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: 5525 Hwy 64, NBU 3004, Farmington, NM 87401

Contact party: Louis Robinson Phone: (505) 599-3415

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. E. Robinson Title Sr. Drlg. & Prod. Engineer

Signature: L E Robinson Date: 9-24-91

* 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

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
SALTWATER DISPOSAL APPLICATION
SAN JUAN 32-7
WELL NO. 301

III. Well Data

A. (1) San Juan 32-7 Unit SWD No. 301, Section 34, T-32-N, R-7-W, 735' FSL & 761' FWL, San Juan County, New Mexico.

(2) See Saltwater 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 8700'.

(4) Baker Model "DB permanent packer with seal assembly and anchor latch set at 8045'.

B. (1) Injection Formations:

(a)	Morrison	Top - 8445'	Bottom - 8953'
(b)	Bluff	Top - 8953'	Bottom - 9116'
(c)	Entrada	Top - 9240'	Bottom - 9452'
(d)	Chinle	Top - 9452'	Bottom - 9500'

Field: Undesignated

(2) The perforated interval:

8530' - 8940'
8953' - 9116'
9250' - 9410'

(3) Drilled for saltwater disposal purposes only.

(4) None

(5) Next higher zone, Dakota Sandstone (8204'-8445')
Next higher zone - None

V. Map Attached

VI. Wells Within the Area of Review
32-7 #301 SWD

There are no wells within the area of review that penetrate the proposed receiving horizons in the Jurassic Morrison, Bluff and/or Entrada Formations. The closest well penetrating these formations is the Meridian #1 Middle Mesa SWD in SW/4 Sec. 25, T-32-N, R-7-W, approximately 2-1/4 miles to the northeast.

VII. (1) Average daily rate 2,500 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 32-8 Unit. All produced water from the San Juan 32-7 Unit will come to the proposed well.

(5) The proposed water-receiving sandstones of the Morrison, Bluff and Entrada Formations are not productive of hydrocarbons within the prescribed one-mile radius. Native state water samples from these deep formations are not available in the vicinity. All available geological and hydrological data in the deep, central part of the San Juan Basin would suggest that the waters of these formations are in excess of 10,000 ppm total dissolved solids and are probably in excess of 20,000 ppm total dissolved solids. Data presented by Stone, et al (1983) also supports that the native waters of the proposed receiving formations are saline. Wireline log data from both the subject well and the Meridian #1 Middle Mesa SWD well confirms that the interstitial waters are saline, although a precise estimate of the amount of total dissolved solids is not possible by this indirect method.

VIII. The proposed saltwater receiving formations in the San Juan 32-7 #301 SWD 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 of Late Jurassic age.

The Morrison Formation was encountered in the 32-7 #301 borehole from 8445' to 8953'. The sandstones and sandy siltstones suitable for saltwater injection occur below 8528'. The sandstones may be generally described as being light brown to reddish brown to white, medium to very fine grained, moderately well to poorly sorted, silty and calcareous in part, firm to hard, and occasionally friable. The associated siltstones are generally reddish brown to tan, slightly sandy, slightly calcareous, firm to hard, and commonly producing platy fragments upon drilling. As indicated by wireline logs, the porosity of the proposed receiving zones ranges from 4% to 18%. 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, sporadically cherty, locally silty sandstones with some interbedded siltstones and silty shales. It was encountered in the 32-7 #301 borehole between 8953' and 9116'. The porosity of the proposed receiving zones in the Bluff range from 4% to 9%, as indicated by wireline logs. Naturally occurring fractures augment the formation porosity, permeability and transmissivity of this unit.

The third proposed water-receiving zone, the Entrada Sandstone, was cut in the subject well from 9240' through 9452'. It is comprised, predominantly, of white to pink, fine to very fine grained sandstones which are moderately well to poorly sorted, silty, slightly calcareous quartzose and hard. Interbedded within the Entrada Formation are reddish brown, sandy, argillaceous, slightly calcareous siltstones. Wireline log porosity of the Entrada sandstones and siltstones range from 1 to 6%. Permeability and transmissivity of this unit are enhanced by natural fracturing of the formation.

