

DATE IN <u>4/13/98</u>	SUSPENSE <u>4/28/99</u>	ENGINEER <u>BS</u>	LOGGED <u>KN</u>	TYPE <u>WFX</u>
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ABOVE THIS LINE FOR DIVISION USE ONLY

NEW MEXICO OIL CONSERVATION DIVISION
- Engineering Bureau -

752

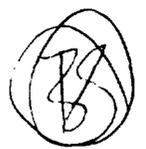
ADMINISTRATIVE APPLICATION COVERSHEET

THIS COVERSHEET IS MANDATORY FOR ALL ADMINISTRATIVE APPLICATIONS FOR EXCEPTIONS TO DIVISION RULES AND REGULATIONS

Application Acronyms:

- [NSP-Non-Standard Proration Unit] [NSL-Non-Standard Location]
- [DD-Directional Drilling] [SD-Simultaneous Dedication]
- [DHC-Downhole Commingling] [CTB-Lease Commingling] [PLC-Pool/Lease Commingling]
- [PC-Pool Commingling] [OLS-Off-Lease Storage] [OLM-Off-Lease Measurement]
- [WFX-Waterflood Expansion] [PMX-Pressure Maintenance Expansion]
- [SWD-Salt Water Disposal] [IPI-Injection Pressure Increase]
- [EOR-Qualified Enhanced Oil Recovery Certification] [PPR-Positive Production Response]

171 TOTAL
6 P+KA
A REPAIR



[1] **TYPE OF APPLICATION - Check Those Which Apply for [A]**

- [A] Location - Spacing Unit - Directional Drilling
 NSL NSP DD SD

Check One Only for [B] or [C]

- [B] Commingling - Storage - Measurement
 DHC CTB PLC PC OLS OLM

- [C] Injection - Disposal - Pressure Increase - Enhanced Oil Recovery
 WFX PMX SWD IPI EOR PPR

[2] **NOTIFICATION REQUIRED TO: - Check Those Which Apply, or Does Not Apply**

- [A] Working, Royalty or Overriding Royalty Interest Owners
- [B] Offset Operators, Leaseholders or Surface Owner
- [C] Application if One Which Requires Published Legal Notice
- [D] Notification and/or Concurrent Approval by BLM or SLO
U.S. Bureau of Land Management - Commissioner of Public Lands, State Land Office
- [E] For all of the above, Proof of Notification or Publication is Attached, and/or,
- [F] Waivers are Attached

[3] **INFORMATION / DATA SUBMITTED IS COMPLETE - Statement of Understanding**

I hereby certify that I, or personnel under my supervision, have read and complied with all applicable Rules and Regulations of the Oil Conservation Division. Further, I assert that the attached application for administrative approval is accurate and complete to the best of my knowledge and where applicable, verify that all interest (WI, RI, ORRI) is common. I further verify that all applicable API Numbers are included. I understand that any omission of data, information or notification is cause to have the application package returned with no action taken.

Note: Statement must be completed by an individual with supervisory capacity.

Lee R. White
Print Name

Lee R. White
Signature

Engineering Manager
Title

4/7/99
Date

April 07, 1999

State of New Mexico
Energy, Minerals & Natural Resources Dept.
Oil Conservation Division
2040 South Pacheco
Santa Fe, New Mexico 87505

**Re: Expansion of Waterflood Project
Northeast Drinkard Unit
Well No. 104, 107, 113, 202, 302, 402, 502, 512, 602, 611, 702
Eunice N., Blinbry-Tubb-Drinkard
Lea County, New Mexico**

Apache Corporation is proposing an expansion of the previous authority, Division Order No. R-8541, to add additional water injection wells to the above referenced lease.

