

APPLICATION FOR AUTHORIZATION TO INJECT

- I. Purpose: ☐ Secondary Recovery ☐ Pressure Maintenance ☒ Disposal ☐ Storage
Application qualifies for administrative approval? ☒ yes ☐ no
- II. Operator: Manzano Oil Corporation
Address: P.O. Box 2107, Roswell, NM 88202-2107
Contact party: Donnie E. Brown Phone: (505) 623-1996
- 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 Exhibit #5
- * 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 Ex.VII.4.a & b
 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.). See Water Analysis. Exhibit VII.5
- *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.) See Exhibit X.
- * 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. See Exhibit XIII. A and Exhibit XIII. B
- 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: Donnie E. Brown Title Vice President of Engineering

Signature: Donnie E. Brown Date: July 25, 1990

- * 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.

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:

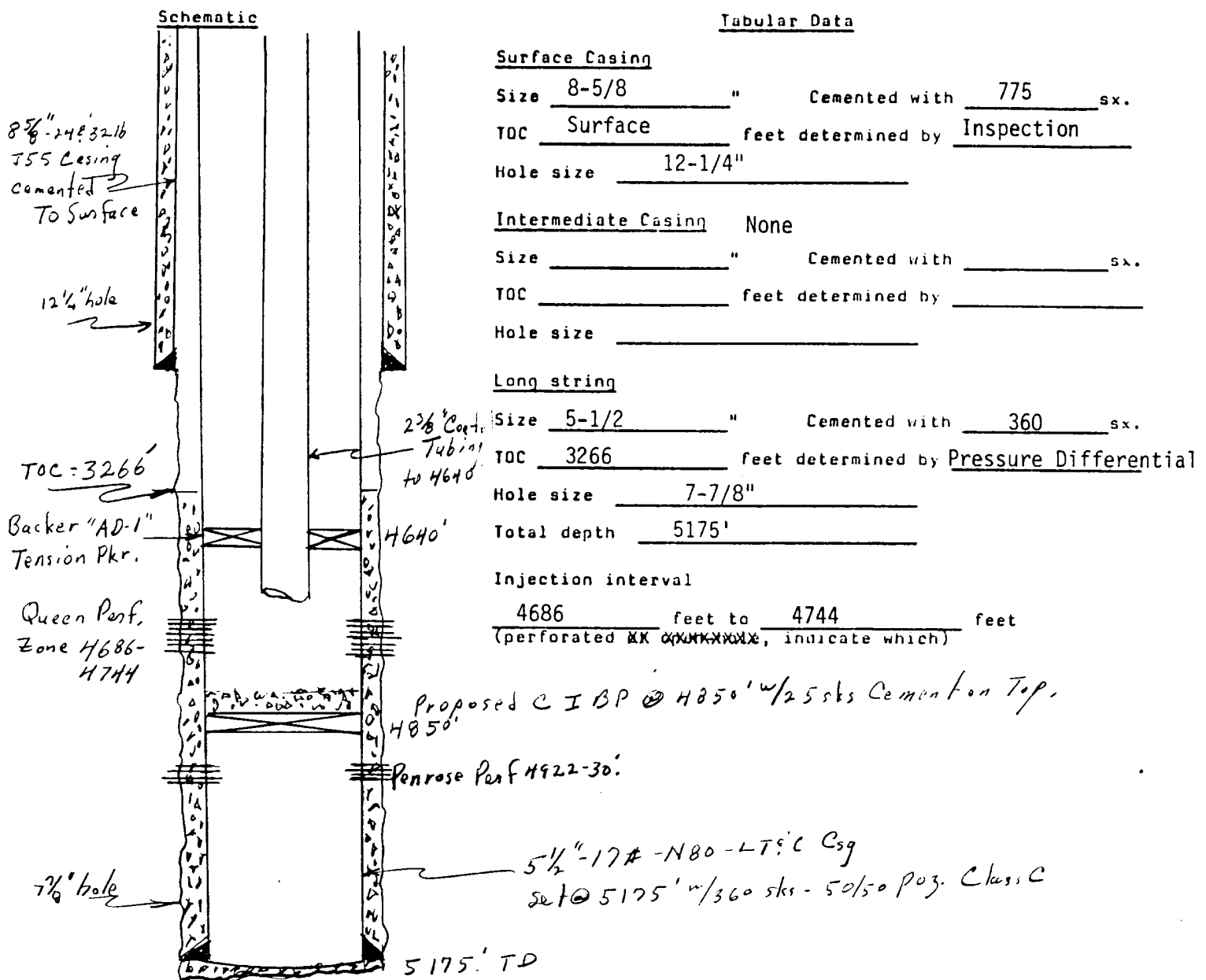
- (1) The name, address, phone number, and contact party for the applicant;
- (2) the intended purpose of the injection well; with the exact location of single wells or the section, township, and range location of multiple wells;
- (3) the formation name and depth with expected maximum injection rates 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

