

MURPHY OPERATING CORPORATION  
UNITED BANK PLAZA, SUITE 300  
400 NORTH PENNSYLVANIA AVENUE  
POST OFFICE BOX 264E  
ROSWELL, NEW MEXICO 88202-2648

TELEPHONE  
505 623-7210

August 10, 1989

RECEIVED

AUG 11 1989

OIL CONSERVATION DIV.  
SANTA FE

Mr. David R. Catanach, Petroleum Engineer  
Oil Conservation Division  
Post Office Box 2088  
Santa Fe, New Mexico 87501

Re: Request for Approval to Convert One (1)  
Well to Injection / Expansion of Waterflood;  
Todd Lower San Andres Unit ("the Todd Unit");  
Roosevelt County, New Mexico.

Dear Mr. Catanach:

I have enclosed herewith for your review and approval Murphy Operating Corporation's application dated August 10, 1989 for the conversion to injection of one (1) well located in the Todd Lower San Andres Unit referenced above. The utilization of this well (#35-8 marked in blue on the map attached hereto) will permit a more uniform and efficient flood pattern due to the existence of certain preferentially oriented fractures.

Enclosed with the application is a land plat upon which a 1/2 mile radius circle ("area of review") has been drawn around said proposed injection well. A schematic diagram with the required downhole information is also included herewith. Certain statements necessary to the completion of application Form C-108 are given below:

REQUIRED INFORMATION: (Presented in same sequence and format as on Form C-108)

- V. Enclosed as Exhibit I.
- VI. Previously submitted as referenced on the C-108 Application.
- VII. 1) Average daily injection rate is estimated to be 400 BWPD with an anticipated maximum rate of 600 BWPD.
  - 2) This is a closed system.
  - 3) Average injection pressure is estimated to be 400 psig with a maximum injection pressure of 850 psig.
  - 4) Previously submitted as referenced on the C-108 Application.
  - 5) Not applicable.
- VIII. Geological data and description of "Injection Zone" and "Fresh Water Zones" in area.

Injection Zone: The proposed injection zone is known as the Slaughter P-2 porosity zone of the San Andres Formation. This zone is a tan to brown dolomite. Scattered anhydrite inclusion and bedding occurs along with infrequent zones of fine solution porosity. The top of the P-2 occurs at approximately 4220' below level and has an approximate thickness of 40 to 60 feet. This zone dips south and east and as a result the bottom of this zone can occur at depths approaching 4335' below ground level.

Fresh Water Zone: The only known fresh water source in this area is the Ogala Formation. This is a fresh water sand that is infrequently present throughout the area. The maximum reported depth is 250 feet below ground level as evidenced in two water wells located approximately 2-1/2 miles east of the Todd Lower San Andres Unit eastern boundary line. If a local presence of the Ogala exists, it will be protected by the 280 feet or more of 8 5/8" surface casing set in all of the wells in the Todd Lower San Andres Unit.

APPLICATION FOR AUTHORIZATION TO INJECT

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

II. Operator: Murphy Operating Corporation  
Address: Post Office Box 2648, Roswell, New Mexico 88202-2648  
Contact party: Mark B. Murphy Phone: 505/623-7210

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 NMOCD #R-6677  
#14-08-0001-19582

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.

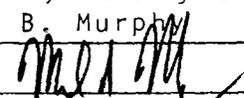
XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground source of drinking water.

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: Mark B. Murphy Title President and Chief Operating Officer

Signature:  Date: August 10, 1989

\* 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. C-108 Application dated April 21, 1988 Order No. WFX-571,

C-108 Application dated January 26, 1989. Order No. WFX-578.

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.

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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.



