STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
HOBBS DISTRICT OFFICE

11/22/96

GOVERNOR

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

SWD-650
12/11/96

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

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

Gentlemen:

I have examined the application for the:

Ray Westall — Casa State — #3-J — 28-17-34
Operator — Lease & Well No. Unit — S-T-R

and my recommendations are as follows:

OK

Yours very truly,

Jerry Sexton
Supervisor, District 1

/ed

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPART T

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: RAY WESTALL

Address: P.O. BOX 4 LOCO HILLS NEW MEXICO

Contact party: RANDALL HARRIS Phone: 505 677-2370

III. Well data: Complete the data required on the reverse side of this form for each well proposed for injection. Additional sheets may be attached if necessary.

IV. Is this an expansion of an existing project? ☐ yes ☒ no
If yes, give the Division order number authorizing the project _____.

V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review.

* VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.

VII. Attach data on the proposed operation, including:

1. Proposed average and maximum daily rate and volume of fluids to be injected;
2. Whether the system is open or closed;
3. Proposed average and maximum injection pressure;
4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and
5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).

*VIII. Attach appropriate geological data on the injection zone including appropriate lithologic detail, geological name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such source known to be immediately underlying the injection interval.

IX. Describe the proposed stimulation program, if any.

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

* XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.

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

XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.

XIV. Certification

I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.

Name: RANDALL HARRIS Title GEOLOGIST

Signature: _____ Date: 11/14/86

* 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.

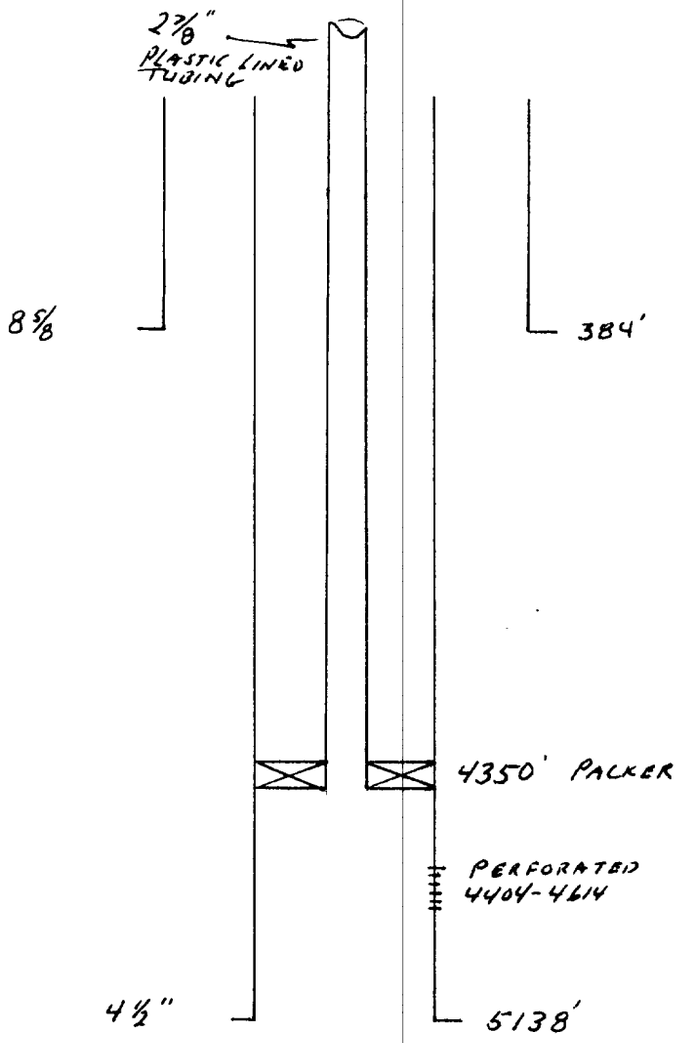
NOTICE: Surface owners or offset operators must file any objections or requests for hearing of administrative applications within 15 days from the date this application was mailed to them.