Manzano Oil Corporation		Stivason Federal	
OPERATOR		LEASE	
#1	660' FNL & 330' FEL	26	19S 34E
WELL NO.	FOOTAGE LOCATION	SECTION	TOWNSHIP RANGE



Tubing size 2-3/8 lined with Tuboscope TK-21 set in a _____ (material)

Baker Model "AD-1" Tension Packer packer at 4640 feet
 (brand and model)

(or describe any other casing-tubing seal).

Other Data

- Name of the injection formation Queen
- Name of field or Pool (if applicable) Pearl Queen
- Is this a new well drilled for injection? ☐ Yes ☒ No
 If no, for what purpose was the well originally drilled? Drilled for deeper oil production. Produced from Penrose perfs 4922-30'.
- 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) Perforated 4922-30. Still open. Propose CIBP at 4850' + 25' of cement on top of CIBP.
- Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area.
Underlying: Penrose at 4922
Overlying: None

- VI. 1. Manzano-Stivason Federal #2
1650' FEL & 330' FSL Sec. 23-T19S-R34E, Lea County, New Mexico
a. Well type: Development, oil
b. Construction: 8-5/8" surface casing to 1830'. 5-1/2" production casing to 6200'.
c. Date drilled: March 3, 1985
d. Depth: TD = 6200'
e. Record of Completion: Completed in Penrose 4930-40
f. Status: TA
2. Prudential Minerals Exploration Federal "24"-#1
660' FSL & 660' FWL Sec. 24-T19S-R34E, Lea County, New Mexico
a. Well type: Development D & A
b. Construction: 8-5/8" surface casing to 359'. Cemented with 250 sacks. No production casing run.
c. Date drilled: May 11, 1970
d. Depth 5105'.
e. Record of Completion: No cores or test. Completed as D & A 5-24-70.
f. Status: D & A
g. Schematic of plugging details: not known
3. D.W. Saint Clair Superior Federal #1
1780' FNL & 1980' FWL Sec. 25-T19S-R34E, Lea County, New Mexico
a. Well type: Development, oil
b. Construction: 8-5/8" surface casing to 211'. Cemented with 125 sacks. 5-1/2" production casing to 5150'. Cemented with 270 sacks.
c. Date drilled: April 20, 1964
d. Depth: TD 5150'
e. Record of Completion: Completed in Penrose 5042-59.
f. Status: Oil producer--Penrose
4. D.W. Saint Clair Superior Federal #2
660' FNL & 660' FWL Section 25-T19S-R34E, Lea County, New Mexico
a. Well type: Development, oil
b. Construction: 8-5/8" surface casing to 165'. Cemented with 150 sacks. 5-1/2" production casing to 5129'. Cemented with 27 sacks.
c. Date drilled: November 2, 1964
d. Depth: TD 5140'
e. Record of Completion: Penrose Completion 4936-5055
f. Status: Oil producer--Penrose
5. D.W. Saint Clair Superior Federal #3
2130' FNL & 760' FWL Sec. 25-T19S-R34E, Lea County, New Mexico
a. Well type: Development, oil
b. Construction: 8-5/8" surface casing to 228'. Cemented with 225 sacks. 5-1/2" production casing to 5148". Cemented with 270 sacks.
c. Date drilled: February 6, 1965
d. Depth: TD 5150'
e. Record of Completion: Penrose Completion - perf 4808, 4910, and 5019
f. Status: Oil Producer - Penrose
6. Superior Oil Company Government "E" #7
660' FNL and 1980' FWL Sec. 25-T19S-R34E, Lea County, New Mexico
a. Well type: Development, oil
b. Construction: 13-3/8" surface casing to 400'. Cemented with 450 sacks. 8-5/8" Intermediate casing to 4100'. Cemented with 2200 sacks. 5-1/2" production casing to 10,362'. Cemented with 1410 sacks.
c. Date drilled: September 3, 1982
d. Depth: td 10,362'
e. Record of Completion: Bone Spring Completion 9736-54'
f. Status: unknown
7. Superior Oil Company Government "E" #4
330' FNL & 1650' FWL Sec. 25-T19S-R34E, Lea County, New Mexico
a. Well type: Development D & A
b. Construction: 8-5/8" surface casing to 410'. Cemented with 300 sacks. No production casing run.

