STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION
POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501

FORM C-108
Revised 7-1-81

APPLICATION FOR AUTHORIZATION TO INJECT

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

II. Operator: Phillips Petroleum Company

Address: Room 400, 4001 Penbrook St., Odessa, Texas 79762

Contact party: Larry Sanders Phone: (915) 368-1488

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: L. M. Sanders Title Supv. Regulation & Proration

Signature: L. M. Sanders Date: Nov. 16, 1990

* 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. _____

DISTRIBUTION: Original and one copy to Santa Fe with one copy to the appropriate Division 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 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.

ATTACHMENT
SALT WATER DISPOSAL APPLICATION
SAN JUAN 29-6 UNIT
WELL NO. 301

III. Well Data

A. (1) San Juan 29-6 Unit Well No. 301, Section 2, T-29-N, R-6-W, 350' FSL and 350' FEL, Rio Arriba County, New Mexico.

(2) See Salt Water Disposal Well Casing Design - Attachment No. 1

(3) 3-1/2", 9.30 #/ft, 8rd, N-80, Baker Plastic Coat 571, internal coated tubing, set at 8,075'.

(4) Baker Model "DB" permanent packer with seal assembly and anchor latch set at 8,045'.

B. (1) Injection Formations:

(a)	Morrison	Top - 7970'	Bottom 8480'
(b)	Bluff	Top - 8480'	Bottom 8730'
(c)	Entrado	Top - 8790'	Bottom 9040'
(d)	~~Chinle~~	Top - 9040'	Bottom 9100'

Field: Undesignated

(2) The perforated interval:
8171' - 8436'
8474' - 8600'
8818' - 9024'

(3) Drilled for salt water disposal purposes only.

(4) None

(5) Dakota Sandstone - 7762'-7896' - higher
none - lower

(6) Next higher zone, Dakota Sandstone (7762'-7896')
Next lower zone - None

VI. Wells Within the Area of Review
29-6 #301 SWD

The subject well is the only well to penetrate the proposed receiving formations. The closest well to penetrate the proposed receiving formations is the San Juan 29-5 Unit #50 (1750 FSL X 1750 FEL, Sec. 7 - 29N - 5W), drilled to a TD 14,423 in the Precambrian, and completed (8/15/1961) as a dry hole. It was plugged and abandoned at that time in accordance with State and Federal regulations. The next closest well to penetrate the proposed receiving formations is the San Juan 30-6 Unit #112Y (1120 FNL X 870 FEL, Sec. 26 - 30N - 6W), drilled to a TD 14,030 in the Precambrian, originally completed (6/30/85) as a dry hole, and subsequently recompleted in the Morrison and Entrada Formations as a saltwater disposal well.

The following is a list of <u>all</u> of the wells within the area of review of the subject well. <u>None</u> of the listed wells penetrate the proposed injection-receiving formations.

29-6 #8 — 990 FSL X 990 FWL Sec 1 - 29N - 6W, TD 5880' in Pt. Lookout Sandstone, 3/31/1954, completed 5225-5880 OH in Mesa Verde Group, plugged and abandoned, 2/7/1963.

29-6 #8Y — 1460 FSL X 800 FWL Sec 1 - 29N - 6W, TD 5969 in Pt. Lookout Sandstone, 11/22/71, completed pf 5242-5886 OA in Mesa Verde Group.

29-6 #238 — 1561 FSL & 1029 FWL Sec 1 - 29N - 6W, proposed Fruitland Coal well.