INJECTION WELL DATA SHEET

RAY WESTALL OPERATOR CASA STATE STATE WELL NO. 3

1815' FSL & 2310' FEL SECTION 28 TOWNSHIP ~~18~~ 17 SOUTH, RANGE-34 EAST

Schematic



Tabular data

Surface Casing

Size 8 5/8" Cemented with 450 sxs
TOC Circulated Hole size 12 1/4"
Set at 384'

Intermediate Casing

None

Long string

Size 4 1/2" Cemented with 400 sxs
TOC 225' determined by Temperature
Total depth 5138'

Injection Interval 4404-4614 perforated

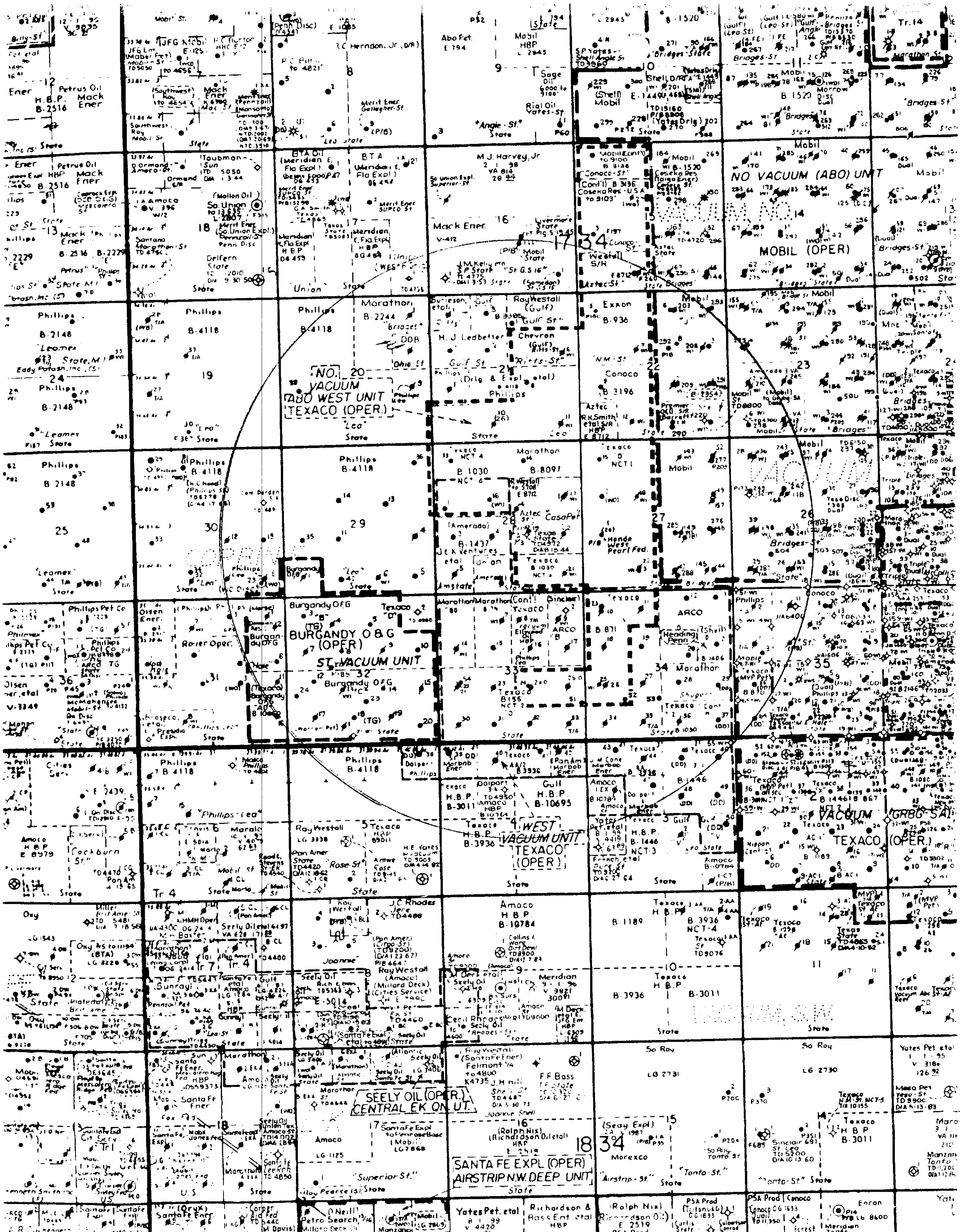
Tubing size 2 7/8" lined with plastic set in a BAKER LOC-SET packer at 4350'