Potential freshwater aquifers overlying the proposed injection zones at this location are at depths less than 3090'. These include porous and permeable sandstones occurring in the San Jose, Nacimento/Animas 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:

> San Jose Formation (0 - 969'), estimated total dissolved solids content (TDS) 550 to 2800 ppm, with dramatic variations in water quality locally;

Nacimento/Animas Formation (969' - 2561'), estimated TDS 1225 to 9100 ppm, limited quantities and highly variable quality, and;

Ojo Alamo Sandstone (2561' - 2656'), estimated TDS 1325 to 6550 ppm, variable quality and slightly saline overall.

Note: The total dissolved solids contents cited above have been calculated from specific conductance values cited by Stone, et al (1983), 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.

Reference

Stone, W. J., F. P. Lyford, P. F. Frenzel, N. H. Mizell, and E. T. Padgett (1983) Hydrogeology and Water Resources of San Juan Basin, New Mexico: New Mexico Bureau of Mines and Mineral Resources Hydrologic Report No. 6, 70 p.

IX. Injection formations will be stimulated with 400,000-900,000 lbs of 20/40 sand at 60-100 BPM with a crosslinked gel fluid system.

X. All available wireline logs on the 32-7 #301 well have previously been submitted to the Oil Conservation Division.

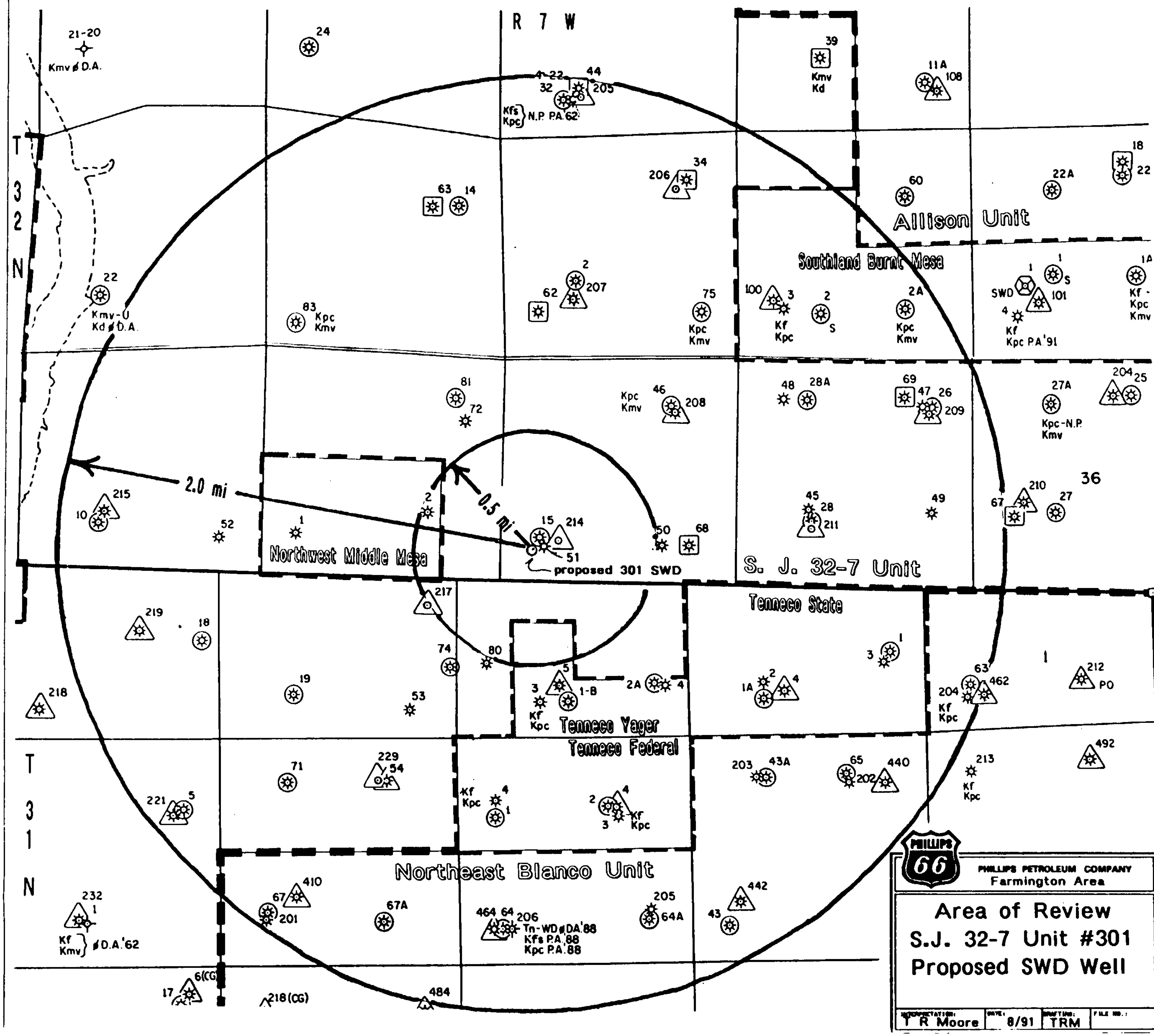
XI. There are no available fresh water wells for samples within one mile of the proposed disposal well.

