



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

GARREY CARRUTHERS
GOVERNOR

1-30-89

POST OFFICE BOX 1980
HOBBS, NEW MEXICO 88241-1980
(505) 393-6161

wfx-578

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

RE: Proposed:

MC _____
DHC _____
NSL _____
NSP _____
SWD _____
WFX X
PMX _____

Sec. 31 #5-E 31-7-36
Sec. 31 #12-L "
Sec. 36 #9-J 36-7-35
Sec. 36 #10-J "
Sec. 36 #2-B "
Sec. 36 #5-E "
Sec. 35 #7-G 35-7-35
Sec. 35 #9-I "

Gentlemen:

I have examined the application for the:

Murphy Oper. Corp. Todd Lower S-T Unit
Operator Lease & Well No. Unit S-T-R

and my recommendations are as follows:

OK

Yours very truly,

Jerry Sexton
Supervisor, District 1

/ed

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

January 26, 1989

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

Re: Request for Approval to Convert Eight (8) Wells 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 January 26, 1989 for the conversion to injection of eight (8) wells located in the Todd Lower San Andres Unit referenced above. The utilization of these wells (#31-5, #31-12, #35-7, #35-9, #36-2, #36-5, #36-9, and #36-10 marked in blue on the map attached hereto) will permit a more uniform and efficient flood pattern which is compatible with the ultimate flood pattern of 80-acre five spots, where appropriate throughout the unit.

Enclosed with the application is a land plat upon which a 1/2 mile radius circle ("area of review") has been drawn around each injection well. A "typical" 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. Attached as Exhibit I (pages 1-8).
VI. Attached as "Table of Drilling and Completion Information". Note that the only plugged well that has not been previously submitted within the area(s) of review is the Gene A. Snow Hobbs "S" Well #1 (see schematic diagram attached).

VII. 1) Included in tabular form (see VI above).
2) This is a closed system.
3) Included in tabular form (see VI above).
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 Ogallala 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 Ogallala 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.

- IX. All past stimulation programs are listed in tabular form (see VI above).
- X. Wells logs have been previously submitted to the Division.
- XI. Previously submitted as referenced on the C-108 Application.
- XII. Although this requirement is for disposal wells, Murphy Operating Corporation has examined available geologic and engineering data and finds no evidence of open faults or any other hydrologic connection between the proposed disposal (injection) zone and any underground source of drinking water
- XIII. The Proof of Notice requirement has been complied with. An Affidavit of Publication will be forwarded under separate cover when we receive same from the Portales News-Tribune, and a copy of the certified return receipts from the landowner, Ted Williamson, Milnesand, New Mexico and the offsetting leasehold operators within 1/2 mile acknowledging receipt of this application.

Murphy Operating Corporation hereby respectfully requests administrative approval to the application contained herein. Should you have any questions or comments, please contact the undersigned at the telephone number listed above.

Sincerely,

MURPHY OPERATING CORPORATION



Mark B. Murphy
President and Chief Operating Officer

MBM/js

cc: Mr. Jerry Sexton, Supervisor
Oil Conservation Division
Post Office Box 1980
Hobbs, New Mexico 88240

Enclosures:

Exhibit I - Landplats outlining "Area of Review";
Table of Drilling and Completion Information;
Typical schematic diagram;
Copies of Receipts for Certified Mail.

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 & Chief Operating Officer

Signature: Mark B. Murphy Date: January 26, 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 October 9, 1987

Order No. WFX-567, C-108 Application dated April 21, 1988, Order No. WFX-571

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.