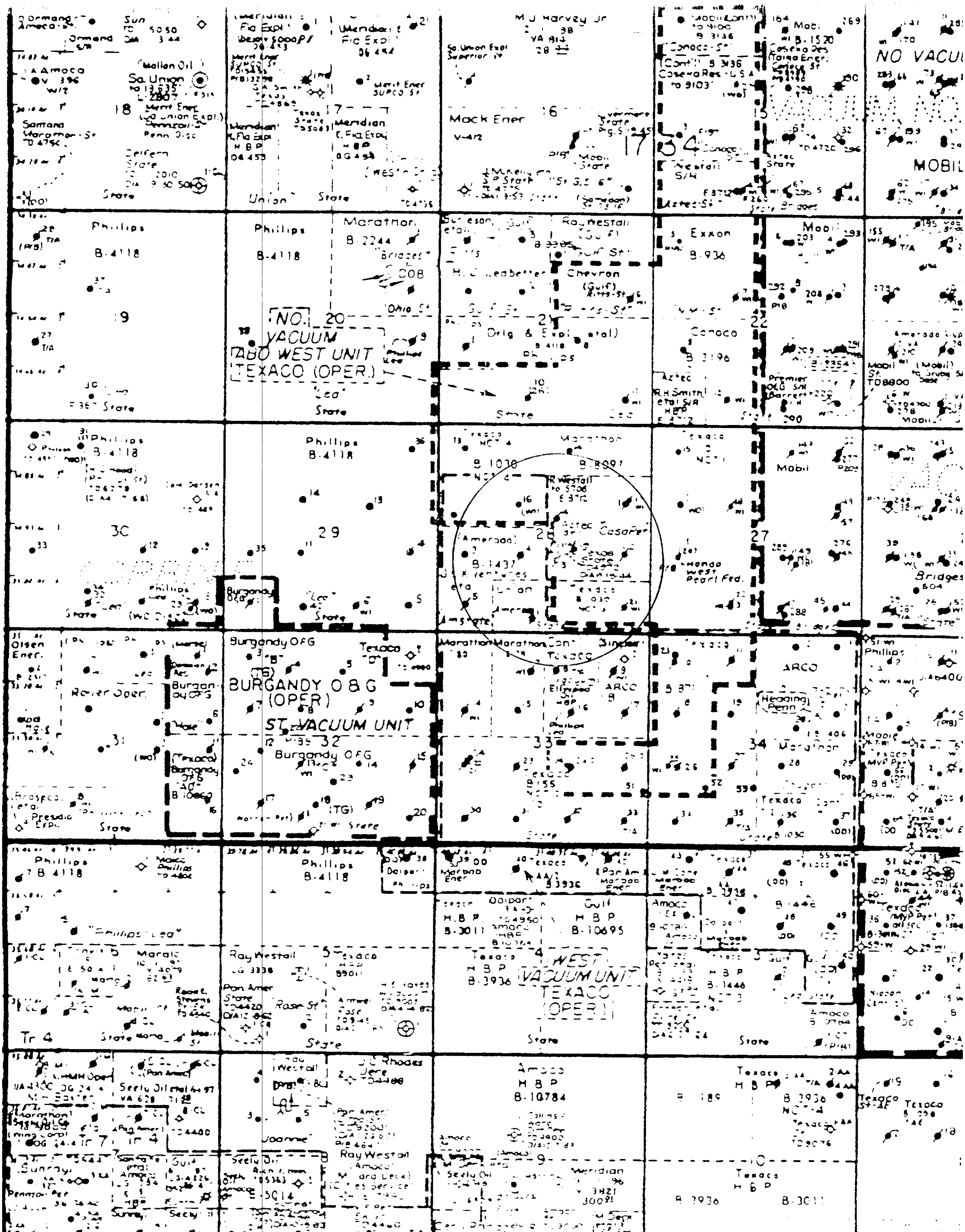
Other Data

1. Name of the injection formation: GRAYBURG-SANANDRES
2. Name of Pool: VACUUM GRAYBURG SANANDRES
3. Origional purpose of well: OIL & GAS PRODUCTION
4. Well has not been perforated in any other zone
5. The Vacuum Abo pool underlies this area approximately 8000'

ATTACHMENT V

Maps that identifies all wells of public record within two miles of each proposed injection well, and the area of review one-half mile radius around each proposed injection well.


NO VACUUM (ABO) UNIT
MOBIL (OPER)
NO. 20 VACUUM ABO WEST UNIT
TEXACO (OPER.)
BURGANDY O & G (OPER)
ST. VACUUM UNIT
WEST VACUUM UNIT
TEXACO (OPER)
VACUUM (GRBG-SA)
TEXACO (OPER.)
SEELY OIL (OPER.)
CENTRAL EK QN UT.
SANTA FE EXPL (OPER)
AIRSTRIP N.W. DEEP UNIT
Mack Ener
Phillips
Marathon
Texaco
Mobil
Conoco
Amoco
Gulf
ARCO
Exxon
Chevron
Santa Fe Ener
So Roy
Yates Pet. etal
Richardson & Bass Ent. etal
Petro Search
Morexco
Ray Westall
Burgandy O&G
H.B.P.
State
Leo State