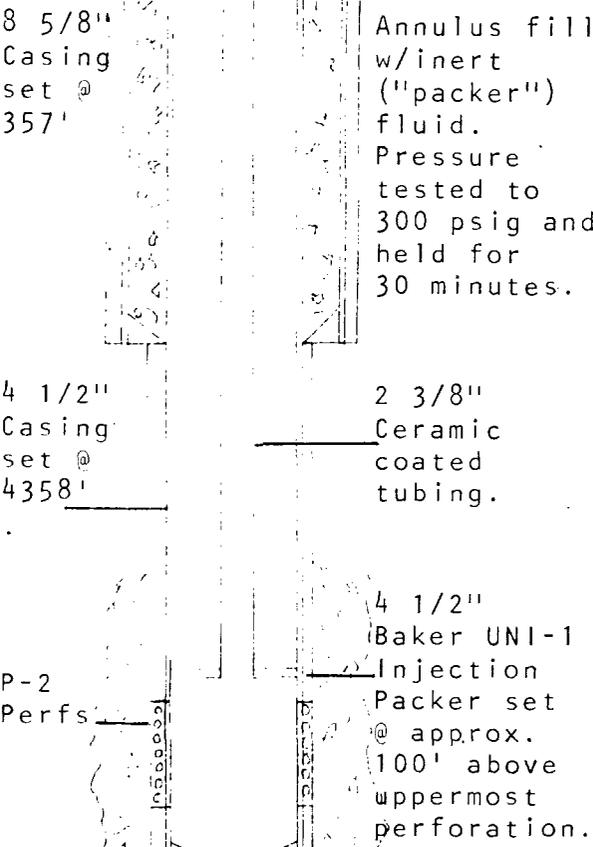
INJECTION WELL DATA SHEET

Murphy Operating Corporation  
 OPERATOR  
 Todd Lower San Andres Unit  
 LEASE

35-8 1980' FNL & 660' FEL  
 WELL NO. FOOTAGE LOCATION  
 35 SECTION  
 T7S TOWNSHIP  
 R35E RANGE

Schematic

Tabular Data



Annulus filled w/inert fluid. Pressure tested to 300 psig and held for 30 minutes.

Surface Casing  
 Size 7 5/8" Cemented with 200 sx.  
 TOC Surface feet determined by circulation  
 Hole size 9 7/8"

Intermediate Casing  
 Size \_\_\_\_\_ Cemented with \_\_\_\_\_ sx.  
 TOC \_\_\_\_\_ feet determined by \_\_\_\_\_  
 Hole size \_\_\_\_\_

Long string  
 Size 4 1/2" Cemented with 500 sx.  
 TOC 3400' feet determined by calculation  
 Hole size 6 3/4"

Baker UNI-1 Injection Packer set @ approx. 100' above uppermost perforation.  
 Total depth 4358' TD 4348' PBTD  
 Injection interval 4256' feet to 4297' feet  
 (perforated or open-hole, indicate which)

Water will be injected into the P-2 zone of the San Andres formation (being the equivalent interval as found between the logged depths of 4235' and 4286' in the Murphy Operating Corporation's Todd Lower San Andres Unit Well #30-10 as shown on the Schlumberger Compensated Formation Density Log of said well dated January 7, 1967).

Tubing size 2 3/8" lined with Ceramic epoxy coating set in a  
 (material)  
Baker UNI-1 packer at 4160' feet  
 (brand and model) (Approximately 100' above uppermost perforation)  
 (or describe any other casing-tubing seal).

Other Data

- Name of the injection formation San Andres
- Name of field or Pool (if applicable) Todd Lower San Andres Unit
- Is this a new well drilled for injection?  Yes  No  
 If no, for what purpose was the well originally drilled? Well drilled as oil and gas producer.
- 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.
- Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area. The Wolfcamp produces approximately one mile north at an approximate depth of 7500' below ground level.

MURPHY OPERATING CORPORATION  
UNITED BANK PLAZA, SUITE 300  
400 NORTH PENNSYLVANIA AVENUE  
POST OFFICE BOX 2648  
ROSWELL, NEW MEXICO 88202-2648

TELEPHONE  
505 623-7210

August 10, 1989

Ms. Debbie Burrows  
Portales News Tribune  
Post Office Box 848  
Portales, New Mexico 88130

Re: Submittal of Legal Notice on  
Todd Lower San Andres Unit  
Conversion of Well to Injection

Dear Ms. Burrows:

Please find enclosed a legal notice to be placed in the Portales News Tribune for Murphy Operating Corporation. Please run the notice for a total of three (3) days. I understand that we will be billed an undetermined amount after you have received the notice.

Thank you for all of your help in this matter. If there are any questions concerning the placement of this legal notice, please feel free to contact me at 505/623-7210.

Sincerely,

MURPHY OPERATING CORPORATION



Mark B. Murphy  
President and Chief Operating Officer

MBM/js

LEGAL NOTICE

This shall constitute notice to all concerned parties that Murphy Operating Corporation (United Bank Plaza, Suite 300, Post Office Box 2648, Roswell, New Mexico 88202-2648, Attention Mark B. Murphy, telephone number (505) 623-7210) intends to convert the following well from producing to injection service for the purpose of expanding the existing waterflood project, the Todd Lower San Andres Unit, Roosevelt County, New Mexico.

<u>Well No.</u>	<u>Unit</u>	<u>Section</u>	<u>Township, Range</u>
35-8	H	35	T7S-R35E

Water will be injected into the P2 zone of the San Andres formation (being the equivalent interval as found between the logged depths of 4235' and 4286' in the Murphy Operating Corporation Well #30-10 as shown on the Schlumberger Compensated Formation Density Log of said well dated January 7, 1967) at rates of approximately 400 BWPD and at maximum wellhead pressures not exceeding 850 psi.