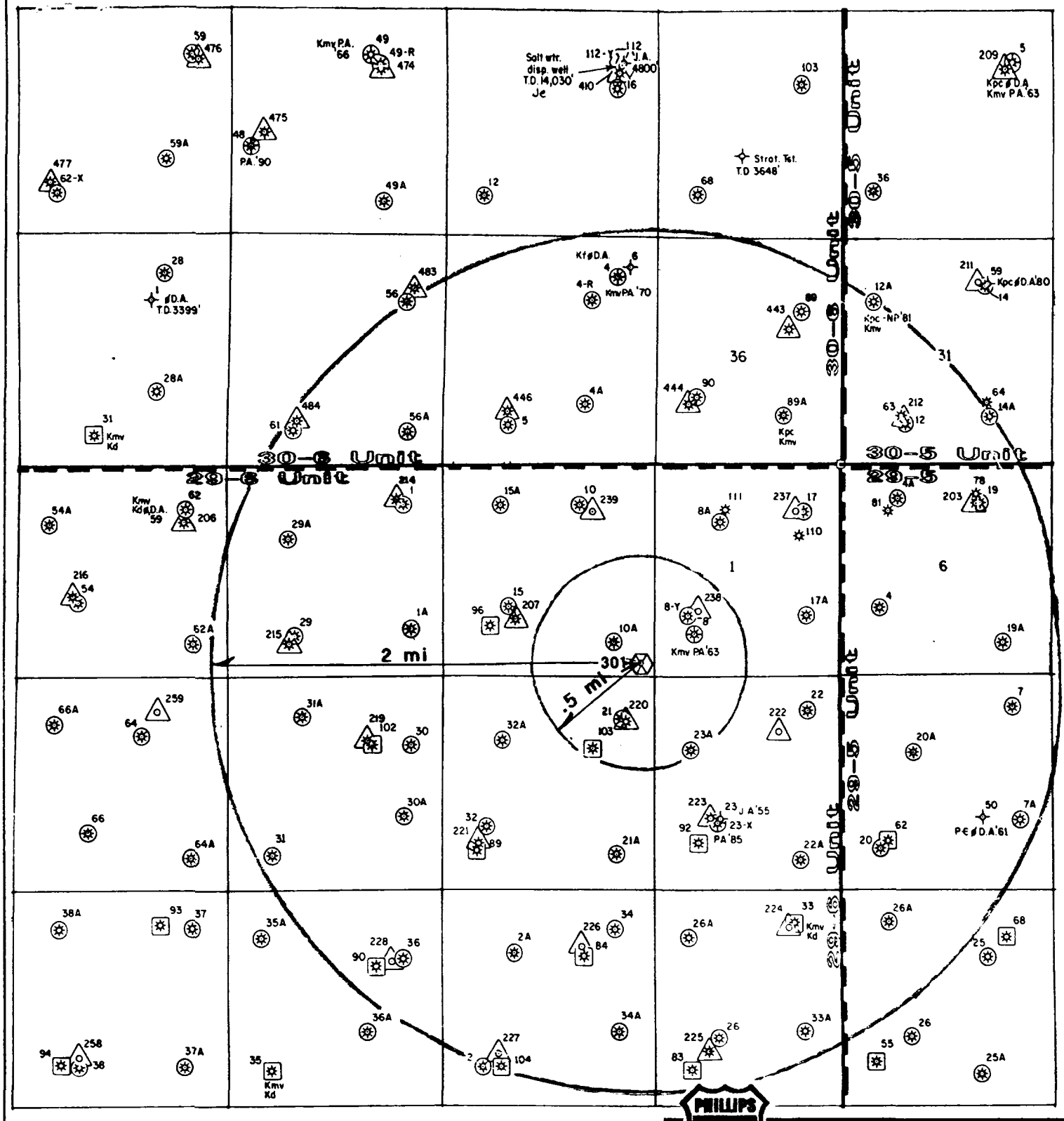
29-6 #10A — 810 FWL X 1010 FEL Sec 2 - 29N - 6W, TD 5881 in Pt. Lookout Sandstone, 10/27/75, completed pf 5252-5828 OA in Mesa Verde Group.

29-6 #21 — 990 FNL X 840 FEl Sec 11 - 29N - 6W, TD 5812 in Mancos Shale, 8/15/1955, completed pf 5302-5812 OA in Mesa Verde Group.

29-6 #103 — 1755 FNL X 1550 FEL Sec 11 - 29N - 6W, TD 8178 in Dakota Sandstone, 4/23/1971, completed pf 8030-8130 OA in Dakota Sandstone.

29-6 #220 — 1081 FNL X 797 FEL SEc 11 - 29N - 6W, TD 3393 in Fruitland Formation, 6/16/1990, completed 3210-3393 OH in Fruitland Coal.

29-6 #23A — 1790 FNL X 885 FWL Sec 12 - 29N - 6W, TD 5790 in Pt. Lookout Sandstone, 8/30/1977, completed pf 5294-5720 OA in Mesa Verde Group.



