SHD-257 San Andres approx 4210-4810 842psi

OIL CONSERVATION DIVISION
DISTRICT I

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

DATE 3/14/83

RE: Proposed MC
Proposed DHC
Proposed NSL
Proposed NSP
Proposed SWD X
Proposed WFX
Proposed PMX

Gentlemen:

I have examined the application for the:

J. L. McGill Federal Deep #1-H 12-9-37
Operator Lease and Well No. Unit, S - T - R

and my recommendations are as follows:

ok SS

Yours very truly,

/mc

J. L. McGILL
Petroleum Engineer - P.E. 48745
2818 W. DENGAR
915-697-1539 MIDLAND, TEXAS 79701

March 9, 1983

Oil Conservation Division
P. O. Box 2088
State Land Office Building
Santa Fe, New Mexico 87501

Attention: Mr. Oscar Simpson

Re: Proposed Gandy SWD Well
Sec. 12, T-9-S, R-37-E
Lea County, New Mexico

Gentlemen:

Enclosed herewith please find New Mexico Oil Conservation Division Form 108 with supporting exhibits as required by Section III, V, VI, VII, VIII, XI, XII, and XIII. These exhibits are discussed as follows:

Section III - Only one well is proposed for injection, the Warren Petroleum Corp. (now Gulf) Federal Heep No. 1, P. & A. in 1956; Well Data Sheet is submitted on this well.

Section V - Map identifying all wells and leases within two miles of the proposed injection well and a one-half radius circle around same as the wells area of review.

Section VI - Tabulation of data on all wells within the area of review with schematic drawing of physical condition of each well.

Section VII - Data on the proposed operation is submitted as requested.

Section VIII- The geological data on the injection zone and underground sources of drinking water are submitted as requested.

Section XI - Enclosed are chemical analyses on the only three active fresh water wells within one mile of the proposed injection well.

Section XII - An affirmative statement concerning any hydrologic connection that may exist between the disposal zone and any underground source of drinking water is submitted as requested.

Section XIII- The "Proof of Notice" is documented, as required, by submitting copies of the certified mail receipts to the land surface owners and to each leasehold operator within one-half mile of the proposed injection well location.

Should you desire any additional information, please advise and I will furnish same.

Yours truly,

J. L. McGill

JLM/jra

Enclosures

cc: See Attached List

ADDRESS LIST

Copies of Form C-108 for
J. L. McGill Gandy SWD

Brazos Petroleum Company
P. O. Box 1782
Midland, Texas 79702

R. S. Cooley
P. O. Box 254
Midland, Texas 79702

Katherine D. Gilmore
Western Bldg., Suite 101
1031 Andrews Hwy.
Midland, Texas 79701

W. H. Gilmore
Western Bldg., Suite 101
1031 Andrews Hwy.
Midland, Texas 79701

Gene Milford
P. O. Box 427
Tatum, New Mexico 88267

Yates Petroleum Corporation
207 South 4th Street
Artesia, New Mexico 88210

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: J. L. McGill

Address: 2818 W. Dengar; Midland, Texas 79701

Contact party: J. L. McGill Phone: 915/697-1539 or 915/684-4463

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. See attached map.

* 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. See attached well schematic

VII. Attach data on the proposed operation, including:

See attached Operations Data Shee

1. Proposed average and maximum daily rate and volume of fluids to be injected;
2. Whether the system is open or closed; & water analyses
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. See attached Geological Data.

IX. Describe the proposed stimulation program, if any. 2000 gal. 15% HCl acid.

* X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division they need not be resubmitted.) Previously submitted.

* 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. See attached chemical analyses.

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. See attached Applicants Affirmative Statement.

XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.
See attached copies of Certified Mail Receipts.

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: J. L. McGill Title Operator & Owner

Signature: J. L. McGill Date: March 9, 1983

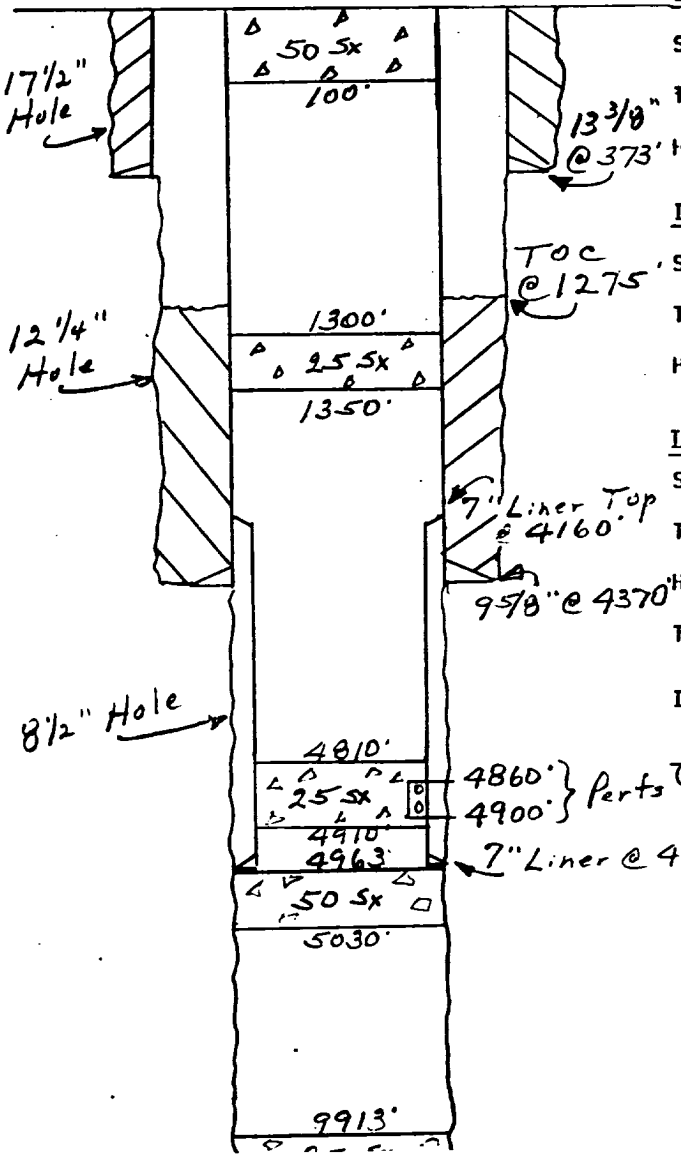
* If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be duplicated and resubmitted. Please show the date and circumstance of the earlier submittal. N/A

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

Warren Petroleum Corp. — OPERATOR
Federal-Heep — LEASE

1	1980' FSL & 660' FEL	12	9-S	37-E
WELL NO.	FOOTAGE LOCATION	SECTION	TOWNSHIP	RANGE

Schematic



Tabular Data

Surface Casing

Size 13 3/8" @ 373' " Cemented with 400 sx.