RECEIVED

JAN 30 1989
OCD
REGS OFFICE

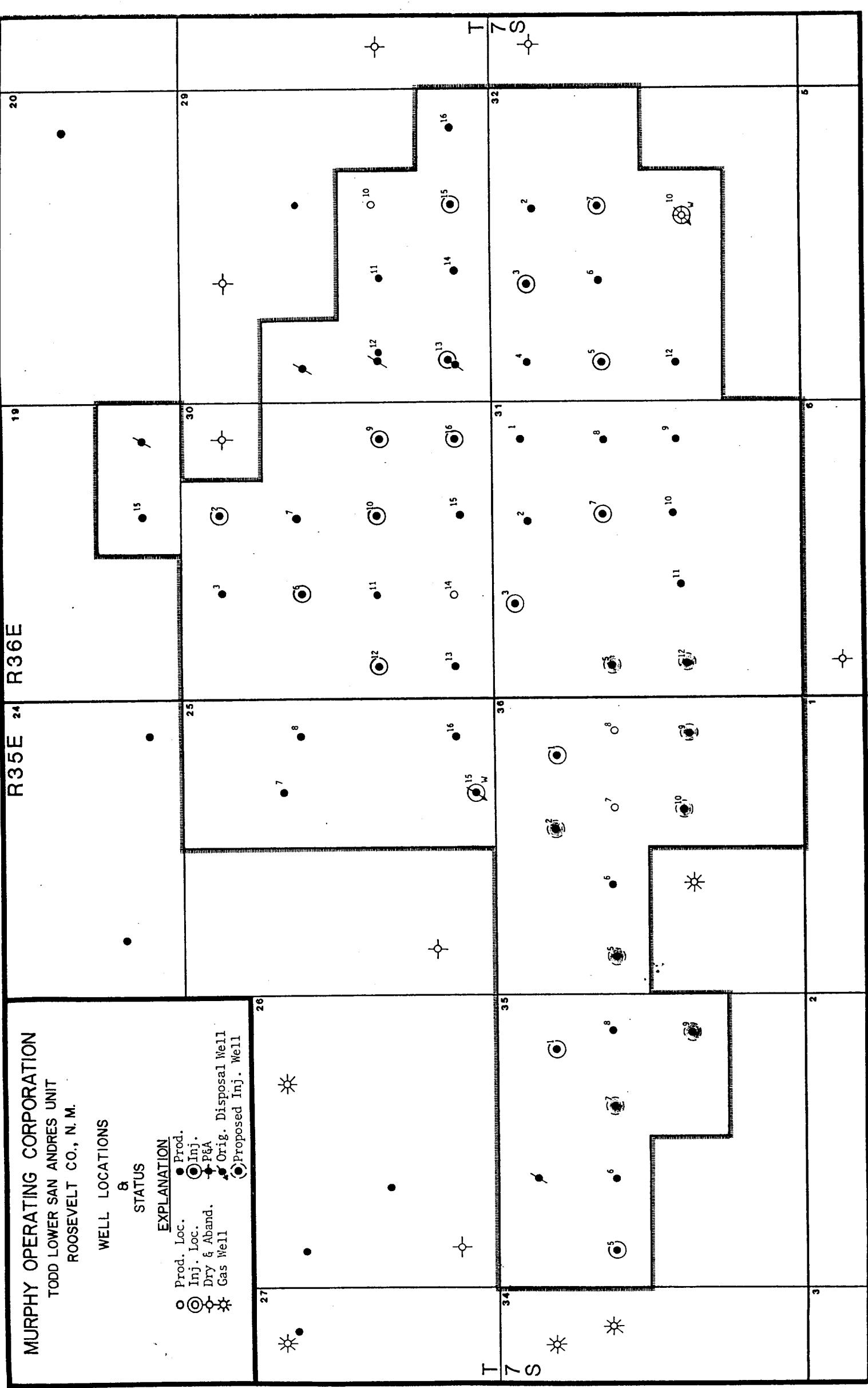
MURPHY OPERATING CORPORATION
TODD LOWER SAN ANDRES UNIT
ROOSEVELT CO., N.M.

WELL LOCATIONS

STATUS

EXPLANATION

- Prod. Loc.
- Prod.
- Inj. Loc.
- Inj.
- PQA
- Dry & Aband.
- Gas Well
- Orig. Disposal Well
- Proposed Inj. Well



PLUGGING DIAGRAM
TODD UPPER SAN ANDRES
Roosevelt & Chaves Counties, New Mexico

Company Name: Gene A. Snow

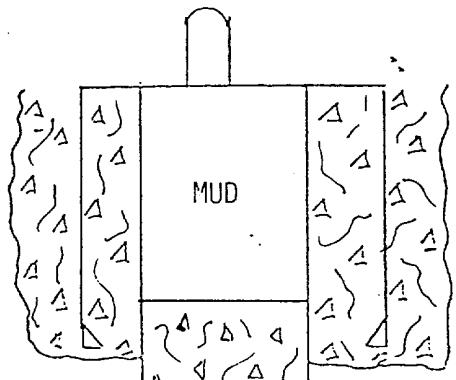
Lease Name: Hobbs "S"

Well No.: 1

Location: 1980 FSL + 1980 FWL, Sec. 36, T7S, R35E

Drilling and Completion Data

364' 8 5/8", cmt w/200 sx
circulated to surface

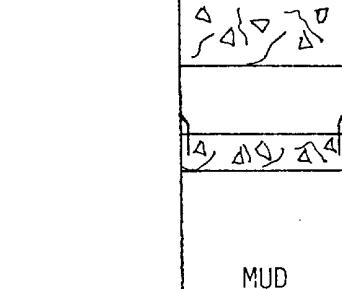


Plugging and Abandonment Data

Surface: 10 sx cmt plug

Set 100' cement plug
400' to 300'

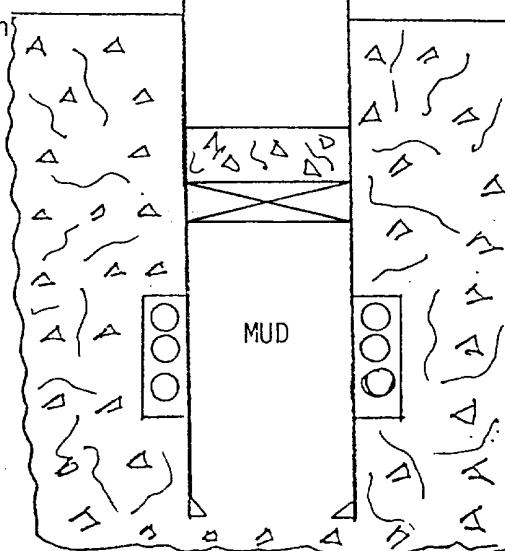
4375' 4 1/2", cmt w/250 sx



Set 100' cement plug
2050' to 1950'