PRODUCING INTERVAL

FRUITLAND	Kf	GALLUP	Kgl		
PICTURED CLIFFS	Kpc	DAKOTA	Kd		
CHACRA	Kc	ALL PRODUCTION BELOW CRETACEOUS		Je	- ENTRADA
LA VENTANA	Klv			Pp	- PARADOX
MESAVERDE	Kmv			Pbc	- BARKER CREEK
				Ml	- LEADVILLE

PHILLIPS 66

PHILLIPS PETROLEUM COMPANY

Area of Review
San Juan 29-6 #301
Proposed Saltwater Disposal Well

INTERPRETATION:	DATE:	DRAFTING:	FILE NO.:
T R Moore	8/90	trm	

VII. (1) Average daily rate 3,000 barrels of water per day. Maximum daily rate 5,000 barrels of water per day.

(2) Closed system.

(3) Average injection pressure 1800 psi.
Maximum injection pressure 2700 psi.

(4) Reinjection of Fruitland Coalseam produced water. Produced water may come from the San Juan 29-5 Unit and the San Juan 30-5 Unit. All produced water from the San Juan 29-6 Unit will come to the proposed well.

(5) The Morrison, Bluff and Entrada Sandstones are not productive of hydrocarbons within the prescribed one-mile radius. Water analyses of these formation waters are not available in the immediate vicinity. The following table gives total dissolved solids (TDS) determinations on several wells which have penetrated the proposed receiving formations.

Well Name & No.	Location	Date Tested	TDS
MORRISON:			
Jicarilla 123 C #29	NW 5-25-4	10-29-82	24,834
Hubbell #5E	NW 19-29-10	5-29-81	19,442
Huerfano Unit #270	SW 7-26-10	7-25-80	13,474
BLUFF AND/OR ENTRADA:			
Filon #21-1 Federal	SW 21-20-5	8-20-76	10,726
Dome #20-1 Santa Fe	NE 20-21-8	2-10-77	11,114

The wireline log data from the 29-6 #301 well suggests that the interstitial waters of the proposed receiving formations are similarly saline. Attempts to collect formation water samples from the proposed receiving formations utilizing a wireline repeat formation tester were unsuccessful. Data presented by Stone, et al (1983) would also suggest that the waters in the proposed receiving formations in the deeper portions of the San Juan Basin are saline.

VIII. The proposed salt water receiving formations in the San Juan 29-6 #301 well are the sandstones and sandy siltstones of the Morrison Formation, the Sandstones of the Bluff Sandstone, and the sandstones and sandy siltstones of the Entrada Sandstone. All three of these formations are Late Jurassic age.

The Morrison Formation was encountered in the 29-6 #301 well from 7970 ft to 8562 ft. The sandstones and sandy siltstones suitable for saltwater disposal occur below 8170 ft. They may be generally described as being light brown to reddish brown to white, medium-to very fine grained, moderately well - to poorly sorted, silty, calcareous in part, firm to hard, and occasionally friable. The associated siltstones are predominantly reddish brown to tan, slightly sandy, slightly calcareous, firm to hard and commonly produce platy fragments. As indicated by wireline logs, the porosity of the proposed receiving sandstones and sandy siltstones of the Morrison range in porosity from 2 - 14%. Overall formation porosity, permeability and transmissivity are enhanced by natural fracturing.

The Bluff Sandstone is comprised of white to pink, medium - to very fine grained, moderately well sorted, calcareous, occasionally cherty and silty sandstones with some interbedded siltstones and shales. it was encountered in the 29-6 #301 between 8562 ft and 8662 ft. The porosity of the proposed receiving zones of the Bluff, as indicated by wireline logs, ranges from 4 to 10%. Naturally occurring fractures will augment the formation porosity, permeability and transmissivity of this unit.

The third proposed water-receiving zone, the Entrada Sandstone, was encountered between 8818 ft and 9024 ft in the subject well. It is comprised predominantly of white and pink, fine - to very fine grained sandstones which are commonly moderately well - to poorly sorted, silty, slightly calcareous, quartzose and hard. Interbedded within the formation are reddish brown, sandy, slightly argillaceous, slightly calcareous siltstones. The wireline log porosity of the sandstones and siltstones of the Entrada ranges from 1 to 5%. The permeability and transmissivity of the unit are supplemented by natural fracturing.

