ENERGY AND MINERALS DEPARTMENT

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

Revised 7-1-81

SEE ATTACHED SUPPLEMENTAL DATA.

APPLICATION FOR AUTHORIZATION TO INJECT

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

II. Operator: Murphy Operating Corporation

Address: Post Office Box 2648, Roswell, New Mexico 88202-2648

Contact party: Ann Murphy Ezzell or 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 [X] 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: Ann Murphy Ezzell Title Chairman and C.E.O.

Signature: Ann Murphy Ezzell Date: 08/08/89

* 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.

BEFORE THE NEW MEXICO OIL CONSERVATION DIVISION

APPLICATION OF MURPHY OPERATING CORPORATION FOR UNIT APPROVAL AND FOR AUTHORITY TO INSTITUTE A WATERFLOOD PROJECT, ROOSEVELT COUNTY, NEW MEXICO.

No. _____

SUPPLEMENTAL DATA REQUIRED BY FORM C-108

I. The purpose of this Application is to request approval for a secondary recovery project. This application does not qualify for administrative approval. An examiner's hearing is required.

II. The operator is Murphy Operating Corporation of Post Office Box 2648, Roswell, New Mexico, 88202-2648, contact parties: Ms. Ann Murphy Ezzell, Mr. Mark B. Murphy, telephone (505) 623-7210.

III. The well data, in both tabular and schematic form ("typical data sheet"), for each well proposed for injection is attached as Exhibit III.

IV. This is not an expansion of an existing project. However, a preliminary record search indicates that certain OCD orders exist which relate to the approval of waterflood projects or authority to inject. These cases are identified below. We respectfully request that the order approving the Jennifer Chaveroo San Andres Unit specifically remand these prior orders and that the order approving our waterflood project supercede these orders and any other prior orders which are inconsistent with our application..

Oil Conservation Division Order No./ Date	Case No.	Legal Description	Authority Granted
R-7809 02/06/85	8423	State "DB" Well No. 6 T-7-S, R-33-E, NMPM Section 25: SW¼SW¼ Roosevelt County, N.M.	Waterflood project / Authority to inject water
R-3544 10/31/68	3904	Hobbs "W" Well No. 9 T-7-S, R-34-E, NMPM Section 29: SE¼NW¼	Waterflood project / Authority to inject water

V. Attached hereto as Exhibit V. is a map identifying all wells and leases within two miles of each proposed injection well (two-mile boundary highlighted in yellow). A one-half mile radius circle (drawn in blue) around each proposed injection well identifies the wells' areas of review. Also attached is a chart, "Redesignation of Well Names" listing original well names within the proposed Unit Area together with corresponding redesignated well names.

VI. Attached hereto as Exhibit VI.A. is a tabulation of well data for all wells within the proposed Unit Area. Exhibit VI.B. contains a tabulation of well data for all wells outside the proposed Unit Area but within the "area of review". The proposed injection wells are encompassed within the boundary highlighted in blue on the aforementioned Exhibit V. and their locations are listed below. Also attached as Exhibit VI.C. are schematics (illustrating all plugging detail) of any plugged well within the area of review.

Proposed Unit Well No.	Original Well Name	Location
		Roosevelt County T-7-S, R-33-E, NMPM
25-02	State "J" No. 1	Section 25: NW¼NE¼
25-04	State "DB" No. 1	Section 25: NW¼NW¼
25-06	State "DB" No. 5	Section 25: SE¼NW¼

(cont.)

