [] Disposal []         Workover       Emergency []         Lined X Unlined []         Liner type:       Synthetic X Thickness 12 mil         Clay [] Volum         16000 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 se 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 moreX(0 points)0
Wellhead protection area: (Less than 200 feet from a private dom water source, or less than 1000 feet from all other water sources.	stic Yes (20 points) No X (0 points)
Distance to surface water: (horizontal distance to all wetlands, p irrigation canals, ditches, and perennial and ephemeral watercou	yas, Less than 200 feet (20 points)
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onsite i offsite i If offsite, name of facility end date. (4) Groundwater encountered: No i Yes i If yes and a diagram of sample locations and excavations.	
been/will be constructed or closed according to NMOCD gu Date: <u>12/10/04</u> Printed Name/Title <u>Cathy Wright</u> , <u>Sr Eng Te</u> Your certification and NMOCD approval of this application/ck otherwise endanger public health or the environment. Nor does	the best of my knowledge and belief. I further certify that the above-described pit or below-grade tank elines (1), a general permit [], or an (attached) alternative OCD-approved plan []. (h
regulations. Approval: Date: Printed Name/Title DEC 1 6 2004	Signature Jacob 3 Martin

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## **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



Questions about data <u>New Mexico NWISWeb Data Inquiries</u> Feedback on this website<u>New Mexico NWISWeb Maintainer</u> Ground water for New Mexico: Water Levels http://waterdata.usgs.gov/nm/nwis/gwlevels?

Retrieved on 2004-12-09 10:15:14 EST Department of the Interior, U.S. Geological Survey USGS Water Resources of New Mexico Privacy Statement || Disclaimer || Accessibility || FOIA 2.02 1.48 nadww01 Top Explanation of terms

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Water Resources
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This server(nwis.waterdata.usgs.gov) is currently experiencing network and database connectivity problems which prevent Real-Time data from being updated. We are actively working on resolving this issue.

All real-time data continues to be available at <u>http://waterdata.usgs.gov/nwis/rt</u>.

## Site Map for New Mexico

USGS 322314103384301 22S.32E.14.32322



## **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.

Lat1		Lon1		
32:23:14	N	103:38:43	N	
Lat2		Lon2		
32:23:07.44	Nv	103:37:59.77	N 👻	

Input Data

 Output

 Course 1-2
 Course 2-1

 Distance

 100.183955
 280.190391

 0.618175895

 Distance Units:
 nm S

 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.

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Course 1-2		Distance 1-2	

## POGO Producing Company WBR Federal #8

**Approximate Pit Dimensions** 

M/13/22S/32E, Lea County, New Mexico API # 30 025 35819



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 =  $\pm$  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.

This wear produces norm a depart greater than

Pit equals approx 16000 bbls