RB **READING & BATES PETROLEUM CO.**

Northwest Division
Denver National Bank Building
1125 Seventeenth Street, Suite #2300
Denver, Colorado 80202
303 295-1447

February 21, 1985

New Mexico Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87501

RE: Application for Authorization to Inject Navajo Tocito #4
1,963' FSL and 997' FWL, Sec. 10, T26N, R18W
Rio Arriba County, New Mexico

Gentlemen:

Attached is one original and one copy of Form C-108, Application for Authorization to Inject and all required information. A copy is being sent to your Aztec, New Mexico office.

Copies of this application have been mailed to the offset operators, Mobil and Amoco, and to the surface owner, The Navajo Nation. Certified mail receipts for the letter to Mobil and The Navajo Nation are attached. A copy of Amoco's waiver of objection is attached. Proof of publication of a notice regarding this application is also attached.

Permits to inject into this well have been issued by the BLM and The Navajo Nation, and copies of those permits are attached.

Please administratively approve this application. If you need further information, please advise.

Sincerely,

READING & BATES PETROLEUM CO.

T. Bruce Petitt,
Division Engineer

TBP/ds
Attachments

xc: R.B. Shindhelm

xc: New Mexico Oil Conservation Division
1000 Rio Brazos Rd.
Aztec, New Mexico 87410

APPLICATION FOR AUTHORIZATION TO INJECT

Cause 5530

I. Purpose: ☐ Secondary Recovery ☐ Pressure Maintenance ☒ Disposal ☐ Storage
Application qualifies for administrative approval? ☒ yes ☐ no

II. Operator: Reading & Bates Petroleum Co.

Address: 1125 17th St. #2300 Denver, CO 80202

Contact party: T. Bruce Petitt Phone: 303-295-1447

III. Well data: Complete the data required on the reverse side of this form for each well proposed 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 _____.

V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's 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, geological 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) overlying the proposed injection zone as well as any such source 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 source 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: T. Bruce Petitt Title Division-Engineer

Signature: T. Bruce Petitt Date: 2/4/85

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

District

DISTRIBUTION: Original and one copy to Santa F[illegible]

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 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, P. O. Box 2088, Santa Fe, New Mexico 87501 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.

(Form C-108) Application for Authorization to Inject

I. Purpose

A. Disposal of salt water

II. Operator

A. Reading and Bates Petroleum Co.
1125 17th Street, Suite 2300
Denver, CO 80202
Attn: T. Bruce Petitt

III. Well Data (also see Exhibit "A")

A. Lease name

1. Navajo Tocito #4
1963'FSL, 997'FWL. Sec. 10-T26N-R18W

B. Casing

1. Surface Casing

a. 8 5/8" 24# set at 1,665' with 290 sx. Class "A" & 4% gel and 190 sx. Pozmix "A" and 2% $CaCl_2$. Hole size 11". TOC @ surface. TOC determined by circulation.

2. Production Casing.

a. 4 1/2" 9.5# set at 6,397' cemented with 250 sacks Class C and 7#/sx. salt and 12 1/2#/sx. gilsonite. Hole size 7 7/8". TOC @ 5,680'. TOC determined by temperature log.

3. Tubing String

a. 2 3/8" 4.7# EUE 8rd. set at approximately 6,332'.

4. Packer

a. Baker Model "R" set at 6,332'.

C. 1. Injection Formation

a. Pennsylvanian "D" - Tocito Dome Field

2. Injection Interval

a. 6,382-6,386' KB. Perforated through casing.

3. The Navajo Tocito #4 was originally completed as a gas well.

4. This well is perforated in the Pennsylvanian "D" from 6382'-6386' K.B. Well was initially perforated 6,382-6,392'. Perforations 6,382-6,392' squeezed with 100 sx. Class "B" to 75% CFR-2.

5. The next lower producing zone to the injection zone is the Pennsylvania "E" at a depth of 6392'KB. There are wells within a 2 mile radius that produce from the Pennsylvanian "E". There are no known producing intervals above the injection zone in the Tocito Dome Field.

IV. This well is not the expansion of any existing projects.

V. Map (See Exhibit "B")

VI. Well Data for wells within 1/2 mile

A. #3 Navajo Tocito (See Exhibit "C" for schematic)
Operator: Airco
900'FNL, 900'FEL. Sec. 10-T26N-R18W
Elevation: 5668KB. Spud 9-17-68
T.D. - 6777. 11" surface casing at 1616' w/480 sx.
P&A 10-9-68

Plugged - 6500 - 6625 37 sx
6250 - 6350 27 sx.
5425 - 5525 27 sx.
3650 - 3830 55 sx.
2000 - 2100 27 sx.
1550 - 1650 27 sx.
0'- 30'10 sx.