Bridges St.
Superior St.
Airstrip St.
Tonto St.
Santa Fe Expl
Oxy
Cities Serv.
Meridian
Collins & Ware
Pan Amer.
Rose St.
Cockburn St.
Rover Oper.
Olsen Ener.
Leamex
Eddy Potash, Inc.
Delfern State
Mobil HBP
Sage Oil
Rial Oil Yates St.
M.J. Harvey, Jr.
B.T.A.
Taubman Sun
So. Union
Santa Fe Ener
Felmont
F.F. Bass
Enron
PSA Prod
Ralph Nix
Seay Expl
Sinclair
Nippon
Texaco H.B.P. B-3011
B-3936
B-1189
B-4118
B-2148
B-2244
B-1520
B-936
B-3196
B-1030
B-8097
B-155
B-871
B-10695
B-1446
B-10784
LG-2731
LG-2730
LG-1125
E-2519
E-5014
Tr. 4
Tr. 7
Tr. 14
Tr. 1



M J Harvey Jr
Mack Ener
Phillips
B-4118
Marathon
B-2244
Exxon
B-936
Conoco
B-3196
NO. 20
VACUUM
ABO WEST UNIT
TEXACO (OPER.)
Chevron
Mobil
Bridges
BURGANDY O & G
(OPER)
ST. VACUUM UNIT
Burgandy O&G
ARCO
WEST
VACUUM UNIT
TEXACO
(OPER.)
Gulf
H B P
B-10695
Amoco
H B P
B-10784
Texaco
H B P
B-3936
B-3011
Ray Westall
State

ATTACHMENT VI

Data on all wells of public record within the area of review with schematic of plugged wells.