Proposed Unit Well No.	Original Well Name	Location
		Roosevelt County T-7-S, R-33-E, NMPM
25-08	State Conine No. 1	Section 25: SE¼NE¼
25-10	State "I" No. 1	Section 25: NW¼SE¼
25-12	State "DB" No. 4	Section 25: NW¼SW¼
25-14	State "DB" No. 8	Section 25: SE¼SW¼
25-16	State "J" No. 4	Section 25: SE¼SE¼
26-10	Federal "26" No. 5	Section 26: NW¼SE¼
26-12	Federal "26" No. 2	Section 26: NW¼SW¼
26-14	Federal "26" No. 4	Section 26: SE¼SW¼
26-16	Federal "26" No. 8	Section 26: SE¼SE¼
35-02	State "CV" No. 2	Section 35: NW¼NE¼
35-04	Shackelford No. 1	Section 35: NW¼NW¼
35-06	State Sec. 35 No. 3	Section 35: SE¼NW¼
35-08	State Sec. 35 No. 5	Section 35: SE¼NE¼
35-10	Hobbs "T" No. 14	Section 35: NW¼SE¼
35-12	State Sec. 35 No. 1	Section 35: NW¼SW¼
35-14	State "DE" No. 1	Section 35: SE¼SW¼
35-16	Hobbs "T" No. 19	Section 35: SE¼SE¼
36-02	State Sec. 36 No. 1	Section 36: NW¼NE¼
36-04	State "K" No. 1	Section 36: NW¼NW¼
36-06	State "K" No. 6	Section 36: SE¼NW¼
36-07	State Sec. 36 No. 1	Section 36: SW¼NE¼
36-12	State "K" No. 4	Section 36: NW¼SW¼
		Roosevelt County T-7-S, R-33-E, NMPM
18-15	Wolf Federal No. 3	Section 18: SW¼SE¼
19-01	Wolf Federal No. 4	Section 19: NE¼NE¼
19-03	Federal "19" No. 2	Section 19: Lot 1
19-07	Wolf Federal No. 1	Section 19: SW¼NE¼
19-09	State "G" No. 5	Section 19: NE¼SE¼
19-11	State "G" No. 1	Section 19: Lot 3
19-15	State "G" No. 4	Section 19: SW¼SE¼
20-03	Homme Federal No. 2	Section 20: NE¼NW¼
20-05	Homme Federal No. 1	Section 20: SW¼NW¼
20-11	State "20" No. 3	Section 20: NE¼SW¼
20-13	State "20" No. 2	Section 20: SW¼SW¼
29-03	Hobbs "W" No. 8	Section 29: NE¼NW¼
29-05	Hobbs "W" No. 7	Section 29: SW¼NW¼
29-06	Hobbs "W" No. 9	Section 29: SE¼NW¼
30-01	Hobbs "W" No. 2	Section 30: NE¼NE¼
30-03	State "V" No. 1	Section 30: Lot 1
30-07	Hobbs "W" No. 3	Section 30: SW¼NE¼
30-09	State "V" No. 4	Section 30: NE¼SE¼
30-11	State "V" No. 3	Section 30: Lot 3

VII. Data on the proposed operation:

1. It is projected that an average of 3,600 barrels of water per day (equivalent to 600 barrels of water per well per day) will be initially injected. If successful, a maximum of 29,400 barrels of water per day will be injected.

2. The proposed waterflood system shall be a closed system.

3. It is proposed that water will be injected at an average surface pressure of 800 psig and at a maximum surface pressure of 0.2 psi per foot of depth to top of injection zone, provided that surface pressure in excess of 0.2 psi per foot of depth to injection zone may be approved by administrative application pursuant to Oil Conservation Division rules and regulations.

4. The water to be used for injection for the waterflood project shall be acquired from the closest and most economical of several commercial sources in the immediate area of the proposed Unit (see Exhibit 1., "Field Map Indicating Proposed Unit Facilities" attached to the Plan of Operation, submitted for approval under separate cover, see File Folder No. 4);

Attached hereto as Exhibit VII.4. are chemical analyses and compatibility analyses of the proposed injection fluid (fresh water samples from possible sources as described hereinabove) with that of the receiving Chaveroo San Andres formation (samples from tank batteries located on the State Section 35 lease and the State "DB" lease located within the Unit Area).

5. Not applicable.

VIII. Attached hereto as Exhibit VIII. (see File No. 3) is geological data related to the injection zone including appropriate lithological detail, geological name, thickness and depth. This exhibit contains:

Exhibit VIII. - Engineering and Geological Report - Proposed Jennifer Chaveroo San Andres Unit, prepared by Bert H. Murphy, Registered Professional Petroleum Engineer dated July 15, 1989;
Exhibit VIII.A. - General Location Map;
Exhibit VIII.B. - Report dated November, 1966 prepared by Roswell Geological Society Symposium with attached structural and isopachus maps and type log;
Exhibit VIII.C. - Core Data - "Completion Coregraphs" for the Homme Federal Well No. 3 and for the Wolf Federal Well No. 1 located within the Unit Area; "Completion Coregraph" for the State "AZ" Well #2 located in near proximity of Unit in Section 33, T-7-S, R-33-E;
Exhibit VIII.D. - Tabulated Summary of Geological Data;
Exhibit VIII.E. - Structure Map with proposed Unit Area delineated;
Exhibit VIII.F. - Iso-Cum Base Map, with proposed Unit Area delineated;
Exhibit VIII.G.1. - Cross Section A-A' (Northwest-Southeast through Sections 30-29-32);
Exhibit VIII.G.2. - Cross Section B-B' (West-East through Sections 20-21);
Exhibit VIII.G.3. - Cross Section C-C' (North-South through Sections 8-18-19);
Exhibit VIII.G.4. - Cross Section D-D' (West-East through Sections 35-36);
Exhibit VIII.G.5. - Cross Section E-E' (North-South through Sections 25-36-2);
Exhibit VIII.G.6. - Cross Section F-F' (West-East through Sections 30-29);
Exhibit VIII.G.7. - Cross Section G-G' (North-South through Sections 19-30);
Exhibit VIII.H. - Chart of Derivation of Tract Participation Factors.
Exhibit VIII.I.1. - Decline Curves for Wells within Unit Area.
Exhibit VIII.I.2. - Decline Curves for Wells outside Unit Area but within Area of Review.

IX. The proposed stimulation program, if any, is included with information contained in the aforementioned Plan of Operation, see File Folder No. 4.

X. Appropriate logging and test data for the proposed injection wells are attached as Exhibit X (see File No. 5).

XI. Based upon information supplied by the State Engineer's office and a field search performed by a Murphy Operating Corporation employee, it appears that there are four (4) sources of fresh water within one mile of any proposed injection well. Exhibit XI. contains a map showing the location of these 4 wells and copies of the results of chemical analysis of the fresh water.

XII. Not applicable.

XIII. Attached hereto as Exhibit XIII. is proof that copies of the application have been furnished by certified mail to: a) the owners of the surface of the lands on which the proposed injection wells are to be located; and b) to the leasehold operators within one-half mile of the proposed injection wells.

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: Ann Murphy Ezzell Title: Chairman & C.E.O. of Murphy Operating Corporation

Signature: _____ Date: August 8, 1989

JENNIFER CHAVEROO SAN ANDRES UNIT

SUPPLEMENTAL DATA REQUIRED BY FORM C-108

INDEX OF EXHIBITS

FILE 2.

Exhibit III. - Well data, in both tabular and schematic form ("typical data sheet"), for each well proposed for injection.

Exhibit V. - Map identifying all wells and leases within 2 miles of each proposed injection well (2-mile boundary highlighted in yellow). A one-half mile radius circle (drawn in blue) around each proposed injection well identifies the wells' areas of review.

Chart, "Redesignation of Well Names" listing original well names of wells within the Unit Area together with corresponding redesignated well names.

Exhibit VI.A. - Tabulation of data for all wells of public record within the proposed Unit Area.

Exhibit VI.B. - Tabulation of data for all wells of public record outside the proposed Unit Area but within the "area of review".

Exhibit VI.C. - Schematics (illustrating all plugging detail) of each plugged and abandoned well within the area of review.

SEE FILE 4. - Plan of Operation submitted for approval under separate cover with attached exhibits:
Exhibit 1., "Field Map Indicating Proposed Unit Facilities"; and
Exhibit 2., "Comparison of Current and Proposed Well Statuses".

Exhibit VII.4. - Chemical analyses and compatibility analyses of the proposed injection fluid (fresh water samples from possible sources as described hereinabove) with that of the receiving Chaveroo San Andres formation (samples from tank batteries located on the State Section 35 lease and the State "DB" lease located within the Unit Area).

Exhibit VIII.A. through Exhibit VIII.I. - Geological data related to the injection zone including appropriate lithological detail, geological name, thickness and depth.
SEE FILE 3

Exhibit X. - Appropriate logging and test data for the proposed injection wells.
SEE FILE 5

Exhibit XI. Map showing the location of 4 fresh water sources together with copies of the results of chemical analyses of the fresh water.

Exhibit XIII. - Proof that copies of the application have been furnished by certified mail to: a) the owners of the surface of the lands on which the proposed injection wells are to be located; and b) to the leasehold operators within one-half mile of the proposed injection wells.