B. #5 Navajo (See Exhibit "D" for schematic)
Operator: Mobil Oil Co.
1840'FSL, 800'FEL. Sec. 9-T26N-R18W
Elevation - 5724' gr. T.D. 6469
8 5/8" @1617'w/730 sx.
5 1/2" @6450'w/275 sx.
Perforated interval 6408' - 6460'

Plugged - Perforated 4 holes @3850', pumped 75 sx.
Class A cement. Left 200' plug in casing from
3850' - 3650'. Cut 5 1/2" casing at 1990'.

50 sx. 1990' - 1890'
45 sx. 1517' - 1617'
15 sx. 20' - surface

VII. Proposed Operations

A. The average daily rate of injection is estimated to be 1500 BWPD. The maximum volume being estimated at 2000 BWPD.

B. The injection system will be open.

C. The estimated average injection pressure is 150 psi. The maximum injection pressure is estimated at 500 psi.

D. The well will be utilized to dispose of produced water from the Navajo Tocito #1 SWNE Sec. 9-T26N-R18W. Water analysis attached (see Exhibit "E"). Compatibility of injection fluid with receiving formation should be positive as injected fluid comes from same formation as receiving formation in offset well.

E. The water from the injection zone should be similar to the water to be injected since they are both from the Pennsylvanian "D".

VIII. Geological Data - Injection Zone

A. Pennsylvanian "D"

1. A paradox member of the Hermosa formation. The top of the Pennsylvanian "A" is at approximately 6354' and extends to approximately 6392'. The lithology is fossiliferous, calcareous boundstone, packstone and grainstone with interbeds of varicolored claystone and silstone and occasional streaks of nodular phosphate.

   The well penetrated the Morrison at approximately 2010' which is a fresh water aquifer in the area.

IX. Stimulation

A. 2,000 gallons of 15% HCl acid.

X. A copy of the well logs is attached.

XI. Water Wells

A. There are no fresh water wells within a one mile radius of the proposed injection well.

XII. All of the available geologic and engineering data have been examined and no evidence of open faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water have been found.

XIII. Proof of Notice (See Exhibit F)

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

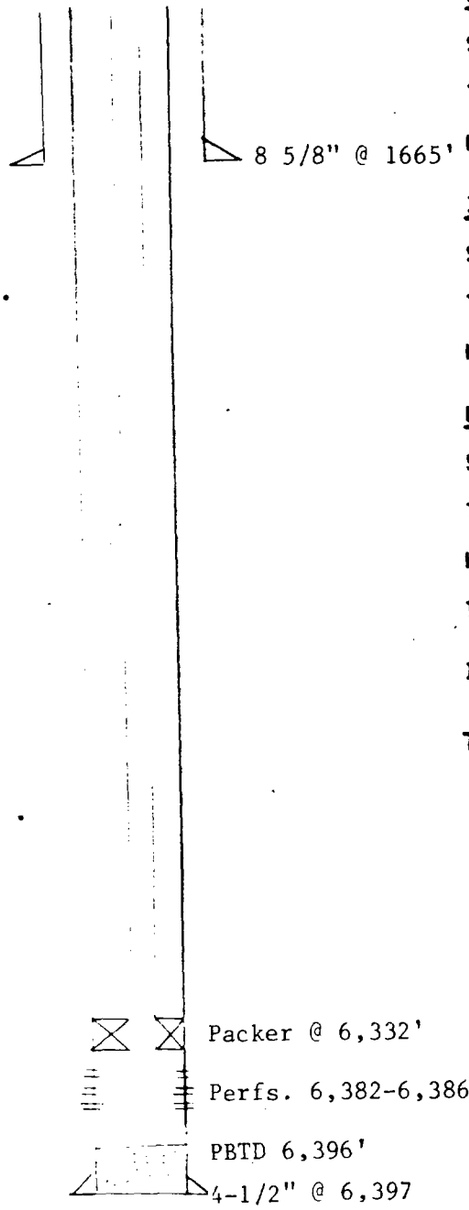
Name: T. Bruce Petitt Title: Division Engineer

Signature: T. Bruce Petitt Date: 2/4/85

INJECTION WELL DATA SHEET - Exhibit "A"

OPERATOR	LEASE			
Reading & Bates Petroleum Co.	Navajo Tocito			
WELL NO.	FOOTAGE LOCATION	SECTION	TOWNSHIP	RANGE
4	1953' FSL, 997'FWL	10	26N	18W

Schematic



Tabular Data

Surface Casing

Size 8 5/8" " Cemented with 480 sx.

TOC Surface feet determined by observation

Hole size 11"

Intermediate Casing

Size _____" Cemented with _____ sx.

TOC _____ feet determined by _____

Hole size _____

Long string

Size 4-1/2 " Cemented with 250 sx.