To support this request we have attached the following:

- 1) OCD Form C-108 with attachments
- 2) Maps with surveys which include:
 - A) Unit Map with location of all wells within one-half mile radius of proposed injection wells
 - B) Individual maps for each proposed injection well with location of all wells and leases within a two mile and one-half mile radius (note: wells in red are proposed infill producers not yet drilled)
- 3) Injection Well Data Sheet for each proposed injector
- 4) A Publishing Affidavit and copy of legal notice
- 5) List of Surface Owners and Offset Operators with Certified Mail Receipt numbers indicated and copy of letter sent
- 6) Tabulation of Data on wells located within the Area of Review

7) Wellbore Diagrams for all wells P&A'd in the Area of Review

Please contact me at 713-296-6338 if you need additional information or have any questions regarding this application. Thank you.

Sincerely,

APACHE CORPORATION

A handwritten signature in black ink, appearing to read "Debra J. Anderson", is written over a horizontal line.

Debra J. Anderson
Engineering Technician

Attachments

cc: Mr. Chris Williams
Oil Conservation Division
District I
P O Box 1980
Hobbs, New Mexico 88241

State of New Mexico
Office of Land Commissioner
P O Box 1148
Santa Fe, New Mexico 87504

APPLICATION FOR AUTHORIZATION TO INJECT

I. PURPOSE: Secondary Recovery Pressure Maintenance Disposal Storage
Application qualifies for administrative approval? Yes No

II. OPERATOR: Apache Corporation
ADDRESS: 2000 Post Oak Blvd., Ste. 100, Houston, Texas 77056-4400
CONTACT PARTY: Debra Anderson PHONE: 713-296-6338

III. WELL DATA: Complete the data required on the reverse side of this form for each well processed for injection
Additional sheets may be attached if necessary.

IV. Is this an expansion of an existing project: Yes No
If yes, give the Division order number authorizing the project R-8541

V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half radius circle drawn around each proposed injection well. This circle identifies the wells area of review.

VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.

VII. Attach data on the proposed operation, including:

1. Proposed average and maximum daily rate and volume of fluids to be injected;
2. Whether the system is open or closed;
3. Proposed average and maximum injection pressure;
4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and
5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).

*VIII. Attach appropriate geological data on the injection zone including appropriate lithologic detail, geologic name thickness and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlaying the proposed injection zone as well as any such sources known to be immediately underlying the injection interval.

IX. Describe the proposed stimulation program, if any.

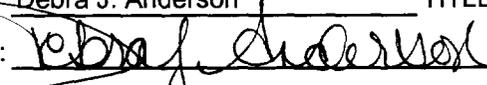
* X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division, they need not be resubmitted.)

* XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.

XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water.

XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.

XIV. Certification: I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.

NAME: Debra J. Anderson TITLE: Engineering Technician
SIGNATURE:  DATE: 4-7-99

* If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be resubmitted. Please show the date and circumstance of the earlier submittal:

Hearing 9/24/87, Case No. 9232, Order No. 8541 & Supplemental Application 06/26/95
DISTRIBUTION: Original and one copy to Santa Fe with one copy to the appropriate District Office

III. WELL DATA

A. The following well data must be submitted for each injection well covered by this application. The data must be both in tabular and schematic form and shall include:

- (1) Lease name; Well No.; Location by Section, Township, and Range; and footage location within the section.
- (2) Each casing string used with its size, setting depth, sacks of cement used, hole size, top of cement and how such top was determined.
- (3) A description of the tubing to be used including its size, lining material, and setting depth.
- (4) The name, model, and setting depth of the packer used or a description of any other seal system or assembly used.

Division District Offices have supplies of Well Data Sheets which may be used or which may be used as models for this purpose. Applicants for several identical wells may submit a "typical data sheet" rather than submitting the data for each well.

B. The following must be submitted for each injection well covered by this application. All items must be addressed for the initial well. Responses for additional wells need be shown only when when different. Information shown on schematics need not be repeated.

- (1) The name of the injection formation and, if applicable, the field or pool name.
- (2) The injection interval and whether it is perforated or open-hole.
- (3) State if the well was drilled for injection or, if not, the original purpose of the well.
- (4) Give the depths of any other perforated intervals and detail on the sacks of cement or bridge plugs used to seal off such perforations.
- (5) Give the depth to and name of the next higher and next lower oil or gas zone in the area of the well, if any.