The following table summarizes the critical points of the proposed receiving formations:

		Thickness		
Formation	Depth (Top-Base)	Gross	Net	Avg. Porosity
Morrison	7970-8562 ft	592 ft	223 ft	4.5%
Bluff	8562-8662	100	92	4.2%
Entrada	8818-9024	206	206	3.7%

Potential freshwater aquifers overlying the proposed injection zone at this location are at depths less than 2682 ft. These include the porous and permeable sandstones occurring in the San Jose, Naciemento and Ojo Alamo Formations. The waters of these formations in this portion of the San Juan Basin, as indicated by data cited by Stone, et al (1983), may be characterized as follows:

Formation	Depth Range	Est. TDS*	Comments
San Jose	0-1406 ft	1160 ppm	Dramatic variations in quality locally.
Naciemento	1406-2466	1950 ppm	Limited quantities and highly variable quality.
Ojo Alamo	2466-2682	3540 ppm	Slightly saline, quality variable.

*TDS represents an average of data available in the central basin area, calculated from published specific conductance values using the general formula TDS (ppm) = 0.7 specific conductance (micromhos). No water samples are available from within one mile of the proposed disposal well.

IX. A. The Entrada and Chinle (8790-9100) will be stimulated with 900,000 lbs of 20/40 sand at approximately 300 BPM with a maximum surface pressure 6,000 psi. The fluid will be a borate crosslink system. The casing will be perforated with 4 SPF with an acid breakdown.

X. All available wireline logs on the 29-6 #301 well have previously been submitted to the Oil Conservation Division.

XI. There are no freshwater wells available for sampling within one mile of the proposed disposal well.

XII. **STATEMENT**

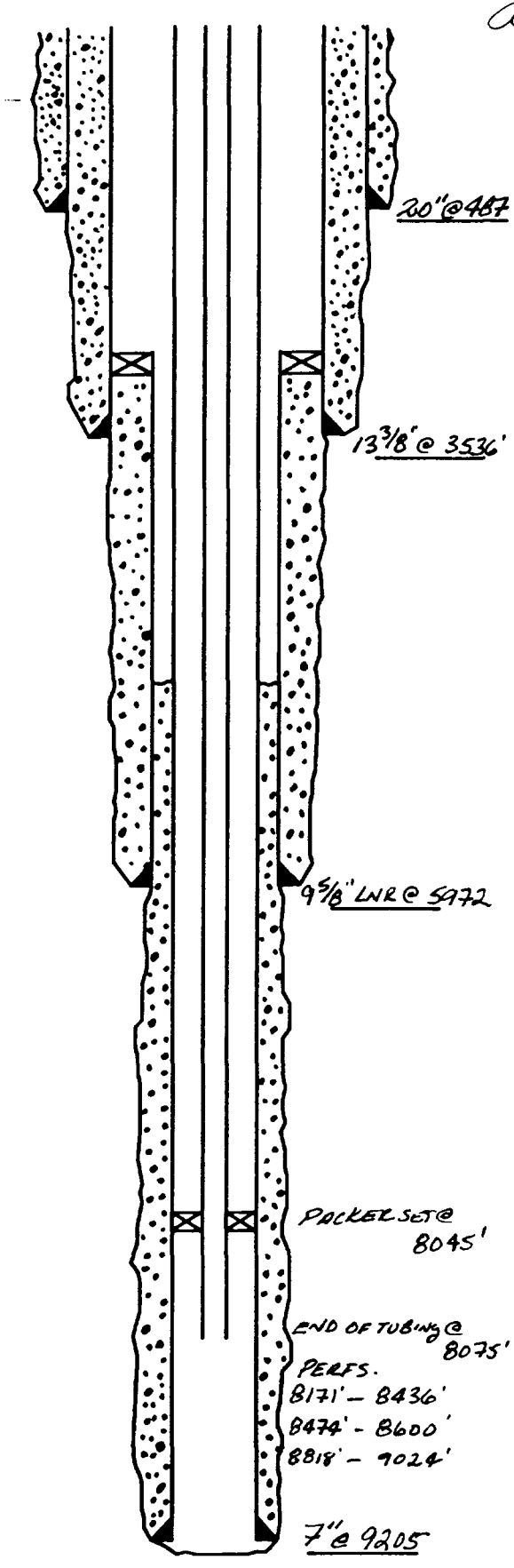
Phillips Engineers and Geologists have examined available geologic and engineering data and can find no evidence of or reason to believe of any hydrologic connection between the proposed disposal zone and any underground potable water source.

