YATES PETROLEUM CORPORATION

105 SOUTH FOURTH STREET
ARTESIA, NEW MEXICO 88210-2118
TELEPHONE (505) 748-1471

October 31, 2000

SWD-791

Chris Williams
State of New Mexico
OIL CONSERVATION DIVISION
1625 N. French Drive
Hobbs, NM 88240

Dear Mr. Williams,

Enclosed please find a copy of form C-108 (Application for Authority to Inject) for the proposed Sand Springs ASU State #3 located in Unit J of Section 11-T11S-R34E, Lea County, New Mexico.

Should you have any questions, please feel free to contact me at (505) 748-4182.

Sincerely,

James W. Pringle

James W. Pringle
Operations Engineer

JWP/th

Enclosure

YATES PETROLEUM CORPORATION

105 SOUTH FOURTH STREET
ARTESIA, NEW MEXICO 88210-2118
TELEPHONE (505) 748-1471

October 31, 2000

Mark Ashley
State of New Mexico
OIL CONSERVATION DIVISION
2040 S. Pacheco Street
Santa Fe, NM 87505-5472

Dear Mr. Catanach,

Enclosed please find a copy of form C-108 (Application for Authority to Inject) for the proposed Sand Springs ASU State #3 located in Unit J of Section 11-T11S-R34E, Lea County, New Mexico.

Should you have any questions, please feel free to contact me at (505) 748-4182.

Sincerely,

James W. Pringle

James W. Pringle
Operations Engineer

JWP/th

Enclosure

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
2040 SOUTH PACHECO
SANTA FE, NEW MEXICO 87505

FORM C-108
Revised 4-1-98

SAND SPRINGS ASU STATE #3
Unit J of Sec. 11-11S-34E

APPLICATION FOR AUTHORIZATION TO INJECT

I. PURPOSE: _____Secondary Recovery _____Pressure Maintenance __X__Disposal _____Storage
Application qualifies for administrative approval? _____Yes _____No

II. OPERATOR: Yates Petroleum Corporation

ADDRESS: 105 South Fourth Street Artesia, NM 88210

CONTACT PARTY: James W. Pringle PHONE: (505)748-4182

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

IV. Is this an expansion of an existing project? _____Yes __X__No
If yes, give the Division order number authorizing the project: _____

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

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

VII. Attach data on the proposed operation, including:

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

*VIII. Attach appropriate geologic data on the injection zone including appropriate lithologic detail, geologic 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 sources 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 sources 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: James W. Pringle TITLE: Operations Engineer

SIGNATURE: James W. Pringle DATE: October 31, 2000

* If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be resubmitted. Please show the date and circumstances of the earlier submittal: _____

DISTRIBUTION: Original and one copy to Santa Fe with one copy to the appropriate 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 the 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, 2040 South Pacheco, Santa Fe, New Mexico 87505, 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.

C-108 Application for Authorization to Inject
Yates Petroleum Corporation
Sand Springs ASU State #3
J 11-11S-34E
Lea County, New Mexico

I. The purpose of completing this well is for disposal of produced Devonian, Morrow, Atoka water into the Devonian.

II. Operator: Yates Petroleum Corporation
105 South Fourth Street
Artesia, NM 88210
James W. Pringle (505) 748-4182

III. Well Data: See Attachment A

IV. This is not an expansion of an existing project.

V. See attached map, Attachment B.

VI. There is 2 wells within the area of review penetrating the proposed injection zone. (Attachment C)

VII. 1. Proposed average daily injection volume approximately 1,000 BWPD. Maximum daily injection volume approximately 10,000 BWPD.

2. This will be a closed system.

3. Proposed average injection pressure--unknown.
Proposed maximum injection pressure--3000 psi.

4. Sources of injected water would be produced water from the Devonian, Morrow, Atoka. (Attachment D)

5. See Attachment D.

VIII. The injection interval is Devonian from 13,184'–13,400'.

Underground water sources of drinking water are in the Alluvial fill from surface to 200'.

IX. The proposed disposal interval may be acidized with 15-20% HCL acid.

X. Logs were filed at your office when the well was drilled. Any new logs run after deepening will also be submitted to your office.

XI. There is 2 windmills that exist within a one mile radius of the subject location. Chemical analysis is attached. (Attachment E)

XII. Available engineering and geologic data have been examined and no evidence of open faults or hydrologic connection between the disposal zone and any underground sources of drinking water have been found.

XIII. Proof of notice

A. Surface owners and offset operators have been notified. (Attachment F)

B. Copy of legal advertisement attached. (Attachment G)

XIV. Certification is signed.

Yates Petroleum Corporation
Sand Springs ASU State #3
J-11-11S-34E

Attachment A
Page 1

III. Well Data

A. 1. Lease Name/Location:
Sand Springs ASU State #3
J 11-11S-34E
1500'FSL & 1500'FEL

2. Casing Strings:
a. Proposed well condition:
See Attachment A – Proposed Status.
13 3/8" 48#, H-40 at 444' (circ).
9 5/8" 36#, 40#, J-55 at 4,172' (circ).
7" 26#, 29#, HC-P110, S95 at 13,184'.
2 2-3/8" L-80 plastic-coated tubing w/nickel plated packer at 12,000' & 13,000'.