TOC Surface feet determined by Visual

Hole size 17 1/2"

Intermediate Casing

Size 9 5/8" @ 4370' " Cemented with 2200 sx.

TOC 1275 feet determined by unknown

Hole size 12 1/4"

Liner

Size 7"; 4961-4160' " Cemented with 325 sx.

TOC 4160 feet determined by drlg. cement

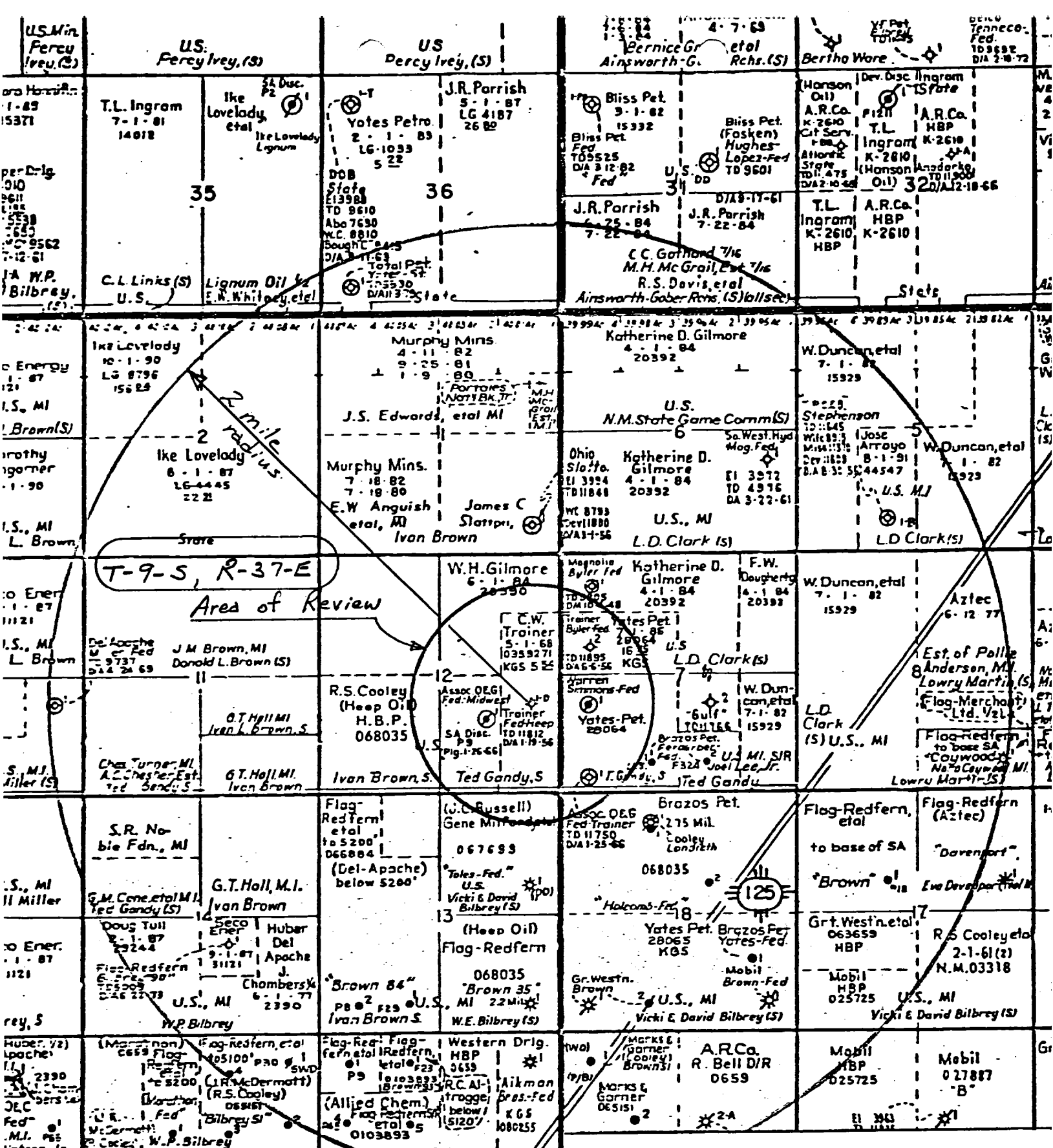
Hole size 8 1/2"

Total depth 11,812'

Injection interval

4210 feet to 4810 feet

(perforated or open-hole, indicate which)



J. L. MCGILL

PROPOSED GANDY SALT WATER DISPOSAL

Plat identifying all wells and leases within two miles of the proposed salt water disposal well; and

Showing the one-half mile radius around subject well identifying the "area of review".