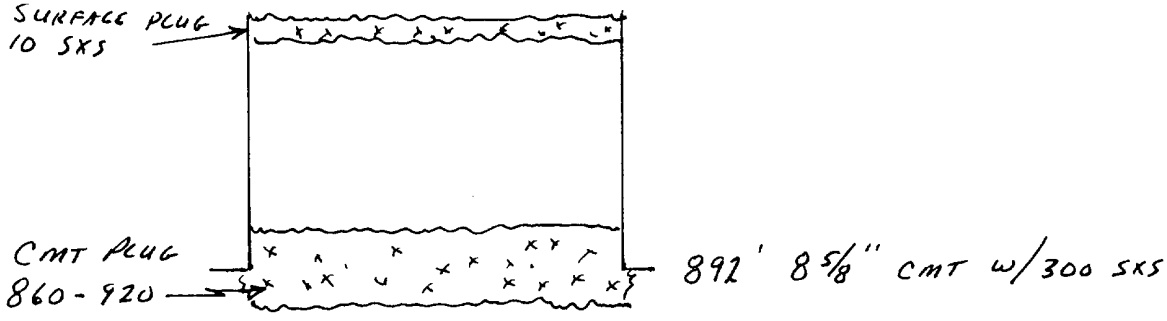
Well name	Location	Spud date	Sur. Casing	Int. Casing	Prod. Casing	Completion
Marathon State B-8097 #1	NWNE Sec 28 T17S-R34E	11/23/71	13 3/8" @ 255 275 sxs Circ.	8 5/8" @ 3160 1100 sxs Circ.	5 1/2" @ 8975 1000 sxs T/3450	8801-8896 N.Vacuum Abo Oil
Texaco New Mexico T State #1	SWSW Sec 28 T17S-R34E	02/28/72	8 5/8" @ 1630 850 sxs Circ.		5 1/2" @ 8900 2650 sxs T/abv 1630	8710-8800 N. Vacuum Abo W.I.W.
Texaco New Mexico T State # 2	SENW Sec 28 T17S-R34E	03/6/72	8 5/8" @ 1620 850 sxs Circ.		5 1/2" @ 8910' 2600 sxs T/surf	8777-8859 N.Vacuum Abo W.I.W.
Aztec State NV #2	SENE Sec 28 T17S-R34E	11/4/93	8 5/8" @ 1620 550 sxs Circ.		5 1/2" @ 9000 1700 sxs T/2990	8744-8792 N.Vacuum Abo W.I.W.
Aztec State NV #3	NWSE Sec 28 T17S-R34E	09/18/71	8 5/8" @ 1600 800 sxs Circ.		5 1/2" @ 8929 1600 sxs T/2790	8736-8812 N.Vacuum Abo Oil
BTA Amstate #3	NESW Sec 28 T17S-R34E	05/18/61	8 5/8" @ 325 325 sxs Circ.		5 1/2" @ 4744 200 sxs T/3747	4505-4602 Vacuum GB/SA W.I.W.
BTA Amstate #2	NWSW Sec 28 T17S-R34E	04/27/61	8 5/8" @ 393 250 sxs Circ.		5 1/2" @ 4680 200 sxs 3600	4560-4602 Vacuum GB/SA Oil
BTA Amstate #1	SWSW Sec 28 T17S-R34E	03/8/61	8 5/8" @ 428 250 sxs Circ.		5 1/2" @ 4900 278 sxs T/3200	4537-4698 Vacuum GB/SA W.I.W.
Ray Westall Casa State #4	SWNE Sec 28 T17S-R34E	12/31/83	8 5/8" @ 820 350 sxs Circ.		4 1/2" @ 5050 425 sxs T/1750	4278-4490 Vacuum GB/SA Oil