XII.

STATEMENT

Phillips Petroleum Company geologists and engineers have examined available geologic and engineering data and can find no evidence of or reason to believe of any hydrologic connection between the proposed saltwater injection zones and any underground source of potable water.

327301B.SWD



PHILLIPS 66
PHILLIPS PETROLEUM COMPANY
Farmington Area

Area of Review
S.J. 32-7 Unit #301
Proposed SWD Well

Interpretation:	Date:	Drafting:	File No.:
T R Moore	8/91	TRM	

San Juan 32-7 #301 SWD
SW 34 T32N-R7W
Formation Tops

GL. 6758, DF. 6775, KB. 6776

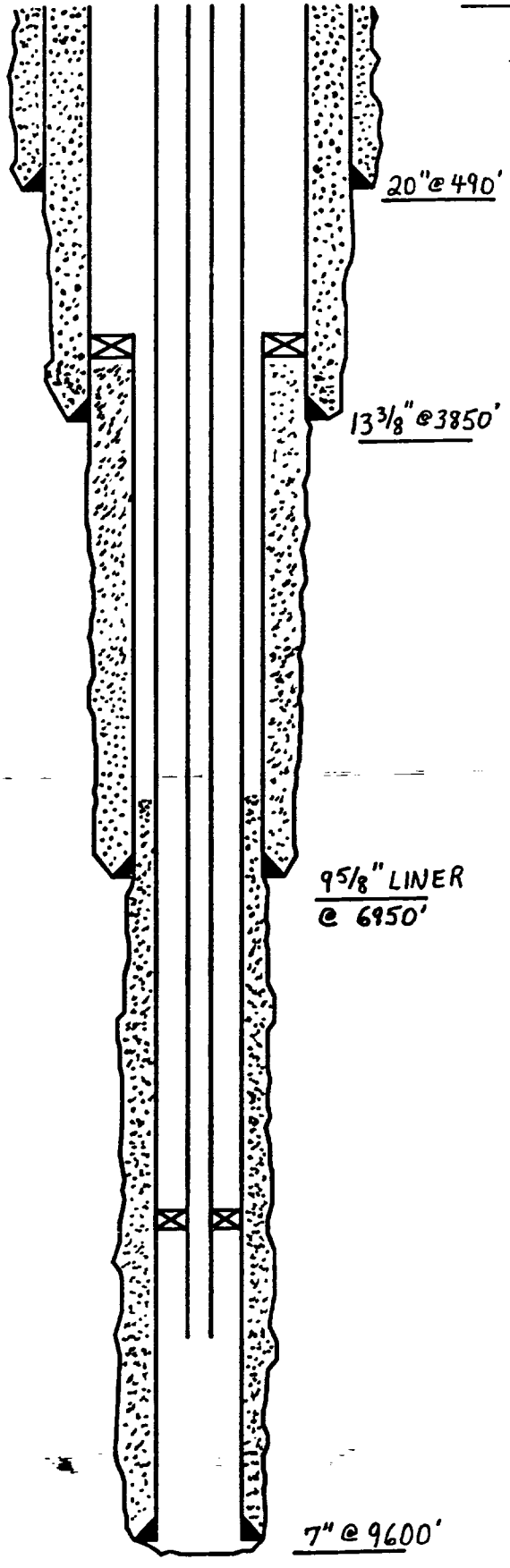
Formation	Depth	Elevation (+/- Sea Level)
San Jose Fm	Surface	+6758
Nacimiento	969	+5789
Ojo Alamo Ss	2561	+4215
Kirkland Sh	2656	+4120
Fruitland Fm	3194	+3582
Top of Coal	3340	+3436
Base of Coal	3481	+3295
Pictured Cliffs Ss (Upper)	3540	+3236
Pictured Cliffs Ss (Lower)	3627	+3149
Lewis Sh	3810	+2996
Cliff House Ss	5674	+1102
Menefee Fm	5723	+1053
Pt. Lookout Ss	5985	+791
Mancos Sh	6264	+512
Gallup member	6700	+76
Greenhorn Ls	8020	-1244
Graneros Sh	8076	-1300
Dakota Ss	8204	-1428
Morrison Fm	8445(?)	-1669(?)
Bluff Ss	8953	-2177
Summerville Fm	9116	-2340
Todilto Ls	9209	-2433
Entrada Ss	9240	-2464
Chinle Fm	9452	-2676
TD	9500	-2724