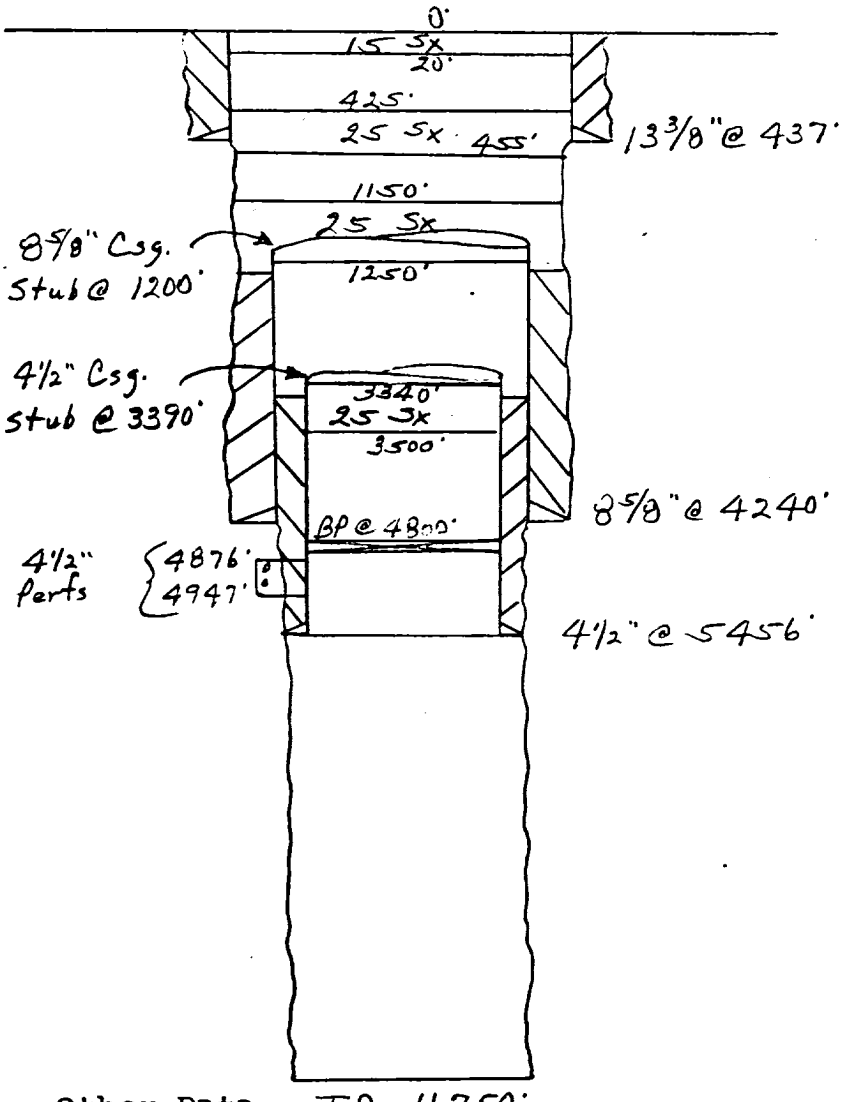
Lea and Roosevelt Counties, New Mexico 2-22-8

AR OF REVIEW WELL DATA SHE

Associated Oil & Gas Exploration, Inc.	Trainer-Federal			
OPERATOR	LEASE			
1	330' FSL & 660' FWL	7	9-S	38-E
WELL NO.	FOOTAGE LOCATION	SECTION	TOWNSHIP	RANGE

Lea County, New Mexico

SCHEMATIC



TABULAR DATA

Surface Casing

Size 13 3/8"@437' Cmtd w/ 400 sx.

TOC Surface ft. as per visual

Hole size 17 1/2 "

Intermediate Casing

Size 8 5/8"@4240', Cmtd w/ 550 SX.

TOC Unknown ft. as per ------

Hole size 11 "

Long string

Size 4 1/2"@5456', Cmtd w/ 425 sx.

TOC Unknown ft. as per -----

Hole size 7 7/8 "

Liner

Size None ", from ' to

Cmtd. w/ sx, TOC

Hole size "

Total Depth 11,750'

Other Data TD 11,750'

1. Name of Field or Pool (if applicable) NA

2. Is this a new well drilled for injection ____ Yes X No
If no, for what purpose was the well originally drilled? Devonian test (failure) then attempted San Andres completion.

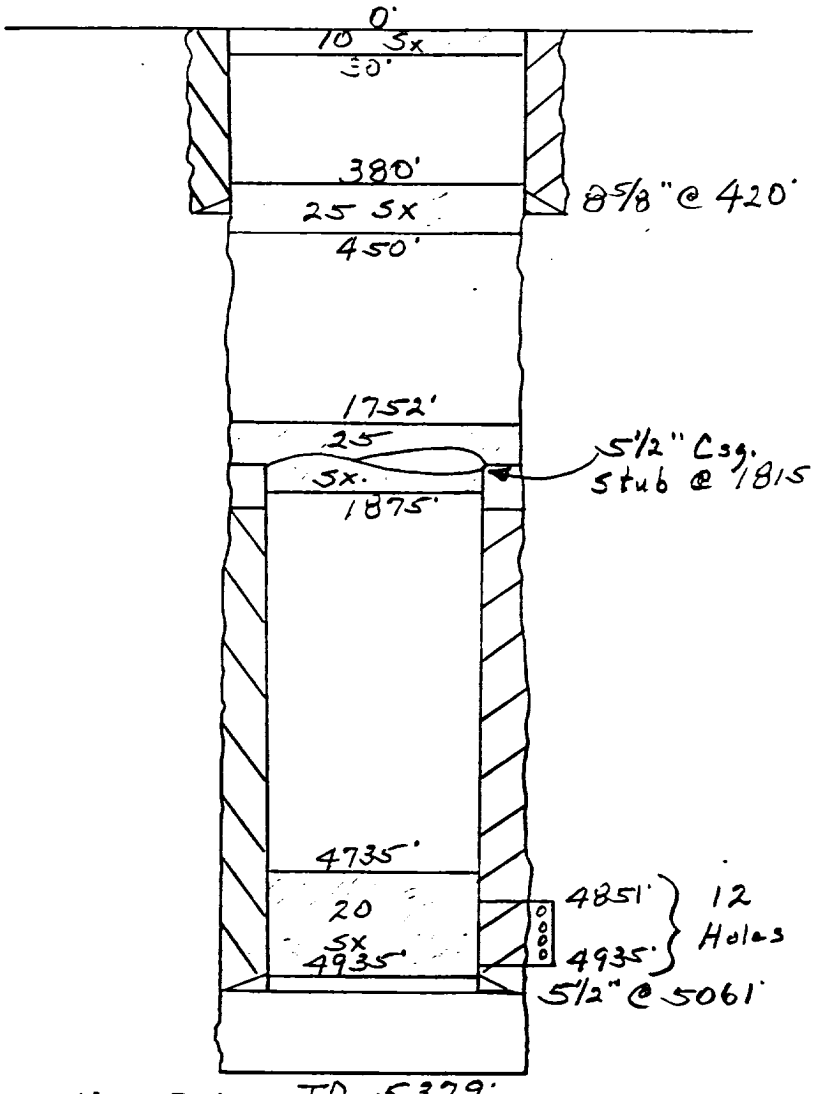
3. Has the well ever been perforated in any other zone (s) ? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug (s) used)4 1/2" Csg. perfed from 4876' to 4947' w/ 9 holes; 25 sx @ 4650' - 4950' (did not hold) set BP @4800'; shot off 4 1/2" csg. and recovered 3390' of 4 1/2" csg., then recovered 1200' of 8 5/8" csg.; 25 sx 3340-3500': 25 sx 1150 -1250':25sx@ 425-455: 15 sx. @ 0-20