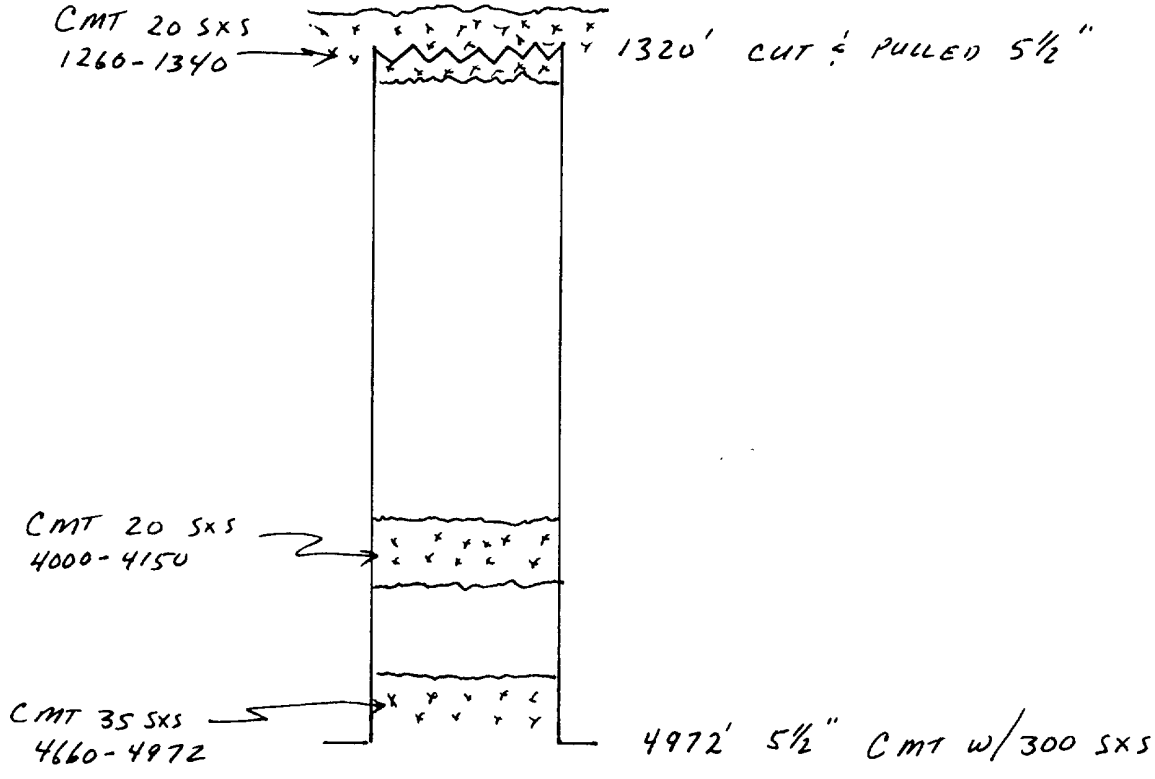
Ray Westall Casa State #1	SENE Sec 28 T17S-R34E	09/28/82	8 5/8" @ 1557 850 sxs Circ.	4 1/2" @ 5164 550 sxs T/1550	4505-4988 Vacuum GB/SA Oil
Ray Westall Casa State #2	NESE Sec 28 T17S-R34E	02/8/83	8 5/8" @ 1595 571 sxs Circ.	5 1/2" @ 5200 550 sxs T/above 1500 calc.	4852-4910 Vacuume GB/SA Oil

P & A Wells

The Texas Co. 1-AF	NESE Sec 28	06/24/44	SCHEMATIC ATTACHED

The Texas Company
1-AF
1980' FSL & 1980' FEL
Section 28
Township 17 South, Range 34 East





ATTACHMENT VII

PROPOSED OPERATION

1. Plans are to inject 150-200 bbls of produced water per day per well.

2. The injection system is be a closed system.

3. The estimated injection pressure is 400 psig. Maximum pressure will be 800 psig.

4. Injection fluid will be reinjected produced water from the Casa # 1, 2, & 4.

5. A sample of produced water is attached.

FW01W128

BJ SERVICES COMPANY

WATER ANALYSIS #FW01W128

ARTESIA LAB

GENERAL INFORMATION	
OPERATOR: RAY WESTALL OPERATING	DEPTH:
WELL: CASA #3	DATE SAMPLED: 11/11/96
FIELD:	DATE RECEIVED: 11/11/96
SUBMITTED BY: RANDY HARRIS	COUNTY: LEA STATE: NM
WORKED BY : CRAIG BAILEY	FORMATION: GRAYBURG/SAN ANDRES
PHONE NUMBER:	