Set 100' cement plug
50' in + 50' out of
4 1/2 stub
cut + remove 4 1/2 casing

TOC 3870' by calculation



Set 4 1/2 C.I. bridge
plug @ 4100' capped
with 40' of cement

Perfs. 4176-4267

4364'- PBTD
4375'- TD

O. O.	COPIES RECEIVED	
DISTRIBUTION		
TA FE		
R E		
U.S.G.S.		
LAND OFFICE		
OPERATOR		

NEW MEXICO OIL CONSERVATION COMMISSION

Form C-103
Supersedes Old
C-102 and C-103
Effective 1-1-65

5a. Indicate Type of Lease
State <input checked="" type="checkbox"/> Fee <input type="checkbox"/>
5. State Oil & Gas Lease No.
OG - 173

SUNDY NOTICES AND REPORTS ON WELLS

(DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR.
USE "APPLICATION FOR PERMIT --" (FORM C-101) FOR SUCH PROPOSALS.)

1. OIL WELL <input type="checkbox"/> GAS WELL <input checked="" type="checkbox"/> OTHER-	7. Unit Agreement Name
2. Name of Operator Gene A. Snow	8. Farm or Lease Name Hobbs "S"
3. Address of Operator 606 So. 13th. Lovington, N. Mexico 88260	9. Well No. 1
4. Location of Well UNIT LETTER K, 1980 FEET FROM THE South LINE AND 1980 FEET FROM THE West LINE, SECTION 36 TOWNSHIP 7S RANGE 35E NMMPM.	10. Field and Pool, or Wildcat Todd Upper SAN Andres
15. Elevation (Show whether DF, RT, CR, etc.) 4171 D.F.	12. County Roosevelt

16.

Check Appropriate Box To Indicate Nature of Notice, Report or Other Data			
NOTICE OF INTENTION TO:	SUBSEQUENT REPORT OF:		
PERFORM REMEDIAL WORK <input type="checkbox"/>	PLUG AND ABANDON <input type="checkbox"/>	REMEDIAL WORK <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
TEMPORARILY ABANDON <input type="checkbox"/>	CHANGE PLANS <input type="checkbox"/>	COMMENCE DRILLING OPNS. <input type="checkbox"/>	PLUG AND ABANDONMENT <input checked="" type="checkbox"/>
PULL OR ALTER CASING <input type="checkbox"/>	<input type="checkbox"/>	CASING TEST AND CEMENT JOB <input type="checkbox"/>	OTHER <input type="checkbox"/>
OTHER _____			

17. Describe Proposed or Completed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work) SEE RULE 1103.

Plugged well as follows:

1. Filled hole with good mud.
2. Set C.I. Bridge plug @ 4100' capped with 40' of cement.
- 3 Cut and removed 4½" Casing at 1249'.
4. Set 35 Sk's cement plug @ 1269' to 1169'.
- " " " " " 410' to 310'.
- " 10 " " " " 10' to 0'
5. Installed regulation marker.
6. Will notify when location is ready for inspection.

18. I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNED <u>Gene A. Snow</u>	TITLE <u>Owner</u>	DATE <u>10-16-74</u>
APPROVED BY <u>John W. Rengar</u>	TITLE <u>65-3222</u>	DATE <u>FEB 22 1977</u>
CONDITIONS OF APPROVAL, IF ANY:		