TOC 5,680 feet determined by temperature log

Hole size 7 7/8"

Total depth TD 6,397' PBTD 6,390'

Injection interval

6,382 feet to 6,386 feet

(perforated ~~or open hole, indicate which~~)

Tubing size 2-3/8" lined with (unlined) (material) set in a

Baker Model 'R-3" double-grip (brand and model) packer at app. 6,332' feet

(or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation Pennsylvanian "D"

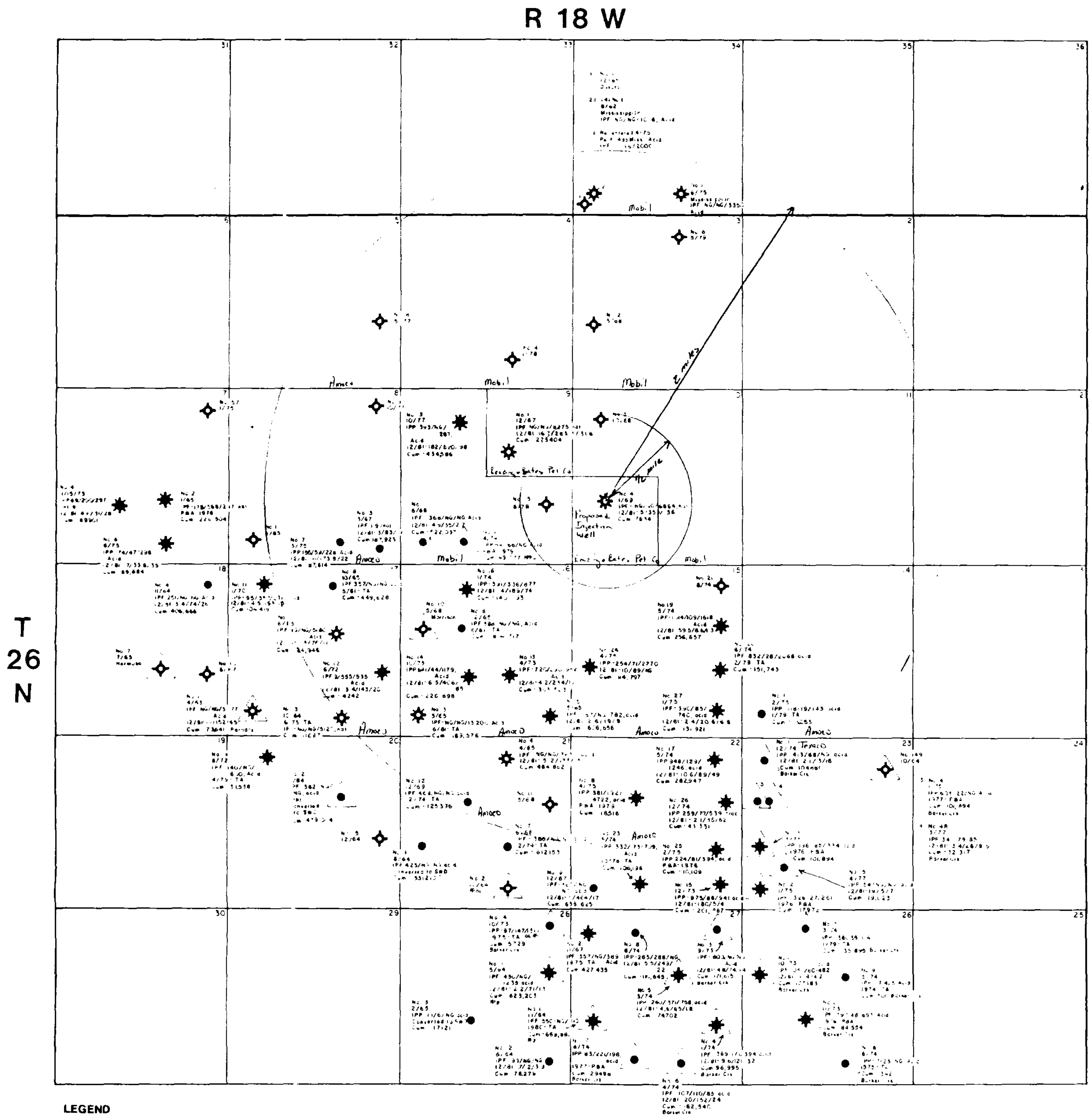
2. Name of Field or Pool (if applicable) Tocito Dome Pennsylvanian "D" Assoc.

3. Is this a new well drilled for injection? / / Yes XX No

   If no, for what purpose was the well originally drilled? gas well

4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug(s) used) no

5. Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area. Pennsylvanian "E", top at 6,392'. No overlying oil or gas zones.