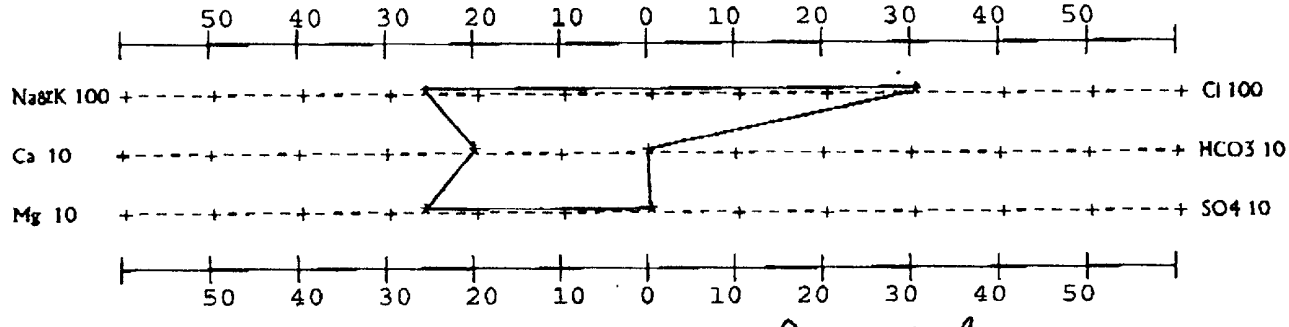
SAMPLE DESCRIPTION

PHYSICAL AND CHEMICAL DETERMINATIONS

SPECIFIC GRAVITY:	1.140 @ 76°F	PH:	7.09
RESISTIVITY (CALCULATED):	0.025 ohms @ 75°F		
IRON (FE++) :	2 ppm	SULFATE:	263 ppm
CALCIUM:	3,864 ppm	TOTAL HARDNESS	22,821 ppm
MAGNESIUM:	3,197 ppm	BICARBONATE:	364 ppm
CHLORIDE:	108,747 ppm	SODIUM CHLORIDE(Calc)	178,890 ppm
SODIUM+POTASS:	81,418 ppm	TOT. DISSOLVED SOLIDS:	213,613 ppm
IODINE:		POTASSIUM CHLORIDE:	

REMARKS

STIFF TYPE PLOT (IN MEQ/L)



ANALYST Craig Bailey

CRAIG BAILEY

ATTACHMENT VIII

The proposed injection zones are sands of the Grayburg-SanAndres Formations. These sands are composed of fine-grained quartz sand with varing amounts of shales. They have varing thickness from 8-30 feet thick. There is possible drinking water overlying the injection in the surface sands at a depth of 0-250' There is no known source underlying the injection interval.

ATTACHMENT XI

There is no fresh water wells within one mile.

ATTACHMENT XII

All available geologic and engineering data have been examined and there is no evidence of open faults or any other hydrologic connection between the disposal zone and any source of drinking water.

ATTACHMENT XIV

PROOF OF NOTICE

Leasehold operators within one-half mile of the well location are Marathon, and Texaco. Each of these operators were provided a copy of our application by certified mail. Proof of notice is enclosed. The surface owner is the state of New Mexico.

PROOF OF PUBLICATION

Proof of publication will be from the Hobbs Sun News and will be forwarded.

Copies of this application has been sent to:

Texaco
Box 3190
Midland, Tx. 79702

Certified Mail # P 333 336 233

Marathon
Box 552
Midland, Tx. 79702

Certified Mail # P 333 336 234

Oil Conservation Division
P.O. Box 1980
Hobbs, NM. 88241-1980

Oil Conservation Division
2040 So. Pacheco St.
Santa Fe, NM 87505-5472

SURFACE OWNER

State of New Mexico