TABLE OF DRILLING AND COMPLETION INFORMATION
TODD LOWER SAN ANDRES UNIT PROPOSED INJECTION WELLS WITHIN AREA OF REVIEW

Well Name & Location	Well Type*	Casing Record	Date Drig. & Comp.	Total Depth	Perforations/Open Hole	Completion	Proposed Inj. Rate (BPD)	
							Proposed Inj. Press (PSI) Maximum	Proposed Inj. Press (PSI) Maximum
TLSAU Well #31-5 Formerly Hobbs "R" Well #2 E-31-T7S-R36E 1980' FNL & 661.1' FEL Elevation 4156' DF	IP	350' 8 5/8" in 12 1/2" hole 200 sacks cmt. Circ. to surf. 4375' 4 1/2" in 7 7/8" hole 250 sacks cmt. TOC 3900' CE log.	05-21-65/ 06-26-65	TD 4375 PBTD 4369	20 shots @ 4259'-4300.5' 10-08-84 Reperforate w/.42 diam. 60 holes, 1 JSPF 4244'-4304'	Acidize w/2000 gal 15% Frac w/20,000 gal lease oil & 20,000# sand.	2 3/8" 4.7# Ceramic Coated set @ 4149'	4 1/2" UNI-I Tension Packer set @ 4153'
TLSAU Well #31-12 Formerly State "BC" Well #1 L-31-T7S-R36E 1980' FSL & 608.5' FWL Elevation 4155' KB Elevation 4144.5' GL	IP	360.14' 8 5/8" 24# in 11" hole 200 sacks cmt. Circ. to surf. 4399.98' 4 1/2" in 7 7/8" hole 320 sacks cmt. TOC 3400' by State Comp. Form	07-18-65/ 08-01-65	TD 4400' PBTD 4370'	1 JSPF .41 size of 4281', 4289', 4296', 4299', 4304' 01-29-85 Reperforate 1 JSPF .42 diameter 4272'-4332'	Acidize w/2000 gal 15% acid. Frac w/20,000 gal oil & 20/40 sand. 01-30-85 Reacidize w/2000 gal 28% NEFE	N/A	N/A
TLSAU Well #35-7 Formerly State "CT" Well #6 G-35-T7S-R35E 1980' FNL & 1980' FEL Elevation 4185' DF	IP	362' 7 5/8" in 9 5/8" hole 200 sacks cmt. Circ. to surf. 4325' 4 1/2" in 6 3/4" hole 500 sacks cmt. TOC 3520' CE log.	03-24-67/ 03-31-67	TD 4325' PBTD 4324	2 JSPF 4248', 4258', 4266', 4274', 4284', 4296'	Acidize w/2000 gal 15% NEFE	2 3/8" 4.7# Ceramic Coated set @ 4138'	4 1/2" UNI-I Tension Packer set @ 4141'

* KEY:
 P - Producer
 I - Injector
 IP - Proposed Injector
 PA - Plugged & Abandoned

TABLE OF DRILLING AND COMPLETION INFORMATION
TODD LOWER SAN ANDRES UNIT PROPOSED INJECTION WELLS WITHIN AREA OF REVIEW

Well Name & Location	Well Type*	Casing Record	Date Drig. & Comp.	Total Depth	Perforations/Open Hole	Completion	Proposed Injection Downhole Equipment		Proposed Inj. Rate (BPD)	
							Tubing	Packer	Proposed Inj. Press (PSI)	Average Maximum
TLSAU Well #35-9 Formerly State "CT" Well #5 I-35-T7S-R35E 660' FEL & 1980' FSL Elevation 4166' GL	IP	337' 7 5/8" in 9 5/8" hole 250 sacks cmt. Circ. to surf.	08-06-66/ 09-21-66	TD 4350' PBTID 4309' 4317'	1 JSPF 4286', 4294', 4301', BDA	Acidize w/250 gal 15% BDA	2 3/8" 4.7#	4 1/2" UNI-1 Ceramic Coated set @ 4179'	400/400#	600/857#
TLSAU Well #36-2 Formerly State "AY" Well #1 B-36-T7S-R35E FEL 990' FNL & 2310' FEL Elevation 4169' DF	IP	356' 8 5/8" 24# in 12 1/4" hole 250 sacks cmt. Circ. to surf. 4400' KB 4 1/2" in 7 7/8" hole 200 sacks cmt. TOC 3700' by Temp. Survey.	01-09-65/ 01-29-65	TD 4440' PBTID 4388' 4287'	2 JSPF 4236', 4240', 4249', BDA 4251', 4255', 4267', 4272', 4276', 4283', NEFE	Acidize w/2000 gal 15% BDA 10-21-87 Reacidize w/2000 gal 15%	2 3/8" 4.7#	4 1/2" UNI-1 Ceramic Coated set @ 4129'	400/400#	600/847#
TLSAU Well #36-5 Formerly State "AY" Well #5 E-36-T7S-R35E 1980' FNL & 660' FWL Elevation 4168' GR	IP	339' 8 5/8" 24# in 12 1/4" hole 250 sacks cmt. Circ. to surf. 4363' 4 1/2" 95# in 7 7/8" hole 200 sacks cmt. TOC 3520' by Temp. Survey.	04-27-65/ 05-12-65	TD 4363' PBTID 4328'	2 JSPF 4251', 4265', 4279', 4289', 4294'	Acidize w/1000 gal Spearhead acid. Frac w/20,000# sand	2 3/8" 4.7#	4 1/2" UNI-1 Ceramic Coated set @ 4141'	400/400#	600/850#