LEGEND

PRODUCTION-BOPD/BWPD/MCFPD

Cum. (1981)-BO

DATE COMPLETED-Month/Year

NG-Not Given

Except Where Noted, The Producing Interval Is The Pennsylvanian.

Other Producing Interval

RB READING & BATES PETROLEUM CO.

TOCITO DOME AREA
San Juan Co., New Mexico

Base to	1"=2000'	Date 11-18-82	
Drawn by:		Approved by: D. Johnson	

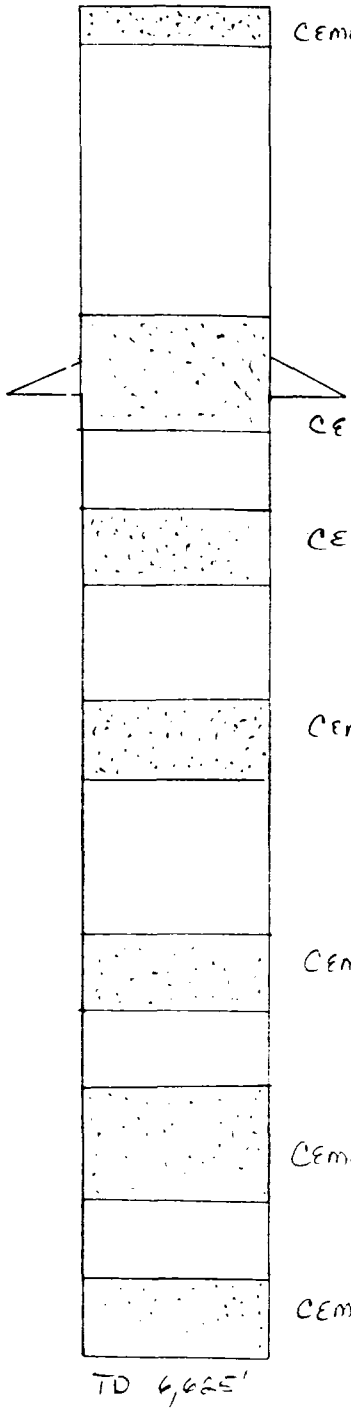
EXHIBIT "C"

WELL SCHEMATIC

AIRCO NAVAJO TOCITO #3

900' FNL, 900' FEL SEC. 10, T26N, R18W

CONDITION AFTER P&A



CEMENT PLUG 0-30' (10 SX.)

11" SURFACE CASING @ 1,616', CMT'D. W/ 480 SX

CEMENT PLUG 1,550-1,650' (27 SX.)

CEMENT PLUG 2,000-2,100' (27 SX.)

CEMENT PLUG 3,650-3,830' (55 SX.)

CEMENT PLUG 5,425-5,525' (27 SX.)

CEMENT PLUG 6,230-6,350' (24 SX.)

CEMENT PLUG 6,500-6,625' (37 SX.)

TD 6,625'

EXHIBIT "D"

WELL SCHEMATIC

MOBIL NAVAJO #5

1,240' FSL, 800' FEL, Sec. 9, T26N, R18W

CONDITIONS AFTER P+A

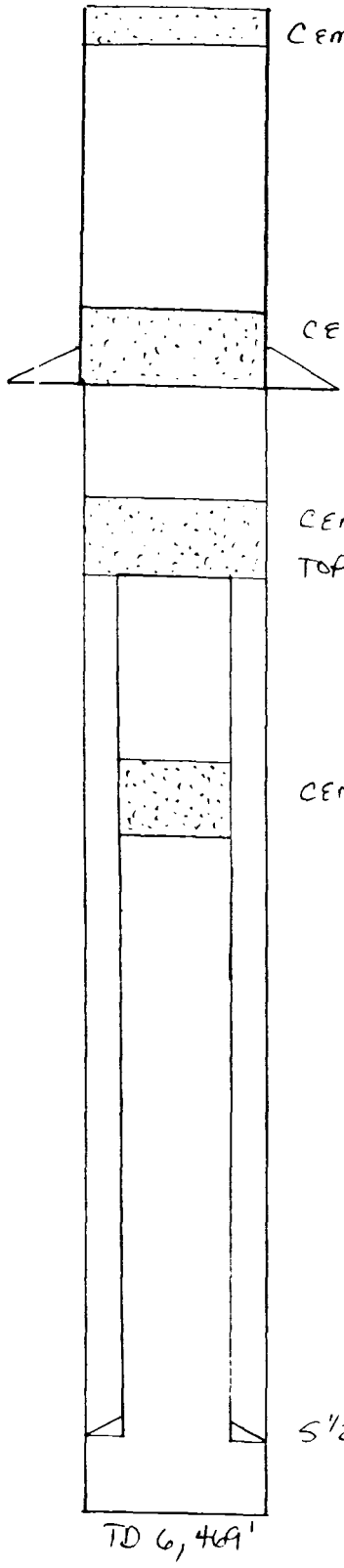


EXHIBIT "E"