AR . OF REVIEW WELL DATA SHE

Associated Oil & Gas Exploration Co., Inc.	Federal-Midwest		
OPERATOR	LEASE		
1	1650' FS & EL	12	9-S	37-E
WELL NO.	FOOTAGE LOCATION	SECTION	TOWNSHIP	RANGE

Lea County, New Mexico

SCHEMATIC



TABULAR DATA

Surface Casing

Size 8 5/8"@420', Cmtd w/ 200 sx.

TOC Surface ft. as per Visual

Hole size 11 "

Intermediate Casing

Size None, Cmtd w/ SX.

TOC ft. as per

Hole size "

Long string

Size 5 1/2"@5061', Cmtd w/ 400 sx.

TOC Unknown ft. as per

Hole size 7 5/8 "

Liner

Size None", from 'to

Cmtd. w/ sx, TOC

Hole size "

Total Depth 5379'

Other Data

1. Name of Field or Pool (if applicable) _____

2. Is this a new well drilled for injection ____ Yes ____x No
   If no, for what purpose was the well originally drilled? San Andres test.

3. 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) 5 1/2" csg. perf. 4851-4935' (12 holes); 20 sx @ 4735-4935; shot 5 1/2" csg. @ 1815' and recovered same; 25 sx @ 1752-1875; 25 sx @ 380-450; 10 sx @ surface to 30'

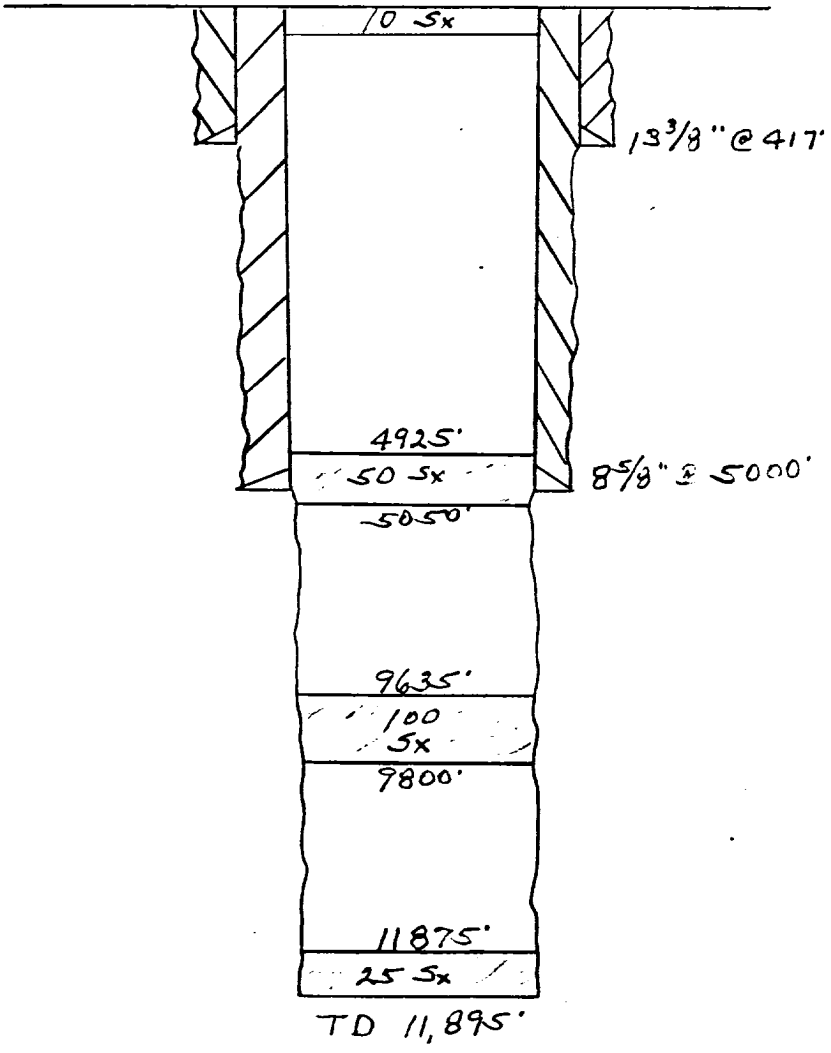
AR OF REVIEW WELL DATA SHEI

Magnolia Petroleum Co. — OPERATOR
Byler-Federal — LEASE

2	1980' FNL & 660' FWL	7	9-S	38-E
WELL NO.	FOOTAGE LOCATION	SECTION	TOWNSHIP	RANGE

Lea County, New Mexico

SCHEMATIC



TABULAR DATA

Surface Casing

Size 13 3/8"@417, Cmtd w/ 450 sx.

TOC Surface ft. as per Visual

Hole size 17 1/2 "

Intermediate Casing

Size 8 5/8"@5000', Cmtd w/ 2891 SX.

TOC Unknown ft. as per _____

Hole size 11 "

Long string

Size None, Cmtd w/ _____ sx.