Interested parties must file objections or requests for hearing with the Oil Conservation Division, Post Office Box 2088, Santa Fe, New Mexico 87501 within 15 days.

Published in Portales News-Tribune \_\_\_\_\_ Legal No. \_\_\_\_\_  
date

MURPHY OPERATING CORPORATION  
UNITED BANK PLAZA, SUITE 300  
400 NORTH PENNSYLVANIA AVENUE  
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AUG 30 1989

OIL CONSERVATION DIV.  
SANTA FE

August 13, 1989

Mr. David Catanach  
Petroleum Engineer  
Oil Conservation Division  
Post Office Box 2088  
Santa Fe, New Mexico 87501

Re: Affidavit of Publication

Dear Mr. Catanach:

Please find enclosed an original Affidavit of Publication from the Portales News-Tribune as proof of publication of legal notice of intent to convert from producing to injection service for the purpose of expanding the existing waterflood project in the Todd Lower San Andres Unit in Roosevelt County, New Mexico.

Sincerely,

MURPHY OPERATING CORPORATION



Jeanette Sons  
Assistant to the President

Mark B. Murphy  
President and Chief Operating Officer

/js

Enclosure: Affidavit of Publication  
Portales News-Tribune



STATE OF NEW MEXICO  
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION

HOBBS DISTRICT OFFICE

August 14, 1989

GARREY CARRUTHERS  
GOVERNOR

POST OFFICE BOX 15940  
HOBBS, NEW MEXICO 88401-15940  
(505) 393-6161

OIL CONSERVATION DIVISION  
P. O. BOX 2088  
SANTA FE, NEW MEXICO 87501

RE: Proposed:

MC \_\_\_\_\_  
DHC \_\_\_\_\_  
NSL \_\_\_\_\_  
NSP \_\_\_\_\_  
SWD \_\_\_\_\_  
WFX \_\_\_\_\_ X \_\_\_\_\_  
PMX \_\_\_\_\_

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AUG 21 1989

OIL CONSERVATION DIV.  
SANTA FE

Gentlemen:

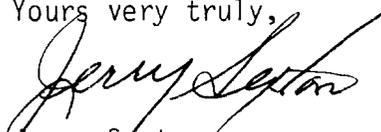
I have examined the application for the:

Murphy Operating Corp. Todd Lower SA Unit Sec 35 #8-H 35-7-35  
Operator Lease & Well No. Unit S-T-R

and my recommendations are as follows:

OK

Yours very truly,

  
Jerry Sexton  
Supervisor, District 1

/ed

**LEGAL NOTICE**

This ~~shall constitute~~ notice to all concerned parties that Murphy Operating Corporation (United Bank Plaza, Suite 300, Post Office Box 2648, Roswell, New Mexico 88202-2648, Attention Mark B. Murphy, telephone number (505) 625-7210) intends to convert the following well from producing to injection service for the purpose of expanding the existing waterflood project, the Todd Lower San Andres Unit, Roosevelt County, New Mexico.

Well No. 35-8; Unit H; Section 35; Township, Range T7S-R35E  
Water will be injected into the P2 zone of the San Andres formation (being the equivalent interval as found between the logged depths of 4235' and 4286' in the Murphy Operating Corporation Well #30-10 as shown on the Schlumberger ~~Compensated~~ Formation Density Log of said well dated January 7, 1987) at rates of approximately 400 BWPD and at maximum well head pressures not exceeding 850 psi. Interested parties must file objections or requests for hearing with the Oil Conservation Division, Post Office Box 2088, Santa Fe, New Mexico 87501 within 15 days.  
Published in the Portales News-Tribune August 15, 16, 17. Legal #0863.

# Affidavit of Publication

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I, Marshall Stinnett  
Business Manager of

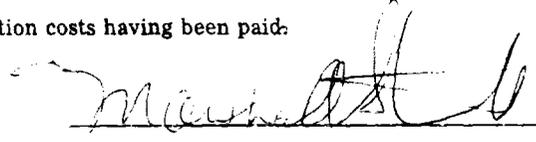
## THE PORTALES NEWS-TRIBUNE

a newspaper of general paid circulation and entered under second class postal privilege in Roosevelt County, published daily, (except Saturday) at Portales, New Mexico, for the fifty-two (52) consecutive weeks preceding this date, do solemnly swear that a copy of the above notice, as per clipping attached, was published weekly in the regular and entire issue of said

newspaper, and not in any supplement thereof for 3  
Days  
consecutive ~~weeks~~ commencing with the issue dated

August 15 1989  
and ending with the issue dated August 17 19 89

All publication costs having been paid:



Subscribed and sworn to before me this 17th day of August 19 89

Notary Public

My commission expires 3/7/91 19