UNICHEM INTERNATIONAL

601 NORTH LEECH P.O.BOX1499

HOBBS, NEW MEXICO 88240

COMPANY : READING AND BATES PETROLEUM
DATE : 10-26-84
FIELD,LEASE&WELL : NAVAJO TOCITO #1
SAMPLING POINT: WELLHEAD
DATE SAMPLED : 10-25-84

SPECIFIC GRAVITY = 1.072
TOTAL DISSOLVED SOLIDS = 108422
PH = 6.09

		ME/L	MG/L
CATIONS			
CALCIUM	(CA)+2	560	11222.
MAGNESIUM	(MG)+2	30	364.
SODIUM	(NA).CALC.	1319.	30339.
ANIONS			
BICARBONATE	(HCO3)-1	2.4	146.
CARBONATE	(CO3)-2	0	0
HYDROXIDE	(OH)-1	0	0
SULFATE	(SO4)-2	7.2	350
CHLORIDES	(CL)-1	1900	66000
DISSOLVED CASES			
CARBON DIOXIDE	(CO2)	NOT RUN	
HYDROGEN SULFIDE	(H2S)	NOT RUN	
OXYGEN	(O2)	NOT RUN	
IRON(TOTAL)	(FE)		81.2
BARIUM	(BA)+2		0.7
MANGANESE	(MN)	NOT RUN	

IONIC STRENGTH (MOLAL) =2.357

SCALING INDEX	TEMP 30C 86F	48.8C 120F
CARBONATE INDEX	-.28	.142
CALCIUM CARBONATE SCALING	UNLIKELY	LIKELY
CALCIUM SULFATE INDEX	-12.	-13
CALCIUM SULFATE SCALING	UNLIKELY	UNLIKELY

Exhibit "F"

XIV. Proof of Notice

Copies of the application were sent by certified mail to the offset operators, Mobil Oil Corp. and Amoco, and to the surface owner, The Navajo Nation.

A waiver was received from Amoco (copy attached) and copies of the return receipts from Mobil and The Navajo Nation are attached.

Proof of publication of a legal advertisement containing the required information is attached.

J. C. Burnside
Division Production Manager

Amoco Production Company

Western Division
1670 Broadway
Post Office Box 800
Denver, Colorado 80201
303-830-4040

October 25, 1984

Reading and Bates Petroleum Company
Northwest Division
Denver National Bank Building
1125 Seventeenth Street, Suite No. 2300
Denver, Colorado 80202

File: JTM-508-WF

Navajo Tocito No. 4
SW/4 Section 10-T26N-R18W
San Juan County, New Mexico
Application for Authorization to Inject Water

Amoco Production Company has no objection to Reading and Bates disposing produced water into the Navajo Tocito No. 4. This letter serves as our waiver of objection of the proposed disposal well and can be used by Reading and Bates for administrative purposes while seeking disposal approval.

If you have any questions regarding this matter, please contact Tim Clawson at our Western Division Office on (303) 830-5631.

John C. Burnside

TDC/pjg

PS Form 3811, Jan. 1979

RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

SENDER: Complete items 1, 2, and 3.
Add your address in the "RETURN TO" space on reverse.

1. The following service is requested (check one.)
- [x] Show to whom and date delivered.....¢
- [ ] Show to whom, date and address of delivery.....¢
- [ ] RESTRICTED DELIVERY
  Show to whom and date delivered.....¢
- [ ] RESTRICTED DELIVERY.
  Show to whom, date, and address of delivery.$____

(CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:
Mobile Oil Corp.
P. O. Box 5444
Denver, CO 80217

3. ARTICLE DESCRIPTION:

REGISTERED NO.	CERTIFIED NO.	INSURED NO.
	114256	

(Always obtain signature of addressee or agent)

I have received the article described above.
SIGNATURE ☐Addressee ☐Authorized agent
E Johnson

4. DATE OF DELIVERY | POSTMARK

5. ADDRESS (Complete only if requested)

6. UNABLE TO DELIVER BECAUSE: | CLERK'S INITIALS

☆GPO : 1979-300-459

PS Form 3811, Jan. 1979

RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

SENDER: Complete items 1, 2, and 3.
Add your address in the "RETURN TO" space on reverse.