TOC _____ ft. as per _____

Hole size _____ "

Liner

Size None ", from _____ 'to _____

Cmtd. w/ _____ sx, TOC _____

Hole size _____ "

Total Depth 11,895'

No Casing Pulled

Other Data

1. Name of Field or Pool (if applicable) _____

2. Is this a new well drilled for injection _____ Yes x No
If no, for what purpose was the well originally drilled? Devonian test (failure)

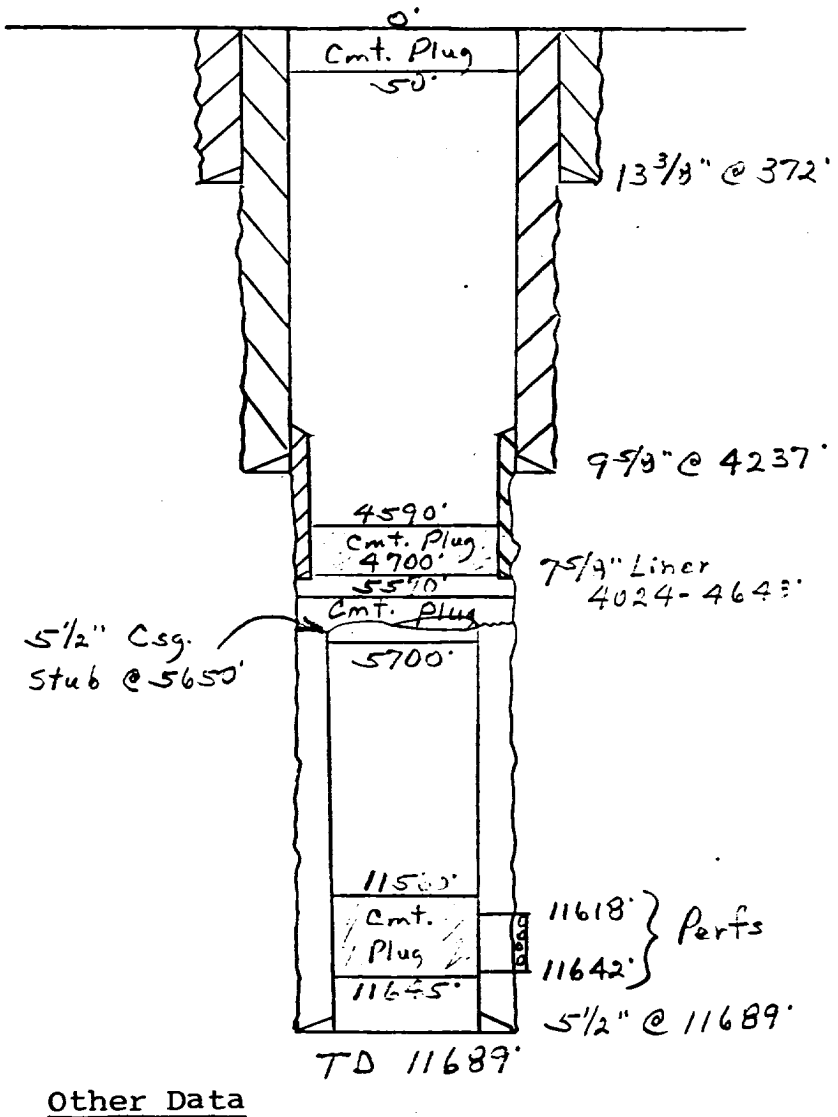
3. Has the well ever been perforated in any other zone (s) ? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug (s) used) 25 sx @ 11875-11895'; 100 sx @ 9635-9800'; 50 sx @ 4925-5050'; 10 sx @ surface.

AREA OF REVIEW WELL DATA SHEET

Warren Petroleum Corp.		Simmons-Federal		
OPERATOR		LEASE		
1	1980' FSL & 660' FWL	7	9-S	38-E
WELL NO.	FOOTAGE LOCATION	SECTION	TOWNSHIP	RANGE

Lea County, New Mexico

SCHEMATIC



TABULAR DATA

Surface Casing

Size 13 3/8"@372', Cmtd w/ 400 sx.

TOC Surface ft. as per Visual

Hole size 17 1/2" "

Intermediate Casing

Size 9 5/8" @4237, Cmtd w/ 2000 SX.

TOC Unknown ft. as per ----

Hole size 12 1/4 "

Long string

Size 5 1/2"@11689, Cmtd w/ 1800 sx.

TOC Unknown ft. as per

Hole size 6 1/2 "

Liner

Size 7 5/8 ", from 4024 'to 4643

Cmtd. w/ 175 sx, TOC Unknown

Hole size 8 1/2 "

Total Depth 11689'

Other Data

1. Name of Field or Pool (if applicable) _____

2. Is this a new well drilled for injection _____ Yes x No
If no, for what purpose was the well originally drilled? Devonian test and successful completion.

3. 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) 5 1/2" csg. perf @ 11618-11642' (Devonian); spot cement plug 11560-11645; recovered 5650' of 5 1/2" csg; spot cement plugs @ 5590-5700; 4590-4700' and 0-50' @ surface.

OPERATIONS DATA SHEET

Section VII - Data on the proposed Gandy Salt Water Disposal operation is as follows:

1. Proposed average daily rate of produced water injection - 600 BWPD
   Proposed maximum daily rate of produced water injection - 1500 BWPD
   Monthly volumes estimated at 18,000 to 45,000 barrels.

2. The proposed system would be open.

3. Proposed average and maximum injection pressures are estimated to be in the range of 400 to 800 psig at the triplex pump.

4. Primary sources of the injected fluid will be produced water from the Sawyer San Andres Pool of Lea County, New Mexico and the Buckshot San Andres Field of Cochran County, Texas, with a minor volume of produced water from deeper horizons in the immediate area. The bulk of the water, probably 80 to 90 percent, will be produced San Andres water being re-injected back into the San Andres. Water analyses from the San Andres reservoirs involved are submitted herewith.

5. The proposed water injection is for disposal purposes into an abandoned dry hole within one mile of oil and gas production. The same water analyses referred to in #4 above are the same as fluids in the proposed injection zone.