- c. Date drilled: July 13, 1975
 - d. Depth: TD 6200'
 - e. Record of Completion: Queen and Penrose DST wet. Completed as D & A August 7, 1975
 - f. Status: D & A
 - g. Schematic of plugging details: not known
8. Ernest Hanson Mescalero Ridge Unit 26 - #1
1989' FNL & 660' FEL Sec. 26-T19S-R34E, Lea County, New Mexico
- a. Well type: Development D & A
 - b. Construction: 8-5/8" surface casing to 220'. Cemented with 125 sacks.
 - c. Date drilled: July 9, 1965
 - d. Depth: TD 5250'
 - e. Record of Completion: Cored Queen & Penrose. Had no shows. Completed as D & A July 23, 1965.
 - f. Status: D & A
 - g. Schematic of plugging details: not known
- VII. 1. The average daily rate of salt water injected will be approximately 300 bbls/day. The maximum rate will be approximately 400 bbls/day. Volume of salt water injected will be approximately 9000 bbls/month.
2. The system will be closed.
3. The average injection pressure is expected to be 1200 psi. The maximum injection pressure should not be over 2000 psi.
4. Sources for the disposal water will be the Manzano Stivason Lease, Section 23-T19S-R34E, the Strata Stivason Lease, Section 27 and 28, T19S-R34E, and the Manzano Sun Pearl Lease, Section 28-T19S-R34E. Water analysis of each lease is attached. Exhibits VII. 4. a and VII. 4. b.
5. Water analysis of Queen zone is attached. Exhibit VII. 5.
- VIII. The proposed zone for salt water disposal is the Queen zone at a depth of 4666' in the Manzano Stivason Federal #1. The porous interval in which the salt water disposal will be injected is from a depth of 4686' to 4744'. This interval consists of sand stringers in Dolomite and Anhydrite. The sand usually consists of Quartz and Feldspar. This zone has been perforated and swab tested 27 barrels of salt water per hour. It is not productive of oil and gas.
- There is no underground sources of drinking water in the area either overlying or underlying the Queen zone in the Manzano Stivason Federal #1.
- IX. The proposed Queen zone has already been perforated from 4686-88 with 3 holes, 4691-99 with 9 holes, and 4704-14 with 11 holes and acidized with 2000 gallons of 15% HCL acid. After this stimulation, the well swab tested 27 barrels of salt water per hour. No additional stimulation will be required.
- X. The Queen water zone was perforated from 4686-4714 overall on April 23, 1990, acidized on April 24, 1990 and swab tested for four (4) days (April 24 to April 27). Test results were 27 barrels of salt water per hour with a swabbing fluid level of 2500'.
A copy of that portion of the Neutron/Density log over the Queen Zone is attached (See Exhibit X). The complete log as well as the Guard-Forox log has already been filed with the Division.
- XI. There are no fresh water wells within one mile of this proposed salt water disposal well.
- XII. Manzano Oil has examined all available geological and engineering data in the surrounding area of the proposed disposal well and find no evidence of open faults on any other hydrologic connection between the disposal zone and any underground source of drinking water.
- XIII. Proof of notice is attached. See Exhibit XIII. A and XIII. B