TABLE OF DRILLING AND COMPLETION INFORMATION
TODD LOWER SAN ANDRES UNIT PROPOSED INJECTION WELLS WITHIN AREA OF REVIEW

Well Name & Location	Well Type*	Casing Record	Date Drig. & Comp.	Total Depth	Perforations/Open Hole	Proposed Injection Downhole Equipment		Proposed Inj. Rate (BPD)	
						Tubing	Packer	Proposed Inj. Press (PSI)	Average Maximum
TLSAU Well #36-9 Formerly State "AY" Well #6 J-36-T7S-R35E 1980' FSL & 660' FEL Elevation 4160' DF	IP	372' 8 5/8" in 11" hole 250 sacks cmt. Circ. to surf.	05-23-65/ 06-04-65	TD PBTD 4338'	1 SPF 4303', 4317', 4325', 4276', 4282', 4285', 4287', 4298'	Acidize w/2000 gal BDA			
		4372' 4 1/2" in 7 7/8" hole 200 sacks cmt. TOC 3520' by Temp. Survey.							
TLSAU Well #36-10 Formerly State "AY" Well #4 J-36-T7S-R35E 2110' FSL & 1980' FEL Elevation 4170' DF	IP	354' 8 5/8" in 12 1/4" hole 250 sacks cmt. Circ. to surf.	04-12-65/ 04-25-65	TD PBTD 4381'	2 SPF 4276', 4291', 4297', 4307', 4320', 4324'	Acidize w/1250 gal BDA	2 3/8" 4.7# Ceramic Coated set @ 4166'	400/400#	400/400#
		4423' 4 1/2" in 7 7/8" hole 200 sacks cmt. TOC 3690' by Temp. Survey.							
TLSAU Well #25-15 Formerly Mark Well #5 0-25-T7S-R35-E 330' FSL & 1650' FEL Elevation 4154' GL	I	287' 8 5/8" in 12 1/4" hole 175 sacks cmt. Circ. to surf.	08-23-65/ 10-22-65	TD PBTD 4311. 55'	1 JSPF 4213', 4215', 4223', 4225', 4227', 4232', 4236', 4238', 4242', 4245', 4247', 4259', 4265', 4270', 10-24-87	Acidize w/4250 gal 15% acid. SOF 20,000# sand.	2 3/8" 4.7# Ceramic Coated set @ 4168.40'	160/400#	600/1800#
		4315' KB 5 1/2" in 7 7/8" hole 300 sacks cmt. TOC 3641' CE log.							

TABLE OF DRILLING AND COMPLETION INFORMATION
TODD LOWER SAN ANDRES UNIT PROPOSED INJECTION WELLS WITHIN AREA OF REVIEW

Well Name & Location	Well Type*	Casing Record	Date Drdg. & Comp.	Total Depth	Perforations/Open Hole	Completion	Proposed Injection Downhole Equipment		Proposed Inj. Rate (BPD) Proposed Inj. Press (PSI)
							Tubing	Packer	
Continued: TLSAU Well #25-15					Drilled out & Reperforate 1 JSPF @ 4282', 4284', 4286', 4287', 4289', 4290', 4294', 4295', 09-26-88				
					Acidize w/5000 gal 15% acid				
TLSAU Well #25-16 Formerly Mark Well #6 P-25-T7S-R35E 660' FNL & 660' FEL Elevation 4151' GR	P	272' 8 5/8" in 12 3/4" hole 150 sacks cmt. Circ. to surf. 4306' KB 4 1/2" in 7 7/8" hole 250 sacks cmt. TOC 3655' CE 1og.	01-20-66/ 02-02-66	TD 4307' PBT 4346'	1 JSPF 4230', 4244', 4249', 4262', 4266', 4273'	Acidize w/1500 gal acid. 03-30-66 Frac w/40,000 gal lease oil & 40,000# 20/40 mesh sand.	N/A	N/A	N/A
					09-24-87	Reacidize w/5000 gal 15% NEFE mixed w/Xylene			
TLSAU Well #31-3 Formerly Hobbs "R" Well #1 C-31-T7S-R36E 330' FNL & 1650' FWL Elevation 4161' GR	I	254' 8 5/8" 24# in 12 3/4" hole 150 sacks cmt. Circ. to surf. 4430' GL 4 1/2" 10.5# in 7 7/8" hole. 250 sacks cmt. TOC 3339' by Temp. Survey	Spud 10-31-64 Rntr 04-02-65 Comp 04-24-64	TD 4440' KB PBT 4354	1 JSPF 4257', 4263', 4267', 4270', 4274', 4282', 4290', 4298', 4302', 9 shots	Acidize w/2000 gal 15% HC1. Frac w/20,000 gal gel lease oil & 20,000# 20/40 sand.	2 3/8" 4.7# J-55 PVC line set @ 4167' GL	4 1/2" UNI-1 Tension Packer set @ 4170' GL	160/400# 600/1430#
					02-17-84	Reacidize w/24 bbls 28% HC1			
					50" 4252' -4302 50 shots				