Sec. VII

LOCATION

YOUR EXT. NO.

THE WESTERN COMPANY

WATER ANALYSIS

ANALYSIS NO.

GENERAL INFORMATION

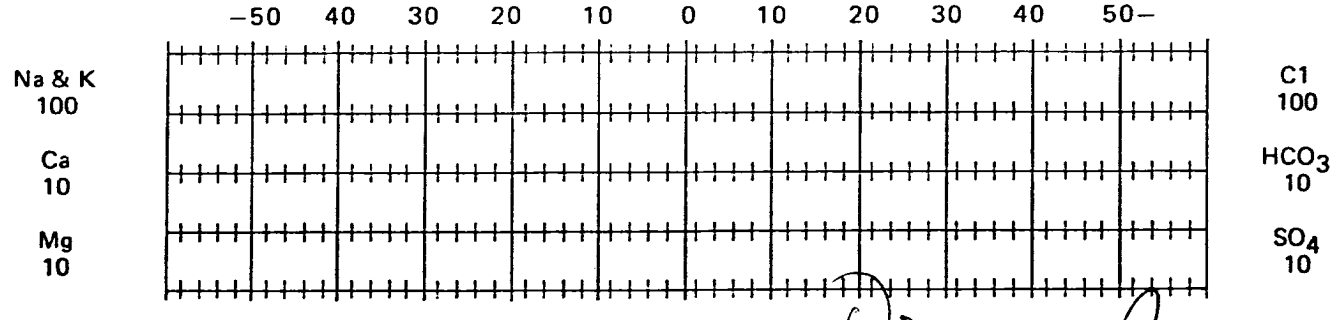
OPERATOR	Merchinson & Mallary	DATE SAMPLED	12-14-59
WELL	Sherrill #3	DATE RECEIVED	
FIELD	Buckshot	SUBMITTED BY	
FORMATION	San Andres	WORKED BY	
COUNTY	Cochran	SAMPLE DESCRIPTION:	
STATE	Texas		
DEPTH	4952-4988		

PHYSICAL AND CHEMICAL DETERMINATIONS

SPECIFIC GRAVITY	1.155 AT 72 °F		TOTAL DISSOLVED SOLIDS	PPM
pH	5.5		RESISTIVITY 0.050	PPM
IRON	none		SULFATE 1060	PPM
HYDROGEN SULFIDE	very strong trace		BICARBONATE 610	PPM
HARDNESS			CHLORIDE 149,000	PPM
CALCIUM	13,750		SODIUM CHLORIDE	PPM
MAGNESIUM	6,770 PPM		SODIUM	PPM
SODIUM & POTASSIUM	PPM		POTASSIUM	PPM
PHOSPHATE				

REMARKS:

for Stiff type plot (in meq./1.)



ANALYST Dithal Pr.

See. VII

LOCATION

YOUR EXT. NO.

THE WESTERN COMPANY

WATER ANALYSIS

ANALYSIS NO.

GENERAL INFORMATION

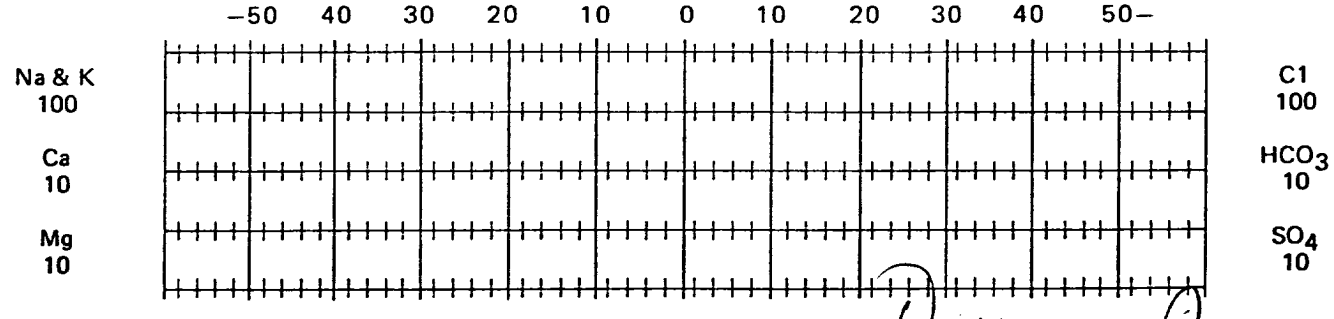
OPERATOR	*R.H. Fulton Co.*	DATE SAMPLED	*4-28-59*
WELL	*Frost 13-1*	DATE RECEIVED	
FIELD	*Buckshot*	SUBMITTED BY	
FORMATION	*San Andres*	WORKED BY	
COUNTY	*Cochran*	SAMPLE DESCRIPTION:	
STATE	*Texas*		
DEPTH	*5000*		

PHYSICAL AND CHEMICAL DETERMINATIONS

SPECIFIC GRAVITY	*1.145*	AT *76* °F	TOTAL DISSOLVED SOLIDS		PPM
pH	*5.8*		RESISTIVITY		PPM
IRON	*none*		SULFATE	*1,190*	PPM
HYDROGEN SULFIDE	*good trace*		BICARBONATE	*732*	PPM
HARDNESS			CHLORIDE	*127,200*	PPM
CALCIUM	*9,600*		SODIUM CHLORIDE		PPM
MAGNESIUM	*3,790*	PPM	SODIUM		PPM
SODIUM & POTASSIUM		PPM	POTASSIUM		PPM
PHOSPHATE					

REMARKS:

for Stiff type plot (in meq./1.)



ANALYST Vithal Pai

FORM 052-1025 (3/81)

Sec. VII

LOCATION		ANALYSIS NO.
YOUR EXT. NO.		