Phillips Petroleum Company
Farmington Area

Salt Water Disposal Well
Casing Design

SAN JUAN 32-7 # 301 SWD : PROPOSED

ATTACHMENT NO. I



Casing/Tubulars Program			
	Size (in)	Grade	Setting Depth (ft)
Conductor	20" 94#/ft	K-55 ST&C	490'
Surface	13 3/8" 68#/ft 13 3/8" 72#/ft	N-80 N-80	3050' 3850'
Intermediate Liner	9 5/8" 40#/ft	S-95	Top 3670' Bottom 6950'
Production	7" 29#/ft 7" 26#/ft 7" 26#/ft	L-80 N-80 S-95	380' 592' 9600'
Tubing	3 1/2" 9.3#/ft	N-80	8700'

Cement Program			
	Lead	Tail	Comments
Conductor	800 sxs CL "B" @ 15.6 ppg 1.18 ft^3/sx	100 sxs CL "B" w/ 3% $CaCl_2$ @ 15.6 ppg 1.18 ft^3/sx	Circulate cement to surface
Surface	See Attachment I	See Attachment I	Circulate cement to surface
Intermediate	See Attachment I	See Attachment I	Circulate cement to top of liner
Production	See Attachment I	See Attachment I	Circulate cement above 9 5/8" liner shoe @ 6950'

AFFIDAVIT OF PUBLICATION

No. 28387

STATE OF NEW MEXICO,
County of San Juan:

CHRISTINE HILL 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) (/////) on the same day as follows:

First Publication FRIDAY, SEPTEMBER 27, 1991

Second Publication

Third Publication

Fourth Publication

and that payment therefore in the amount of $ 14.85 has been made.

Christine Hill

Subscribed and sworn to before me this 30th day of SEPTEMBER, 1991.

Connie Andras

Notary Public, San Juan County, New Mexico

My Comm expires: JULY 3, 1993

COPY OF PUBLICATI

LEGAL NOTICE

Notice is hereby given of the application of Phillips Petroleum Company. Attention: R. G. Flesher, Area Manager, 5525 Hwy 64 NBU 3004, Farmington, New Mexico 87401, Telephone (505)599-3401, to the Oil Conservation Division, New Mexico Energy and Minerals Department, for approval of the following well for the propose of saltwater disposal.

Well No. 301
Unit Name:
San Juan 32-7 Unit
Location:
Section 34,
T-32-N, R-7-W,
San Juan County,
New Mexico

The disposal formation is Morrison, Bluff, Entrada and Chinle at an approximate depth between 8530-9600 feet below the surface of the ground. Expected maximum disposal rate is 5,000 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 28387 published in the Farmington Daily Times, Farmington, New Mexico, on Friday, September 27 1991

DIVISION

9 04

PHILLIPS PETROLEUM COMPANY

FARMINGTON, NEW MEXICO 87401
5525 HWY. 64 NBU 3004

10-1-91

NM Oil Conservation Division
Attn: Dave Catanach
P.O. Box 2088
Santa Fe, New Mexico 87504-2088

Re: San Juan 32-7 Unit Well No. 301 SWD

Dear Mr. Catanach:

Enclosed is a Form C-108 "Application for Authorization to Inject" for the above referenced well. All pertinent information is attached along with copies of certified mailings to all landowners and operators within a one-half mile radius.

If you need further information, or if you have any questions, please contact me at (505) 599-3412.

Sincerely,

Gail Bearden

Gail Bearden
Regulatory Dept.

Attachments

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

[illegible]

1. Show to whom delivered, date, and addressee's address.
2. Restricted Delivery (Extra charge)

3. Article Addressed to:

[illegible] & FREDERICK [illegible]

[illegible]

[illegible]

[illegible]

4. Article Number

P 565 395 763

Type of Service:

Registered | Insured

Certified | COD

Express Mail | Return Receipt for Merchandise

Always obtain signature of addressee or agent and DATE DELIVERED.