1. The following service is requested (check one.)
- [x] Show to whom and date delivered.....¢
- [ ] Show to whom, date and address of delivery.....¢
- [ ] RESTRICTED DELIVERY
  Show to whom and date delivered.....¢
- [ ] RESTRICTED DELIVERY.
  Show to whom, date, and address of delivery.$____

(CONSULT POSTMASTER FOR FEES)

2. ARTICLE ADDRESSED TO:
The Navajo Nation
P. O. Box 146
Window Rock, AZ 86515

3. ARTICLE DESCRIPTION:

REGISTERED NO.	CERTIFIED NO.	INSURED NO.
	114257	

(Always obtain signature of addressee or agent)

I have received the article described above.
SIGNATURE ☐Addressee ☐Authorized agent
Ruby Mitchell

4. DATE OF DELIVERY: 2-7-85 | POSTMARK: FEB 1985

5. ADDRESS (Complete only if requested)

6. UNABLE TO DELIVER BECAUSE: | CLERK'S INITIALS

☆GPO : 1979-300-459

AFFIDAVIT OF PUBLICATION

No. 16491

STATE OF NEW MEXICO,
County of San Juan:

~~Margaret Billingsley~~ being duly sworn, says: That he is the Sec. to the Publisher of THE FARMINGTON DAILY TIMES, a daily newspaper of general circulation published in English at Farmington, said county and state, and that the hereto attached Legal Notice

was published in a regular and entire issue of the said FARMINGTON DAILY TIMES, a daily newspaper duly qualified for the purpose within the meaning of Chapter 167 of the 1937 Session Laws of the State of New Mexico for 1 consecutive (days) ~~XXXX~~ on the same day as follows:

First Publication Feb. 9, 1985

Second Publication

Third Publication

Fourth Publication

and that payment therefor in the amount of $ 11.48

has been made.

Margaret Billingsley

Subscribed and sworn to before me this 12th day of Feb., 1985.

Virginia L Dearth

NOTARY PUBLIC, SAN JUAN COUNTY, NEW MEXICO

My Commission expires:

OFFICIAL SEAL
VIRGINIA L. DEARTH
NOTARY PUBLIC - NEW MEXICO
Notary Bond Filed with Secretary of State
My Commission Expires: Jan 6 89

Copy of Publication

NOTICE

Reading and Bates Petroleum Co. has filed an application with the State of New Mexico Oil Conservation Division to convert an existing wellbore to an injection well for the purpose of the disposal of salt water. The proposed injection well is the Navajo Tocito No. 4 located 1963' FSL, 977' FWL Section 10 - Township 26 North - Range 18 West; San Juan County, NM. The proposed injection zone is the Pennsylvania "D" at a depth of 6,382-6,392' KB. The maximum injection rate is estimated at 2000 barrels of water per day with the maximum injection pressure estimated at 500 psi.

All interested parties must file objections or requests for hearing with the Oil Conservation Division, PO Box 2088, Santa Fe, NM 87501 within 15 days.

The applicant may be contacted at the following address:

Reading & Bates Petroleum Co. 1125 - 17th St., Suite 2300 Denver, CO 80202 Phone: 303-295-1447 Attention: T. Bruce Petitt

Legal No. 16491 published in the Farmington Daily Times, Farmington, New Mexico on Saturday, February 9, 1985.

RECEIVED
FEB 19 1985
READING & BATES PETROLEUM CO. NW DIVISION

KBS
BP

THE NAVAJO NATION

WINDOW ROCK, NAVAJO NATION (ARIZONA) 86515

PETER MacDONALD
CHAIRMAN, NAVAJO TRIBAL COUNCIL

EDWARD T. BEGAY
VICE CHAIRMAN, NAVAJO TRIBAL COUNCIL

February 11, 1985

Mr. T Bruce Petitt, Division ~~Manager~~ Engineer
Reading and Bates Petroleum Co.
Northwest Division
Denver National Bank Bldg.
1125 Seventeenth St., Suite 2300
Denver, Colorado 80202

Dear Mr. Petitt:

Attached is an interim Water Use Permit No, 85-02 for injection of salt water into Well #4, the Pennsylvanian "D" horizon. Permission is granted subject to the conditions stated on back of permit and subject to the following conditions:

1. Reading and Bates Petroleum Co, shall be liable for any loss, contamination, or degradation of tribal water resources caused by the company's salt water disposal activities;

2. Shall indemnify and hold harmless the Navajo Nation and its members against any liability for damages or losses arising from the use of the land and disposal well by the company, its employees, contractors and their employees or subcontractors and their employees;

3. Shall abide by all applicable laws and regulations of the Navajo Nation;

4. The term of this permit is limited by the cessation of commercial production of hydrocarbons from Navajo Tocito #1 Well or expiration of the lease, or termination of the salt water disposal operation due to non-compliance with regulations, whichever occurs first.

Should you have any questions please contact the Division of Water Resources. The telephone number is (602) 729-5281 or 5282.