THE WESTERN COMPANY

WATER ANALYSIS

GENERAL INFORMATION

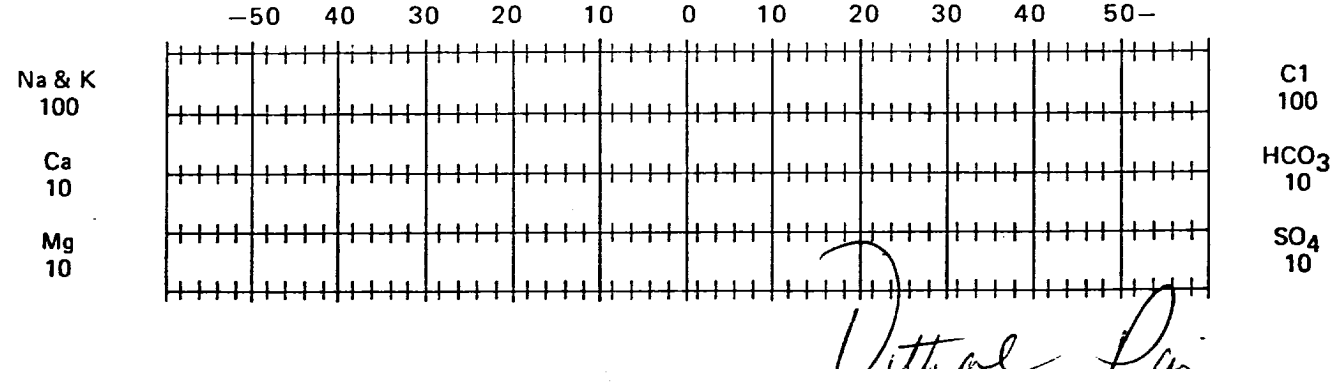
OPERATOR	*Coaley & Holcomb*	DATE SAMPLED	*2-17-65*
WELL	*Byers #1*	DATE RECEIVED	
FIELD	*Sawyer San Andres*	SUBMITTED BY	
FORMATION	*San Andres*	WORKED BY	
COUNTY	*Lea*	SAMPLE DESCRIPTION:	*10,000 gal/gelled DS-30*
STATE	*Texas*		
DEPTH			

PHYSICAL AND CHEMICAL DETERMINATIONS

SPECIFIC GRAVITY	*1.150* AT *70* °F		TOTAL DISSOLVED SOLIDS		PPM
pH	*6.6*		RESISTIVITY		PPM
IRON	*no trace*		SULFATE	*1,290*	PPM
HYDROGEN SULFIDE	*very strong trace*		BICARBONATE	*634*	PPM
HARDNESS			CHLORIDE	*127,100*	PPM
CALCIUM	*12,100*		SODIUM CHLORIDE		PPM
MAGNESIUM	*5,250*	PPM	SODIUM		PPM
SODIUM & POTASSIUM	*59,400*	PPM	POTASSIUM		PPM
PHOSPHATE					

REMARKS:

for Stiff type plot (in meq./1.)



GEOLOGICAL DATA ON INJECTION ZONE

Section VIII - The San Andres formation in the proposed injection well is 1415 feet in vertical thickness with the top at 4135 feet and the base at 55550 feet. The lithology is predominately a carbonate with anhydrite stringers in the upper 260 feet. The San Andres is of Permian age with the deposits accumulating on a marine carbonate depositional shelf. The only underground source of drinking water with total dissolved solids concentrations of 10,000 mg/l or less is the Ogallala formation, occurring at depths of 100 to 300 feet from the surface. There is no known source of drinking water underlying the San Andres.

LOCATION	
YOUR EXT. NO.	

THE WESTERN COMPANY

WATER ANALYSIS

ANALYSIS NO.	

GENERAL INFORMATION

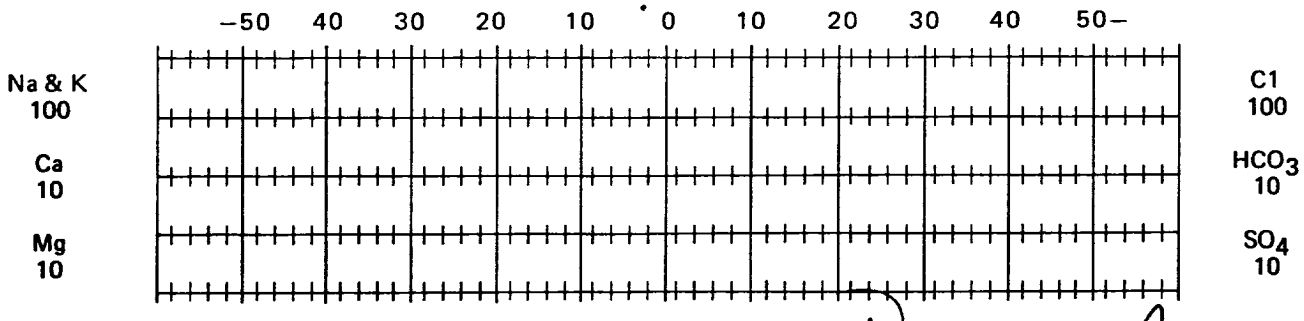
OPERATOR	J.L. McGill	DATE SAMPLED	1-30-83
WELL	SW/SW of Sec 12,9-5,37E	DATE RECEIVED	1-31-83
FIELD		SUBMITTED BY	Midland
FORMATION	Ogalala	WORKED BY	Enrique Lopez
COUNTY	Lea	SAMPLE DESCRIPTION:	
STATE	New Mexico		Ivan Brown
DEPTH			

PHYSICAL AND CHEMICAL DETERMINATIONS

SPECIFIC GRAVITY	0.98	AT 68.5 °F	TOTAL DISSOLVED SOLIDS		PPM
pH	8.1		RESISTIVITY		PPM
IRON	None		SULFATE	163	PPM
HYDROGEN SULFIDE	None		BICARBONATE	212	PPM
HARDNESS			CHLORIDE	265	PPM
CALCIUM	118		SODIUM CHLORIDE		PPM
MAGNESIUM	65	PPM	SODIUM		PPM
SODIUM & POTASSIUM	71	PPM	POTASSIUM		PPM
PHOSPHATE					

REMARKS:

for Stiff type plot (in meq./1.)



ANALYST Vitthal Pai

FORM 953-1025 (3/81)

LOCATION		ANALYSIS NO.
YOUR EXT. NO.		