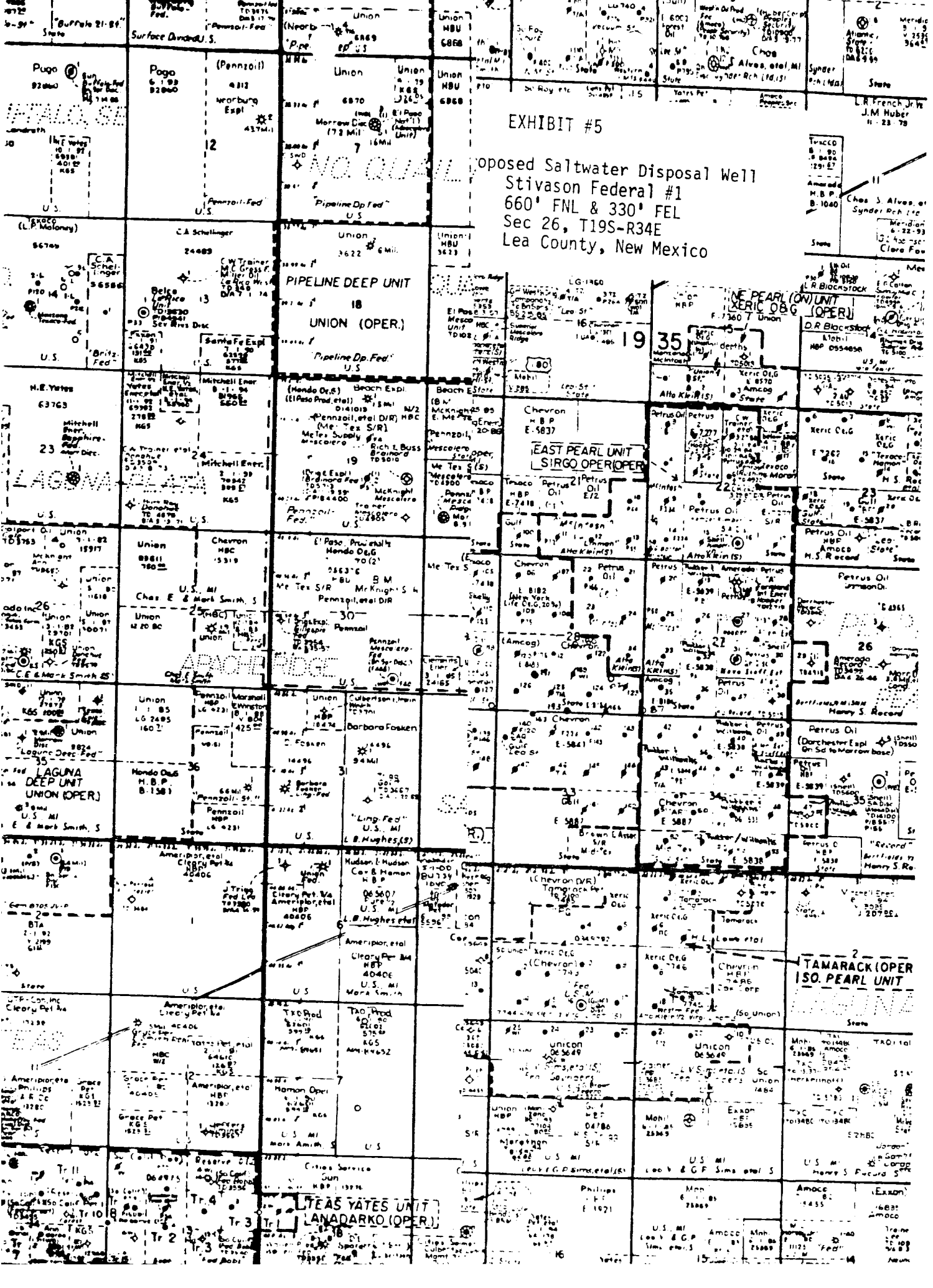


EXHIBIT #5

Proposed Saltwater Disposal Well
Stivason Federal #1
660' FNL & 330' FEL
Sec 26, T19S-R34E
Lea County, New Mexico

Traced
B. 1. 90
B. 2. 80
B. 3. 120
B. 4. 120
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B. 100. 120

07-25-90 04:44PM FROM

EXHIBIT VII. 4. a

Mixed Waters from Manzano Sun Pearl Lease
and

P02

Strata Stivason Lease
Sec 27 & Sec 28, T19S-R34E
Lea County, New Mexico

LOCATION

YOUR EXT. NO.