Sincerely,

Masud Uz Zaman, Director
Water Management Department

C O N C U R R A N C E:

Peter Derwood Jr., Executive Director
Division of Water Resources

NAVAJO TRIBE
DIVISION OF WATER RESOURCES
DEPARTMENT OF WATER MANAGEMENT

WUP NO. 85-02

VALID FROM 2 / 10 / 85 to indefinite

WATER USE PERMIT [redacted]

THIS IS AN INTERIM PERMIT UNTIL SUCH TIME WHEN EITHER FEDERAL UIC OF TRIBAL UIC GUIDELINES ARE IN FORCE.

REFERENCE: PLEASE READ WATER USE PERMIT APPLICATION INFORMATION SHEET BEFORE COMPLETING THIS APPLICATION.

APPLICANT(CLAIMANT): Reading and Bates Petroleum Company

MAILING ADDRESS : Denver National Bank Bldg. 1125 Seventeenth St. Suite 2300

Denver, Colo. 80202

PHONE NO : (303) 295-1447 CONTACT PERSON Mr. Bruce Petitt

CHAPTER Sanostee GRAZING DISTRICT 12 STATE New Mex COUNTY San Juan

1,963' FSL and 997'FWL
NE SE SW NW / NE SE SW NW / NE SE SW NW / 10 /T 26 N. / R 18 W.
10 acre tract/ 40 acre tract/160 acre tract/section/ township / range

UTM COORDINATES: X(east) _____ Y(north) _____ ZONE _____

WATERSHED NAME _____ HYDROLOGIC UNIT CODE _____

(attach 8 1/2 x 11 map showing water source location)

LAND STATUS: ( )TRUST ( )FEE ( )LEASE ( )ALLOTMENT ( )OTHER _____

WATER SOURCE
NAME OR DESCRIPTION: Navajo Tocito #1 well, Penn. "D" horizon
(tribal well no, spring, reservoir name, river, lake, pond, wash, impoundment name)

WATER USE: ( )MUNICIPAL ( )DOMESTIC ( )AGRICULTURE/LIVESTOCK ( )RECREATIONAL
(XX)INDUSTRIAL/MINING ( )OTHER Salt water injected into Well #4 ,Penn."D" horizon.

NUMBER/LIVESTOCK N/A NUMBER/LIVESTOCK _____ NUMBER/LIVESTOCK N/A
TYPE/LIVESTOCK _____ TYPE/LIVESTOCK _____ TYPE/LIVESTOCK _____

NUMBER/ACRES _____ NUMBER/ACRES _____ NUMBER/ACRES _____ NUMBER/PEOPLE N/A
CROP _____ CROP _____ CROP _____ NUMBER/HOMES N/A

IF INDUSTRIAL OR MINING-PLEASE ATTACH PLAN OF WATER USAGE

MAXIMUM USAGE: 2000 barrels (42 gal. barrel) per day MAXIMUM TIME: Indefinite

RATE OF USE: 2,000 barrels per day PER YEAR DATE WATER USAGE BEGAN 2 /15/85
( )gallons or ( )acre-feet

METHOD OF WATER DELIVERY: Injection under max. pressure not to exceed 500 psi.
(well, ditch, waterline, pump, dam, charco, truck, etc.)

PWSID NO. N/A

PLAN FOR FUTURE DEVELOPMENT OF WATER USE OR USES See file folder

RETURN FLOW OR DISCHARGE

AMT OF WATER : None METHOD : None

TREATMENT OF : N QUALITY: N/A

TEMPERATURE : N/A NPDES PERMIT NUMBER : N/A

APPLICANT AGREES, AS A CONDITION FOR THE PERMIT, TO ALLOW REASONABLE ENTRY UPON THEIR PREMISES BY NAVAJO TRIBAL EMPLOYEES ENGAGED IN THE ADMINISTRATION OF THIS PERMIT.

APPLICANTS SIGNATURE See file folder DATE__/__/__

****

APPLICATION RECEIVED: / / APPLICATION COMPLETE: / / INITIAL_____

$25.00 FILING FEE RECEIVED / /

****

CONDITIONS

This permit is limited to disposal of water produced from Navajo Tocito #1 well into Well #4.

1. The operator shall monitor the injection pressure, flow rate, and cumulative volume of each injection well with the following frequencies:
(a) weekly for produced fluid disposal operations;
(b) daily during injection for withdrawal of stored hydrocarbons; and report the results quarterly to the Division fo Water Resources, The Navajo Tribe.
2. The operator is to notify the Div. of Water Res. upon permanent termination of injection. Operator must give reasons for termination of said injection within 30 days.
3. Mechanical failure or downhole problems which indicate the injected fluid is not being directed into the authorized injection zone may be cause to shut-in the well. If said condition may endanger the underground drinking watersupply, the operator shall orally notify this Division within 24 hours.
4. This permit cannot be transferred.
5. The operator is responsible for the protection of aquifers containing ground-water having 10,000 mg/l. or less TDS from contamination.
6. The operator shall not inject more than 2,000 barrels of water per day and shall not exceed injection pressure of 500 psi.
7. This is an interim permit until such time when either Federal UIC or Tribal UIC guidelines are in force.