THE WESTERN COMPANY

WATER ANALYSIS

GENERAL INFORMATION

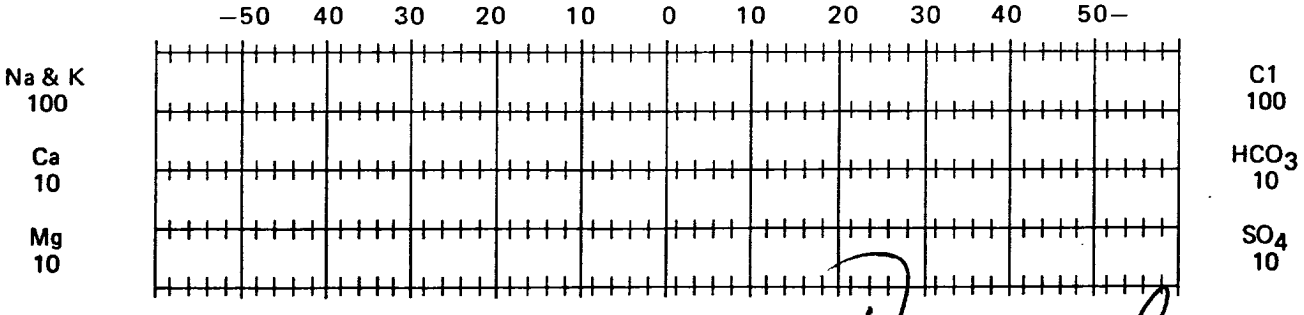
OPERATOR	J.L. McGill	DATE SAMPLED	1-30-83
WELL	SW/SW Sec7, T-9-5, R-38E	DATE RECEIVED	1-31-83
FIELD		SUBMITTED BY	Midland
FORMATION	Ogalala	WORKED BY	Enrique Lopez
COUNTY	Lea	SAMPLE DESCRIPTION	
STATE	New Mexico		Ted Gandy Water Well
DEPTH			

PHYSICAL AND CHEMICAL DETERMINATIONS

SPECIFIC GRAVITY	0.98	AT 68 °F	TOTAL DISSOLVED SOLIDS		PPM
pH	8.6		RESISTIVITY		PPM
IRON	Faint trace		SULFATE	281	PPM
HYDROGEN SULFIDE	None		BICARBONATE	286	PPM
HARDNESS			CHLORIDE	245	PPM
CALCIUM	8		SODIUM CHLORIDE		PPM
MAGNESIUM	2	PPM	SODIUM		PPM
SODIUM & POTASSIUM	388	PPM	POTASSIUM		PPM
PHOSPHATE					

REMARKS:

for Stiff type plot (in meq./1.)



ANALYST Vithal Pai

FORM 953-1025 (3/81)

LOCATION		ANALYSIS NO.
YOUR EXT. NO.		

THE WESTERN COMPANY

WATER ANALYSIS

GENERAL INFORMATION

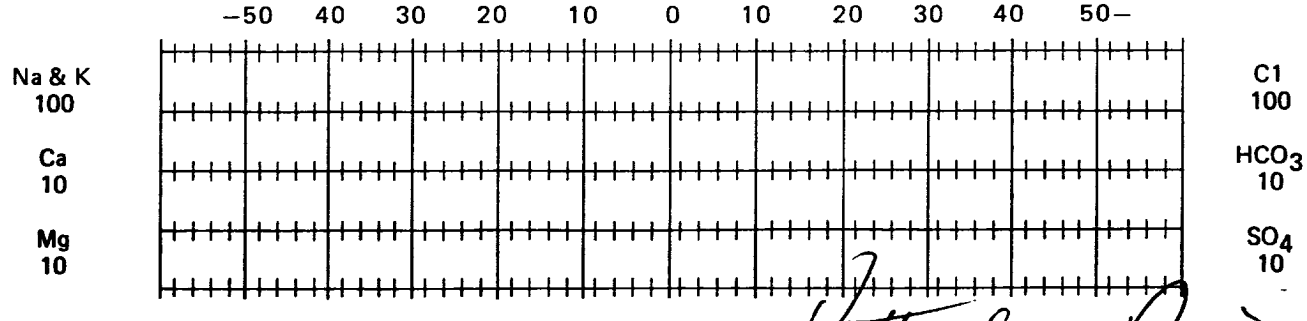
OPERATOR	J.L. McGill	DATE SAMPLED	1-30-83
WELL	SE/SE Sec 7, T9S, R-38-E	DATE RECEIVED	1-31-83
FIELD		SUBMITTED BY	Midland
FORMATION	Ogalala	WORKED BY	Enrique Lopez
COUNTY	Lea	SAMPLE DESCRIPTION:	
STATE	New Mexico		Ted Gandy Water Well
DEPTH			

PHYSICAL AND CHEMICAL DETERMINATIONS

SPECIFIC GRAVITY	.95 AT 68.5 °F		TOTAL DISSOLVED SOLIDS		PPM
pH	7.9		RESISTIVITY		PPM
IRON	None		SULFATE	122	PPM
HYDROGEN SULFIDE	None		BICARBONATE	321	PPM
HARDNESS			CHLORIDE	71	PPM
CALCIUM	62		SODIUM CHLORIDE		PPM
MAGNESIUM	43	PPM	SODIUM		PPM
SODIUM & POTASSIUM	74	PPM	POTASSIUM		PPM
PHOSPHATE					

REMARKS:

for Stiff type plot (in meq./l.)



Vithal Pai

ANALYST

FORM 052-1025 (3/81)

APPLICANTS AFFIRMATIVE STATEMENT

Section XII - The only underground source of drinking water in this general area is the Ogallala Formation, occurring at a depth of 100 to 300 feet from the surface. The top of the San Andres Formation, proposed injection zone, is at 4135 feet. Since Permian time there has not been tectonic activity, nor upheaval of any significance, that would disturb the competence or stability of the strata overlying the San Andres Formation. I have examined available geologic and engineering data of this general area and I find no evidence of open faults or any other hydrologic connection between the proposed disposal zone and any underground source of drinking water.

J. L. McGill