THE WESTERN COMPANY

WATER ANALYSIS

ANALYSIS NO.

GENERAL INFORMATION

OPERATOR	Manzano	DATE SAMPLED	7/24/90
WELL	Strata Tank Battery	DATE RECEIVED	7/24/90
FIELD		SUBMITTED BY	
FORMATION		WORKED BY	D. Walser
COUNTY	Lea	SAMPLE DESCRIPTION:	Strata Tank Battery
STATE	NM		
DEPTH			

PHYSICAL AND CHEMICAL DETERMINATIONS

SPECIFIC GRAVITY	1.135	AT	74	°F	TOTAL DISSOLVED SOLIDS	185,721	PPM
pH	5.95				RESISTIVITY		PPM
IRON	faint trace				SULFATE	1031	PPM
HYDROGEN SULFIDE	N/D				BICARBONATE	140	PPM
HARDNESS					CHLORIDE	116,300	PPM
CALCIUM	493				SODIUM CHLORIDE		PPM
MAGNESIUM	8585			PPM	SODIUM		PPM
SODIUM & POTASSIUM	59,172			PPM	POTASSIUM		PPM
PHOSPHATE							

REMARKS:

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

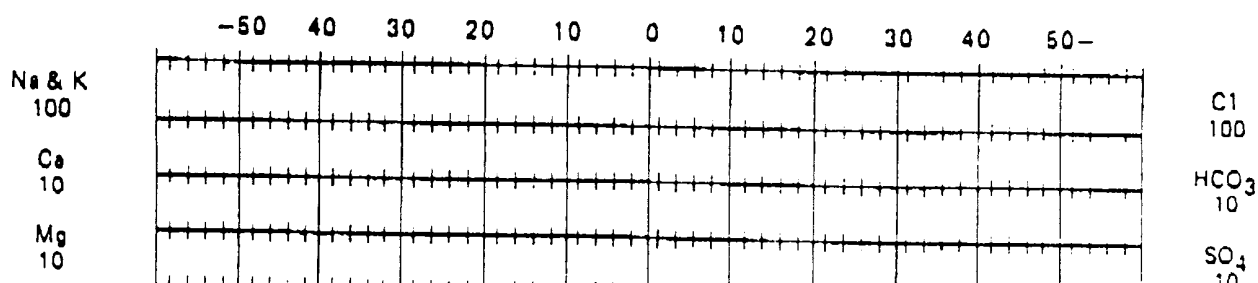


EXHIBIT VII. 4. b

LOCATION

YOUR EXT. NO.

THE WESTERN COMPANY

WATER ANALYSIS

Strata Stivason Federal #1
 330' FNL & 330' FEL
 Sec 33, T19S-R34E
 Lea County, New Mexico

GENERAL INFORMATION

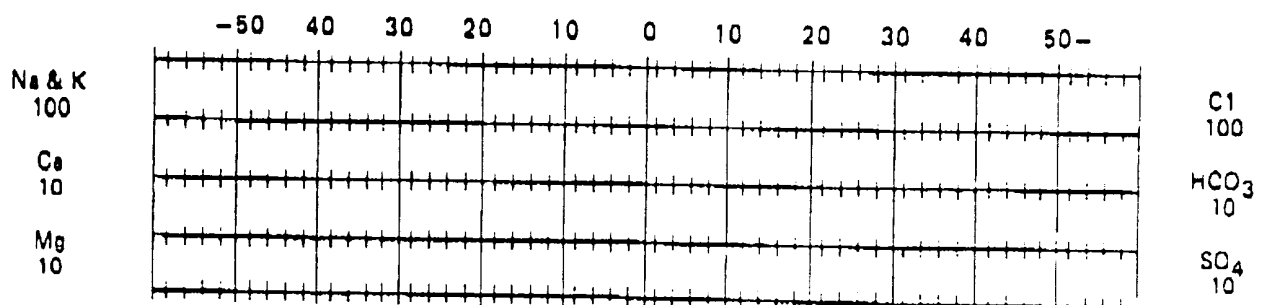
OPERATOR Strata Production	DATE SAMPLED 7/24/90
WELL Stivason Federal #1	DATE RECEIVED 7/24/90
FIELD	SUBMITTED BY
FORMATION	WORKED BY D. Walser
COUNTY	SAMPLE DESCRIPTION:
STATE	
DEPTH	