TABLE OF DRILLING AND COMPLETION INFORMATION
TODD LOWER SAN ANDRES UNIT PROPOSED INJECTION WELLS WITHIN AREA OF REVIEW

Well Name & Location	Well Type*	Casing Record	Date Drig. & Comp.	Total Depth	Perforations/Open Hole	Completion	Proposed Injection Downhole Equipment		Proposed Inj. Rate (BPD) Proposed Inj. Press (PSI)
							Tubing	Packer	
TLSAU Well #31-11 Formerly Atlantic State Well #1 K-31-T7S-R36E 2120' FSL & 2023' FWL Elevation 4149' KB Elevation 4140' GL	I	331' 8 5/8" 20# in 2 1/4" hole 225 sacks cmt. Circ. to surf.	07-08-68/ 07-16-68	TD 4335' PBD 4333.5	1 JSPF 4382', 4384', 4389', 4391', 4396', 4301', 4307', 4309', 4312', 4315', 4317'	Acidize w/3000 gal 15% acid. Frac w/30,000 gal lease oil & 35,000# 20/40 sand.	2 3/8" 4.7#	5 1/2" UNI-1 Tension Packer set @ 4271'	400/400# 600/876#
TLSAU Well #35-1 Formerly State "CT" Well #2 A-35-T7S-R35E 990' FNL & 990' FEL Elevation 4185' DF	I	350' 7" in 9 7/8" hole 200 sacks cmt. Circ. to surf.	09-14-64/ 09-18-65	TD 4400' PBD 4369'	2 JSPF 4235', 4237', 4241', 4243', 4251', 4262', 4278'	Acidized w/500 gal acetic acid. Reacidize w/1500 gal 15% NEFE	2 1/6" Coated set @ 3961.91' 3971.95'	2 7/8" UNI-1 Tension Packer set @	400/400# 600/847#
TLSAU Well #35-5 Formerly State "CT" Well #7 E-35-T7S-R35E 1980' FNL & 660' FWL Elevation 4197' DF	I	357' 7 7/8" in 9 5/8" hole 200 sacks cmt. Circ. to surf.	04-03-67/ 04-16-67	TD 4360' PBD 4350'	2 JSPF 4280', 4284', 4292', 4297', 4308', 4316', 4320'	Acidize w/2000 gal 15% NEFE	2 3/8" 4.7#	4 1/2" UNI-1 Tension Packer set @ 4098.95'	400/400# 600/856#

TABLE OF DRILLING AND COMPLETION INFORMATION
TODD LOWER SAN ANDRES UNIT PROPOSED INJECTION WELLS WITHIN AREA OF REVIEW

Well Name & Location	Well Type*	Casing Record	Date Drig. & Comp.	Total Depth	Perforations/Open Hole	Completion	Proposed Injection Downhole Equipment		Proposed Inj. Rate (BPD)	
							Tubing	Packer	Average	Maximum
TLSAU Well #35-6 Formerly State "CT" Well #3 F-35-T7S-R35E 1980' FNL & 1980' FWL Elevation 4191' DF	P	320' 7 5/8" in 11" hole 200 sacks cmt. Circ. to surf. 4355' 4 1/2" in 6 3/4" hole 500 sacks cmt. TOC 3400' CE log.	06-14-66/ 06-27-66	TD 4355' PBTD 4339'	2 JSPF 4262', 4266', 4276', 4282', 4290', 4306'	Acidize w/2000 gal 15% NEFE	N/A	N/A	N/A	N/A
TLSAU Well #35-8 Formerly State "CT" Well #2 H-35-T7S-R35E 1980' FNL & 660' FEL Elevation 4167' GR	P	357' 7 5/8" in 9 7/8" hole 200 sacks cmt. Circ. to surf. 4358' 4 1/2" in 6 3/4" hole 500 sacks cmt. TOC 3400' by Calc.	04-22-67/ 05-04-66	TD 4358' PBTD 4348'	2 JSPF 4256', 4260', 4268', 4277', 4287', 4297'	Acidize w/500 gal Acetic acid & 2000 gal Unisol	N/A	N/A	N/A	N/A
TLSAU Well #36-1 Formerly State "AY" Well #2 A-36-T7S-R35E 990' FNL & 990' FEL Elevation 4165' DF	I	363' 8 5/8" in 12 1/4" hole 250 sacks cmt. Circ. to surf. 4325' 4 1/2" in 7 7/8" hole 200 sacks cmt. TOC 3530' CE log.	02-13-65/ 03-17-65	TD 4325' PBTD 4286'	10-01-87 Squeezed old perfs. w/100 sacks class C cmt. 4235', 4242', 4249', 4253', 4258', 4268', 4273', 4280'	Acidize w/2000 gal Spearhead acid. Frac w/20,000 gal ref oil & 20,000# sand w/551,000 cu. ft. Co2. 10-03-87 Reperforated 1 JSPF	2 3/8" 4.7# Ceramic Coated set @ 4069.85'	4 1/2" UNI-1 Tension Packer set @ 4082.30'	400/400# NEFE	600/847#