8. Addressee's Address (ONLY if requested and fee paid)

X

X

PS Form 3811 [illegible] DOMESTIC RETURN RECEIPT

Thank you for using Return Receipt Service

PHILLIPS PETROLEUM COMPANY
EXPLORATION AND PRODUCTION
FARMINGTON AREA
5525 HWY 64 NBU 3004
FARMINGTON, NM 87401

CERTIFIED MAIL

P 565 395 763

PHILLIPS 66

FROM

PHILLIPS PETROLEUM COMPANY

Form 3A-S 8-86

NAME GAIL [illegible]

ADDRESS 5525 HWY 64 NBU 3004
FARMINGTON, NM 87401

To [illegible]

[illegible] STREET

NEW YORK, NEW YORK 10005

FARMINGTON N.MEX. OCT 1 '91

PB METER 532454

PHILLIPS PETROLEUM COMPANY
EXPLORATION AND PRODUCTION
FARMINGTON AREA
5525 HWY. 64 NBU 3004
FARMINGTON, NM 87401

CERTIFIED

P 565 395 761

MAIL

FARMINGTON N. MEX. OCT 7 '91

PB ME
53245

Thank you for using
Return Receipt Service.

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 fee and check box(es) for additional service(s) requested.

1. ☐ Show to whom delivered, date, and addressee's address. 2. ☐ Restricted Delivery *(Extra charge)*

3. Article Addressed to:
HALLWOOD PETROLEUM INC.
P.O. BOX 378111
DENVER, COLORADO 80237

4. Article Number
P 565 395 761

Type of Service
☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail ☐ Return Receipt for Merchandise

Always obtain signature of addressee or agent and DATE DELIVERED.

8. Addressee's Address (Only if requested and fee paid)

5. Signature — Addressee
X

6. Signature — Agent
X

7. Date of Delivery

PS Form **3811**, Apr. 1989 *U.S.G.P.O. 1989-238-815 DOMESTIC RETURN RECEIPT

PHILLIPS 66

FROM

Form 3-A-S 8-85

PHILLIPS PETROLEUM COMPANY

NAME GAIL BEARDEN

ADDRESS 5525 HWY 64 NBU 3004
FARMINGTON, NM 87401

Priority 1st class	3rd or 4th Class	Express Mail	Insured Mail	Certified Mail	Registered Mail	Special Delivery	Motor Freight	Air Express	Int'l	UPS

To HALLWOOD PETROLEUM INC.
P.O. BOX 378111
DENVER, CO. 80237

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 (Extra charge)
2. Restricted Delivery (Extra charge)

3. Article Addressed to ULTRAMAR OIL & GAS, LTD. 16825 NORTHCHASE DRIVE SUITE 1200 HOUSTON, TEXAS 77060	4. Article Number P 565 395 762 Type of Service: Registered / Insured Certified / COD Express Mail / Return Receipt for Merchandise 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	

PS Form 3811, Apr. 1989 *U.S.G.P.O. 1989-238-815 DOMESTIC RETURN RECEIPT

Thank you for using Return Receipt Service

PHILLIPS PETROLEUM COMPANY
EXPLORATION AND PRODUCTION
FARMINGTON AREA
5525 HWY. 64 NBU 3004
FARMINGTON, NM 87401

CERTIFIED MAIL
P 565 395 762

FROM
PHILLIPS PETROLEUM COMPANY
Form 3-A-S 8-85
NAME GAIL BEARDEN
ADDRESS 5525 HWY 64 NBU 3004
FARMINGTON, NM 87401

To
ULTRAMAR OIL & GAS, LTD.
16825 NORTHCHASE DRIVE
SUITE 1200
HOUSTON, TEXAS 77060

FARMINGTON N.MEX. OCT 1991

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

GARREY CARRUTHERS
GOVERNOR

'91 OCT 10 AM 8 57

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

Date: 10-7-91

attn: David Catanach

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

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

Gentlemen:

I have examined the application dated 10-2-91

for the Phillips Petroleum Co. S.J. 32-7 Unit #301
Operator Lease & Well No.

M-34-32N-7W and my recommendations are as follows:
Unit, S-T-R

Approve. Blackwood + Nichols middle mesa swd #2 in section 11-31N-7W within 2 mile radius. Southland middle mesa #L-25-32N-7W just outside 2 mile radius.

Yours truly,