****

RECOMMENDATION: (X)YES ( )NO _____ DATE 2/11/85
DIRECTOR/DEPARTMENT OF WATER MANAGEMENT

APPROVED BY: _____ DATE 2/11/85
EXECUTIVE DIRECTOR/DIVISION OF WATER RESOURCES

****

REV:840824 DISC:WUPS DOC:wup

*SEE ATTACHED LETTER FOR ADDITIONAL CONDITIONS.

bh wf
xc: bh

READING & BATES PETROLEUM CO.

Northwest Division
Denver National Bank Building
1125 Seventeenth Street, Suite #2300
Denver, Colorado 80202
303 295-1447

October 12, 1984

RECEIVED
OCT 15 1984
BUREAU OF LAND MANAGEMENT
FARMINGTON RESOURCE AREA

Case 5330

Mr. John Keller
Bureau of Land Management
Caller Service 4104
Farmington, NM 87499

Re: Application for Subsurface Injection Approval
Navajo Tocito #4
NW SW ~~SW NE~~ of Section 9, T26N, R18W
San Juan County, New Mexico

Dear Mr. Keller:

Reading & Bates Petroleum Co. requests approval to dispose of produced water by subsurface injection into the above-referenced well. Attached is all information required as per NTL-2B.

Should you need further information, please advise.

Sincerely,

READING & BATES PETROLEUM CO.

J. Bruce Petitt

T. Bruce Petitt
Division Engineer

TBP:jb
Attachment

cc: R. B. Shindhelm

RECEIVED
[illegible] 1985
OIL CONSERVATION DIVISION
SANTA FE

APPROVED
[illegible] 1984
M. MILLENBACH
AREA MANAGER

OPERATOR

Request for Approval for Subsurface Water Injection

1. a) Name and number of proposed disposal well:
   Navajo Tocito #4

   b) Distance and direction from survey lines:
   1,963' FSL, 977' FWL of Section 10-T26N-R18W

   c) Oil and Gas Lease Number: 14-20-603-5019

2. a) Daily quantity of produced water: average 1,5000 BWPD; maximum 2,000 BWPD

   b) Source of produced water: Navajo Tocito #1, SW NE of Section 9-T26N-R18W, Pennsylvanian "E" zone, perforations 6,322-6,328'.

   c) Produced water analysis

Total dissolved solids:	135,564 mg./l.
pH:	6.2
Chlorides concentration:	86,052 mg./l.
Sulfates concentration:	200 mg./l.

3. a) Injection formation: Pennsylvanian "D"

   b) Injection interval: 6,382-6,386'

4. a) Quality of fluids in injection interval:
   Total dissolved solids: 91,650 mg./l.
   The produced water from the Penn. "D" formation in the Navajo Tocito #1 will be injected into the Penn. "D" formation in the Navajo Tocito #4.

5. Depth and areal extent of all usable aquifers in area:
   There are no fresh water wells within at least a one mile radius of the proposed injection well.

6. Casing

   a) Surface - 8-5/8", 24 #/ft., J-55, set at 1,665' and cemented with 290 sx. Class "A" and 4% gel and 190 sx. Pozmix "A" and 2% $CaCl_2$. Hole size 11". TOC at surface.

   b) Production - 4-1/2", 9.5 and 10.5#/ft., J-55, set at 6,397' and cemented with 250 sx. Class "C" and 7# salt/sx. and 12-1/2# gilsomite/sx. Hole size 7 7/8". TOC 5,680'.

7. Total depth: 6,397'
   Plug back total depth: 6,390'

8. Proposed method of completion for injection:

   a) Type and size of tubing - 2 3/8", 4.7#, J-55, 8 round EUE.

   b) Type and size of packer - Baker Model "R-3" double-grip, size 43A; I.D. 1.5"; O.D. 3.62".

   c) Packer setting depth - approximately 6,332'

   d) Anticipated injection pressure - The estimated average injection pressure is 150 psi. The maximum injection pressure will be 500 psi.

   e) Packer fluid - The tubing-casing annulus will be filled with water treated with a combination corrosion inhibitor/biocide.

9. The tubing-casing annulus pressure will be monitored to assure that injection is confined to the injection interval. The injection system is designed to shut down the disposal system if the system pressure exceeds 500 psi and will shut down the producing well if a high water tank level is detected. Faults in the injection pump, such as high temperature, vibration, or low oil level, will also shut down the disposal system.