LMS:lsw
regpro/lsand/swd

Phillips Petroleum Company
Farmington Area

Salt Water Disposal Well
Casing Design

Attachment No. 1



Casing/Tubulars Program

	Size (in)	Grade	Setting Depth (ft)
Conductor	20" 94#/Ft	H-40 ST&C	487'
Surface	13 3/8" 68#/Ft 13 3/8" 72#/Ft	L-80 BUTT L-80 BUTT	2536' 3536'
Intermediate Liner	9 5/8" 40#/Ft	S-95 LT&C	Top 3333' Bottom 5972
Production	7" 26#/Ft 7" 26#/Ft	N-80 LT&C S-95 LT&C	6782.89 9205.00
Tubing	3 1/2" 9.30#/Ft	8RD N-80	8075'

Cement Program

	Lead	Tail	Comments
Conductor	805 SKS CL "B" @ 15.6 PPG 1.18 CF/SK	100 SKS CL'B' W/ 3% CaCl2 @ 15.6 PPG 1.18 CF/SK	CIRC. 115 SKS CMT TO SURFACE
Surface	2077 SKS CL "B" @ 12.6 PPG 1.87 CF/SK	700 SKS CL "B" W/ 2% CaCl2 @ 15.6 PPG 1.18 CF/SK	TWO-STAGE CMT JOB. CIRC 600 SKS CMT TO SURFACE
Intermediate	940 SKS 50/50 POZ CMT W/ 2% Gel @ 13.6 PPG 1.26 CF/SK	100 SKS CL "B" W/ 0.8% HALAD 9 @ 15.6 PPG 1.18 CF/SK	CIRC CEMENT TO TOP OF LINER
Production	1525 SKS CL "H" @ 16.0 PPG 1.52 CF/SK	NONE	GOOD CIRC DURING CEMENT JOB

AFFIDAVIT OF PUBLICATION

No. 26771

STATE OF NEW MEXICO,
County of San Juan:

~~BETTY SHIPP~~ being duly sworn, says: "That she is the NATIONAL AD MANAGER of The Farmington Daily Times, a daily newspaper of general circulation published in English in 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 one consecutive (days) (weeks) on the same day as follows:

First Publication THURSDAY, NOVEMBER 1, 1990

Second Publication

Third Publication

Fourth Publication

and that payment therefore in the amount of $ 14.84 has been made.

Subscribed and sworn to before me this 1ST day of NOVEMBER, 1990.

Notary Public, San Juan County, New Mexico

My Comm expires: July 5, 1994

COPY OF PUBLICATI

LEGAL NOTICE

Notice is hereby given of the application of Phillips Petroleum Company.

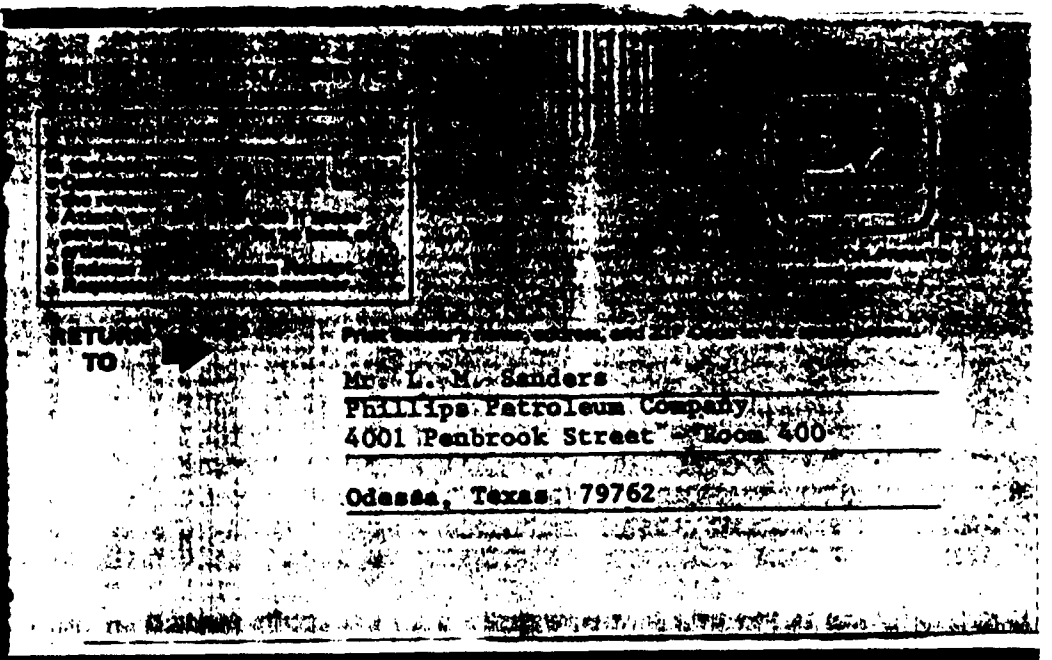
Attention: K. Am, Manager, Permian Basin Region, 4001 Penbrook St., Odessa, Texas 79762, telephone (915) 368-1488, to the Oil Conservation Division, New Mexico Energy and Minerals Department, for approval of the following well for the purpose of salt water disposal.