XIV. PROOF OF NOTICE

All applicants must furnish proof that a copy of the application has been furnished, by certified or registered mail, to the owner of the surface of the land on which the well is to be located and to each leasehold operator within one-half mile of the well location.

Where an application is subject to administrative approval, a proof of publication must be submitted. Such proof shall consist of a copy of the legal advertisement which was published in the county in which the well is located. The contents of such advertisement must include:

- (1) The name, address, phone number, and contact party for the applicant;
- (2) The intended purpose of the injection well; with the exact location of single wells or the Section, Township, and Range location of multiple wells;
- (3) The formation name and depth with expected maximum injection rates and pressures; and,
- (4) A notation that interested parties must file objections or requests for hearing with the Oil Conservation Division, 2040 South Pacheco, Santa Fe, New Mexico 87505 within 15 days.

NO ACTION WILL BE TAKEN ON THE APPLICATION UNTIL PROPER PROOF OF NOTICE HAS BEEN SUBMITTED.

NOTICE: Surface owners or offset operators must file any objections or requests for hearing of administrative applications within 15 days from the date this application was mailed to them.

**ATTACHMENT FOR FORM C-108
NORTHEAST DRINKARD UNIT
MISCELLANEOUS DATA**

III. WELL DATA

B. (5)	Next higher oil zone	Paddock @ +/- 5200'
	Next lower oil zone	Abo @ +/- 6750'

VII. PROPOSED OPERATION

1.	Average Injection Rate	1000 BWPD
	Maximum Injection Rate	2000 BWPD
2.	Closed Injection System	
3.	Average Injection Pressure	1100 psi
	Maximum Injection Pressure	1300 psi (approximate) (will not exceed 0.2 psi/ft to top perforation)
4.	Source Water	San Andres Analysis Attached Blinberry-Tubb-Drinkard Produced

IX. STIMULATION PROGRAM

Acid treatment schedule will be determined following evaluation of GR/CNL/CCL (to be run prior to perforating the unitized interval)

UNICHEM

A Division of BJ Services Company

Lab Test No. 23748

Apache

Sample Date: 3/10/99

Water Analysis

Listed below please find water analysis report from: NEDU

#919-S

Specific Gravity: 1.009
 Total Dissolved Solids: 13273
 pH: 6.49
 Conductivity (µmhos):
 Ionic Strength: 0.265

Cations:		mg/l
Calcium	(Ca ⁺⁺):	608
Magnesium	(Mg ⁺⁺):	244
Sodium	(Na ⁺):	3909
Iron	(Fe ⁺⁺):	0.00
Dissolved Iron	(Fe ⁺⁺):	
Barium	(Ba ⁺⁺):	0.38
Strontium	(Sr):	19
Manganese	(Mn ⁺⁺):	0.01
Resistivity:		
Anions:		
Bicarbonate	(HCO ₃ ⁻):	562
Carbonate	(CO ₃ ⁻):	
Hydroxide	(OH ⁻):	0
Sulfate	(SO ₄ ⁻):	1750
Chloride	(Cl ⁻):	6200

Gases:		ppm	
Carbon Dioxide	(CO ₂):	80.00	Oxygen (O ₂):
Hydrogen Sulfide	(H ₂ S):	408.00	

Scale Index (positive value indicates scale tendency) a blank indicates some tests were not run

Temperature	CaCO ₃ SI	CaSO ₄ SI
86F 30.0C	-0.14	-17.28
104F 40.0C	0.09	-17.28
122F 50.0C	0.35	-17.28
140F 60.0C	0.57	-16.80
168F 70.0C	0.87	-15.02
176F 80.0C	1.20	-15.51

Comments:

cc: Jerry White
 Jay Brown

P.O. Box 61427 • Midland, TX 79711 • 4312 S. County Rd. 1298, Midland, TX 79765
 Office: (915) 563-0241 • Fax: (915) 563 0243

#0240 P.002/010

UNICHEM LAB

MAR.25.1999 15:26 915 563 0243

LARGE FORMAT
EXHIBIT HAS
BEEN REMOVED
AND IS LOCATED
IN THE NEXT FILE