PHYSICAL AND CHEMICAL DETERMINATIONS

SPECIFIC GRAVITY 1.115 AT 74 °F	TOTAL DISSOLVED SOLIDS 161,745 PPM
pH 6.75	RESISTIVITY PPM
IRON N/D	SULFATE 2870 PPM
HYDROGEN SULFIDE N/D	BICARBONATE 186 PPM
HARDNESS	CHLORIDE 98,655 PPM
CALCIUM 359	SODIUM CHLORIDE PPM
MAGNESIUM 5993 PPM	SODIUM PPM
SODIUM & POTASSIUM 53,682 PPM	POTASSIUM PPM
PHOSPHATE	

REMARKS:

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



Disposal Zone Formation Water Analysis
 Mansanto Stivason Federal #1
 660' FNL & 330' FEL
 Sec 26, T19S-R34E
 Lea County, New Mexico
THE WESTERN COMPANY

LOCATION

YOUR EXT. NO.

ANALYSIS NO.

WATER ANALYSIS

GENERAL INFORMATION

OPERATOR	Manzano	DATE SAMPLED	7/24/90
WELL	Stivason Federal #1	DATE RECEIVED	7/24/90
FIELD		SUBMITTED BY	C. Bellah
FORMATION		WORKED BY	D. Walser
COUNTY	Lea	SAMPLE DESCRIPTION:	
STATE	NM		
DEPTH			

PHYSICAL AND CHEMICAL DETERMINATIONS

SPECIFIC GRAVITY	1.160	AT	76	°F	TOTAL DISSOLVED SOLIDS	292,928	PPM
pH	4.0				RESISTIVITY		PPM
IRON	500 + Fe ²				SULFATE	780	PPM
HYDROGEN SULFIDE					BICARBONATE	53	PPM
HARDNESS					CHLORIDE	184,482	PPM
CALCIUM	1241				SODIUM CHLORIDE		PPM
MAGNESIUM	13,742			PPM	SODIUM		PPM
SODIUM & POTASSIUM	92,630			PPM	POTASSIUM		PPM
PHOSPHATE							

REMARKS:

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

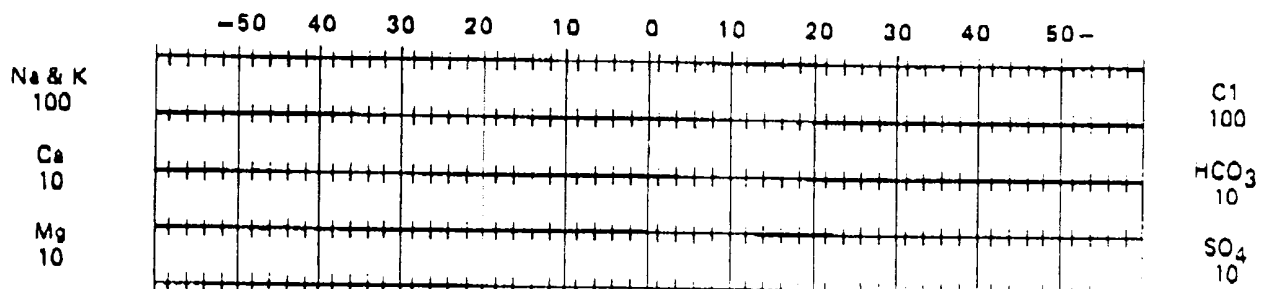


EXHIBIT X

4550

Stiverson Fed #1
660' FNL & 330' FNL
Sec 26-19-34e
Lea Co. - KB 3773'

4600

Est Top of
Gravel 3266

4650

$$Sw = \frac{\sqrt{(1.81)(Q_w)}}{\rho^2 R^2} = \frac{\sqrt{0.2839}}{\rho^2 R^2}$$

60

70

Queen 4684(-911)