TABLE OF DRILLING AND COMPLETION INFORMATION
TODD LOWER SAN ANDRES UNIT PROPOSED INJECTION WELLS WITHIN AREA OF REVIEW

Well Name & Location	Well Type*	Casing Record	Date Drig. & Comp.	Total Depth	Perforations/Open Hole	Completion
TLSAU Well #36-6 Formerly State "AY" Well #3 F-36-T7S-R35E 1980' FNL & 1980' FWL Elevation 4170.7 DF	P 12 1/4" hole 250 sacks cmt. Circ. to surf. 4431' 4 1/2" in 7 7/8" hole 200 sacks cmt. TOC 3620' by Temp. Survey.	365' 8 5/8" in 4430' 4290', 4395'	03-01-65/ 03-18-65	TD 2 SPF 4251', 4269', 4274', 4296'	Acidize perfs at 4290' & 4296' w/5000 gal BDA Acidize 4269' & 4294' w/500 BDA	
Gene A. Snow Hobbs "V" Well #1 35-T7S-R35E 1980' FSL & 1980' FWL Elevation 4185' GL	PA * 400' 8 5/8" 225 sacks cmt. Circ. to surf. 4428' 4 1/2" 350 sacks cmt. TOC 3600' by calc.	09-28-65/ 11-01-65	TD 1 JSPF 4191', 4203', 4213', 4253', 4273'	Acidize w/1000 gal acid.		
TLSAU Well #35-3 Formerly Texaco State "CT" Well #3 C-35-T7S-R35E 660' FNL & 1980' FWL Elevation 4189' DF	PA * 347' 7 5/8" 200 sacks cmt. Circ. to surf. 4325' 4 1/2" 500 sacks cmt. TOC 3400' by calc.	04-07-68	Recom TD 4335'	Original completion 08-01-66 San Andres perfs @ 4240' -85' 04-08-68 4125', 4155', 4162', 4165', 4190', 4196'	Acidize w/2500 gal 15% NEFE	

*Plugging diagram enclosed with Waterflood Expansion Request dated April 21, 1988. Approved May 26, 1988, OCD Order No. WFX-571

TABLE OF DRILLING AND COMPLETION INFORMATION
TODD LOWER SAN ANDRES UNIT PROPOSED INJECTION WELLS WITHIN AREA OF REVIEW

Well Name & Location	Well Type*	Casing Record	Date Drig. & Comp.	Total Depth	Perforations/Open Hole	Completion
Franklin Astin & Fair Mark Federal Well #2 M-25-T7S-R35E 660' FSL & 660' FWL Elevation 4170' DF	PA * 175 sacks cmt. Circ. to surf. 4355' 4 1/2" 100 sacks cmt. TOC 4000' by Calc.	290' 8 5/8" TD 4355' PBTD 4297'	10-31-63/ 12-12-63	TD 4211'-21' 4375' PBTD 4364'	1 SPF	Acidize w/2000 gal acid.
Gene A. Snow Hobbs "S" Well #1 36-T7S-R35E 1980' FSL & 1980' FWL Elevation 4171' GL	PA ** 200 sacks cmt. Circ. to surf. 4375' 4 1/2" in 7 7/8" hole 250 sacks cmt. TOC 3580' by Calc.	364' 8 5/8" in 11" hole TD 4375' PBTD 4364'	06-12-65/ 06-19-65	TD 4176'-4267'	4176'-4267'	Acidize w/1000 gal acid. Frac w/40,000 gal jelled water & 40,000# sand.

*Plugging diagram enclosed with Waterflood Expansion Request dated April 21, 1988. Approved May 26, 1988, OCD Order No. WFX-571.

**Plugging diagram enclosed.

INJECTION WELL DATA SHEET

Murphy Operating Corporation

OPERATOR Well Numbers and Location(s) LLASL Sections T7S-R35E
 listed on attached sheet 31, 35, & 36 T7S-R36E Roosevelt County, NM
WELL NO. FOOTAGE LOCATION SECTION TOWNSHIP RANGE

Schematic


 8 5/8" Casing Annulus filled w/inert ("packer") Surface Casing
 fluid. Size 7 5/8"-8 5/8" Cemented with 200-250 sx.
 Pressure TOC Surface feet determined by Circulation
 tested to Hole size 9 5/8", 11", or 12 1/4"
 300 psig and held for 30 minutes. Intermediate Casing
 Size _____" Cemented with _____ sx.
 TOC _____ feet determined by _____
 Hole size _____
 4 1/2" Casing Long string
 2 3/8" ceramic coated tubing Size 4 1/2" " Cemented with 200-500 sx.
 TOC 3400'-3900' feet determined by Temp Survey or CE Log
 Hole size 6 3/4" to 7 7/8"
 Total depth 4325' to 4440'
 Injection interval
4235' feet to 4286' feet
 (perforated ~~XXXXXXXXXXXXXX~~)
 P-2 Perforations 4 1/2" Baker UNI-1 Water will be injected into the P-2 zone
 Injection of the San Andres formation (being the
 Packer set equivalent interval as found between the
 @ approx. logged depths of 4235' and 4286' in the
 100' above Murphy Operating Corporation's Todd Lower
 uppermost San Andres Unit Well #30-10 as shown on the
 perforation. 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 4100'-4150' feet
 (brand and model) (approximately 100' above uppermost
 (or describe any other casing-tubing seal). perforation)

Other Data

1. Name of the injection formation San Andres
2. Name of Field or Pool (if applicable) Todd Lower San Andres Unit
3. Is this a new well drilled for injection? Yes No
 If no, for what purpose was the well originally drilled? All wells drilled as oil and gas producers.
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) See exhibit entitled Table of Drilling and Completion Information.
5. 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 a depth of approximately 7500' below ground level.