Well No. 301
Unit Name: San Juan 29-6 Unit
Location: Section 2, T-29-N, R-6-W, Rio Arriba County, New Mexico

The disposal formation is Morrison, Bluff, Entrada, and Chinle at an approximate depth between 7970-9100 feet below the surface of the ground. Expected maximum disposal rate is 5000 barrels per day and expected maximum injection pressure is 2700 pounds per square inch.

Interested parties must file objections or request for hearing with the Oil Conservation Division, P.O. Box 2088, Santa Fe, New Mexico 87501, within fifteen days of this publication.

Legal No. 26771 published in the Farmington Daily Times, Farmington, New Mexico on Thursday, November 1, 1990.



RETURN TO

Mr. L. M. Sanders
Phillips Petroleum Company
4001 Penbrook Street - Room 400
Odessa, Texas 79762

Northwest Pipeline Corporation
3539 E. 30th Street
Farmington, New Mexico 87401
ATTN: Mr. Paul C. Thompson

P 140 239 433

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL

(See Reverse)

Sent to Mr. Paul C. Thompson Northwest Pipeline Corp.	
Street and No. 3539 E. 30th Street	
P.O. State and ZIP Code Farmington, New Mexico 87401	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to whom and Date Delivered	
Return receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	$
Postmark or Date November 16, 1990	

PS Form 3800, Feb. 1982 X
* U.S.G.P.O. 1984-446-014

CERTIFIED

P 140 239 433

MAIL

SENDER: Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.

Put your address in the "RETURN TO" space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.

1. ☒ Show to whom delivered, date, and addressee's address. 2. ☐ Restricted Delivery.

3. Article Addressed to: Northwest Pipeline Corporation 3539 E. 30th Street Farmington, New Mexico 87401 ATTN: Mr. Paul C. Thompson	4. Article Number P 140 239 433 Type of Service: ☐ Registered ☐ Insured ☒ Certified ☐ COD ☐ Express Mail
	Always obtain signature of addressee or agent and DATE DELIVERED.
5. Signature – Addressee X	8. Addressee's Address *(ONLY if requested and fee paid)*
6. Signature – Agent X	
7. Date of Delivery	

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
AZTEC DISTRICT OFFICE

GARREY CARRUTHERS
GOVERNOR

1000 RIO BRAZOS ROAD
AZTEC, NEW MEXICO 87410
(505) 334-6178

'90 DEC 17 AM 9 28

Date: 11-26-90

DAVE CATANACH

Oil Conservation Division
P.O. Box 2088
Santa Fe, NM 87504-2088

Re: Proposed NC_____
Proposed DHC_____
Proposed NSL_____
Proposed SWD X
Proposed WFX_____
Proposed PMX_____

Gentlemen:

I have examined the application dated 11-19-90
for the Phillips Petroleum Co. S.J. 29-6 Unit #301
Operator Lease & Well No.
P-2-29N-6W and my recommendations are as follows:
Unit S-T-R

Require CBL or CET for 13 3/8", 9 5/8" & 7" casing cement jobs & Chemical & mechanical removal of the mud cake & installation of centralizers every 3rd joint

Yours truly,

Ernie Busch