ϕ_n ϕ_p ϕ_m ϕ_t Sw

$R_2 = .035$

$m = .91$

$CV = \sqrt{\frac{1.414}{2.2}}$

80

1498

15 22 17 24 32

13 18 16 16 26
10 14 12 17 34

4700

1498

14 19 17 8 35
12 16 14 11 29
18 14 22 14 28

0

20

30

40

4/20'
4/2366

11 16 14 9 40
20 15 5 33

16 20 19 6 35

Sample
24/10/14
10/20
10/20

7.7

4750

KB 3773'

EXHIBIT XIII. A



Manzano Oil Corporation

P.O. Box 2107
Roswell, New Mexico 88202-2107
(505) 623-1996

July 26, 1990

To: Offset Leasehold Operators
Within 1/2 mile radius
and surface owner
Addressee list attached

Re: Stivason Federal #1
T19S-R34E
Section 26: 660' FNL & 330' FEL
Lea County, New Mexico

Ladies and Gentlemen:

Manzano Oil Corporation proposes to convert the captioned well from an oil well to a water disposal well.

A copy of our application is enclosed for your review as required. If you have any questions, please do not hesitate to call.

Very truly yours,


Jim Ball
Vice President, Land

JBkn

ADDRESSEE LIST OF OFFSET LEASEHOLD OPERATORS AND SURFACE OWNER
OF THE STIVASON FEDERAL #1 ATTACHED TO LETTER DATED
JULY 26, 1990

Surface Owner:	Bureau of Land Management	Grazing Leasee:	Snyder Ranches
	P.O. Box 1778		P.O. Box 2158
	Carlsbad, NM 88220		Hobbs, NM 88240
	Attn: Realty Staff		

Offset Lease Operators: Yates Petroleum Corporation
105 South Fourth Street
Artesia, NM 88210
Attn: Mr. Randy Patterson

Armstrong Energy Corporation
P.O. Box 1973
Roswell, NM 88202-1973
Attn: Mr. Henry Lucero

Harvey E. Yates Company
P.O. Box 1933
Roswell, NM 88202-1933
Attn: Melissa Randle

James R. Stivason
400 West 76th Ave. #309
Anchorage, Alaska 99518

Hondo Oil & Gas Company
P.O. Box 2088
Roswell, NM 88202-2088
Attn: Mr. Larry Hunnicutt

Pennzoil Exploration and Production Company
P.O. Box 2967
Houston, TX 77252-2967

Wainoco Oil & Gas Company
1200 Smith Street, Suite 1500
Houston, TX 77002-4367

Meridian Oil, Inc.
21 Desta Drive
Midland, TX 79705

AFFIDAVIT OF PUBLICATION

State of New Mexico,
County of Lea.

I, Don Teer

of the Hobbs Daily News-Sun, a daily newspaper published at Hobbs, New Mexico, do solemnly swear that the clipping attached hereto was published once a week in the regular and entire issue of said paper, and not a supplement thereof for a period

of _____

One weeks.
Beginning with the issue dated

July 31, 1990
and ending with the issue dated

July 31, 1990

[Signature]
Business Manager
Sworn and subscribed to before

me this 1st day of

August, 1990

[Signature]
Notary Public.

My Commission expires _____

July 24, 1991

(Seal)

This newspaper is duly qualified to publish legal notices or advertisements within the meaning of Section 3, Chapter 167, Laws of 1937, and payment of fees for said publication has been made.

LEGAL NOTICE

July 31, 1990

Manzano Oil Corporation
P.O. Box 2107
Roswell, NM 88202 2107
Phone number:
1 505 623 1996

Contact Party: Donnie Brown, Vice President, Engineering

Manzano Oil Corporation proposes to convert the Stivason Federal #1 well from an oil well to a water disposal well. The Stivason Federal #1 well is located 660' FNL & 330' FEL of Section 26, Township 19 South, Range 34 East, N.M.P.M., Lea County, New Mexico.

400 barrels of water per day maximum shall be injected at 1200 psi into the Queen formation at a depth of 4666 feet.

Interested parties must file objections or request a hearing with the New Mexico Oil Conservation Division, P.O. Box 2088, Santa Fe, New Mexico 87501 within 15 days.