Attached to and made part of Murphy Operating Corporation's
Injection Well Data Sheet, C-108 Application dated January 26, 1989

<u>Unit Well No.</u>	<u>Location</u>	<u>Top Perforation</u>	<u>PBTD</u>	<u>TD</u>
31-5	E-31-T7S-R36E	4244'	4369'	4375'
31-12	L-31-T7S-R36E	4272'	4370'	4400'
35-7	G-35-T7S-R35E	4248'	4324'	4325'
35-9	I-35-T7S-R35E	4286'	4317'	4350'
36-2	B-36-T7S-R35E	4236'	4388'	4440'
36-5	E-36-T7S-R35E	4251'	4328'	4363'
36-9	I-36-T7S-R35E	4303'	4338'	4370'
36-10	J-36-T7S-R35E	4276'	4381'	4430'

100
30580

Distribution List

Offsetting Leasehold Operators

Mr. Bill Coppoc, Engineer
Apache Corporation
500 Triad Center
7666 East 61st Street
Tulsa, Oklahoma 74133-1201

Mr. Kenneth D. Crews
Landman and Attorney
Mayfair Minerals, Inc.
Post Office Box 940
Mayfair, Texas 78502

Mr. Mike Slater, Operations Manager
Yates Petroleum Corporation
105 South 4th Street
Artesia, New Mexico 88210

Mr. H. R. Lewis, District Manager
Amoco Production Company
Post Office Box 4072
Odessa, Texas 79760

Mr. John M. Weaver, District Manager
Texaco, Inc.
Post Office Box 1270
Midland, Texas 79702

Mr. Micky Warlick
Gulf Chevron, U.S.A.
Post Offices Box 670
Hobbs, New Mexico 88240

Mr. Bill Graham
G & P Exploration, Inc.
4800 San Felipe - Suite 620
Houston, Texas 77056

January 24, 1988

v1

RE: Todd Lower San Andres Unit
Roosevelt County, New Mexico

v2

This letter is to constitute notice that Murphy Operating Corporation, Roswell, New Mexico, intends to convert the following wells 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>
35-7	G	35	T7S-R35E
35-9	I	35	T7S-R35E
36-2	B	36	T7S-R35E
36-5	E	36	T7S-R35E
36-9	I	36	T7S-R35E
36-10	J	36	T7S-R35E
31-5	E	31	T7S-R36E
31-12	L	31	T7S-R36E

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) at rates of approximately 400 BWPD and at maximum wellhead pressures not exceeding 850 psi.

Enclosed for your review and information, please find a copy of the State of New Mexico Oil Conservation Division Form C-108, "Application for Authorization to Inject".

If you should have any questions concerning this matter, I can be contacted at the telephone number listed above. Interested parties must file objections or requests for hearing with the Oil Conservation Division, Post Office Box 2088, Santa Fe, New Mexico 87501 within fifteen (15) days.

Sincerely,

MURPHY OPERATING CORPORATION

Mark B. Murphy
President and Chief Operating Officer

MBM/jjs

Enclosure:

State of New Mexico Oil Conservation Division
Form C-108, "Application for Authorization to Inject"

P 663 393 267
RECEIPT FOR CERTIFIED MAIL
 NO INSURANCE COVERAGE PROVIDED
 NOT FOR INTERNATIONAL MAIL
 (See Reverse)

Sent to	Bill Graham
Street and No.	4800 San Felipe-Suite 620
P.O., State and ZIP Code	Houston, TX 77056
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	

P 912 033 087
RECEIPT FOR CERTIFIED MAIL
 NO INSURANCE COVERAGE PROVIDED
 NOT FOR INTERNATIONAL MAIL
 (See Reverse)

Sent to	Kenneth D. Crews
Street and No.	P.O. Box 940
P.O., State and ZIP Code	Mayfair, TX 78502
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	

P 665 395 463
RECEIPT FOR CERTIFIED MAIL
 NO INSURANCE COVERAGE PROVIDED
 NOT FOR INTERNATIONAL MAIL
 (See Reverse)

Sent to	Bill Coppoc, Eng.
Street and No.	7666 East 61st Str.
P.O., State and ZIP Code	Tulsa, OK 74133-1201
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	

P 663 393 263
RECEIPT FOR CERTIFIED MAIL
 NO INSURANCE COVERAGE PROVIDED
 NOT FOR INTERNATIONAL MAIL
 (See Reverse)

Sent to	H. R. Lewis
Street and No.	P.O. Box 4072
P.O., State and ZIP Code	Odessa, TX 79760
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	

Sent to	Mr. Mike Slater
Street and No.	105 S. 4th Street
P.O., State and ZIP Code	Artesia, NM 88210
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	

P 663 393 266
RECEIPT FOR CERTIFIED MAIL
 NO INSURANCE COVERAGE PROVIDED
 NOT FOR INTERNATIONAL MAIL
 (See Reverse)

Sent to	Micky Warlick
Street and No.	P.O. Box 670
P.O., State and ZIP Code	HOBBS, NM 88240
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	

P 663 393 265
RECEIPT FOR CERTIFIED MAIL
 NO INSURANCE COVERAGE PROVIDED
 NOT FOR INTERNATIONAL MAIL
 (See Reverse)

Sent to	John M Weaver
Street and No.	P.O. Box 1270
P.O., State and ZIP Code	MIDLAND, TX 79702
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	