3. Propose to use Guiberson or Baker plastic-coated or nickel-plated packer set at 12,000' & 13,000'.

B. 1. Injection Formation: Devonian

2. Injection interval into open hole 13,184'–13,400'.

3. Well was originally drilled as an exploratory Devonian, Morrow, Atoka well. Well will be a Devonian water disposal well when work is completed.

4. Next higher (shallower) oil or gas zone within 2 miles—Mississippi Sand
Next lower (deeper) oil or gas zone within 2 miles—None

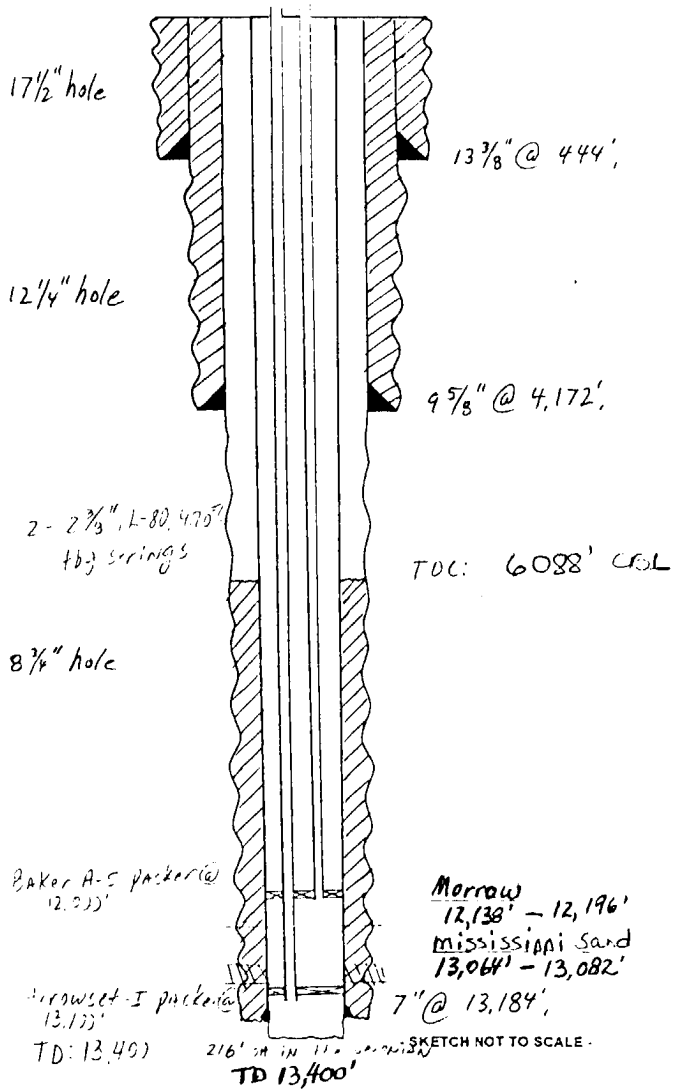
INJECTION WELL DATA SHEET

OPERATOR: Yates Petroleum Corporation

WELL NAME & NUMBER: Sand Springs ASU State #3

WELL LOCATION:					
	1500'FSL & 1500'FEL	J	11	11S	34E
	FOOTAGE LOCATION	UNIT LETTER	SECTION	TOWNSHIP	RANGE

WELLBORE SCHEMATIC



WELL CONSTRUCTION DATA

Surface Casing

Hole Size: 17-1/2" **Casing Size:** 13-3/8" @ 444'

Cemented with: 375 **sx.** or _____ **ft³**

Top of Cement: Surface **Method Determined:** Circulated

Intermediate Casing

Hole Size: 12-1/4" **Casing Size:** 9-5/8" @ 4,172'

Cemented with: 1850 **sx.** or _____ **ft³**

Top of Cement: Surface **Method Determined:** Circulated

Production Casing

Hole Size: 8-3/4" **Casing Size:** 7" @ 13,184'

Cemented with: 1675 **sx.** or _____ **ft³**

Top of Cement: 6088' **Method Determined:** CBL

Total Depth: 13,400'

Injection Interval

Open Hole 13,184 **feet** to 13,400 **feet**

(Perforated or Open Hole; indicate which)

INJECTION WELL DATA SHEET

Tubing Size: 2-3/8" L-80 **Lining Material:** plastic-coated

Type of Packer: Guiberson Uni VI - Nickel-plated

Packer Setting Depth: 12,000' & 13,000'

Other Type of Tubing/Casing Seal (if applicable): N/A

Additional Data

1 **Is this a new well drilled for injection?** ____ **Yes** X **No**
If no, for what purpose was the well originally drilled? Devonian, Morrow, Atoka

2 **Name of the Injection Formation:** Devonian

3 **Name of Field or Pool (if applicable):** None

4 **Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail, i.e. sacks of cement or plug(s) used.** Yes, Mississippian sand 13,064'-13,082'. Will be squeezed w/200 sacks when the work to do the dual completion is started.

5 **Give the name and depths of any oil or gas zones underlying or overlying the proposed injection zone in this area:** Mississippi Sand

WELLNAME: Sand Springs "AGU" State #3 FIELD: Sand Springs

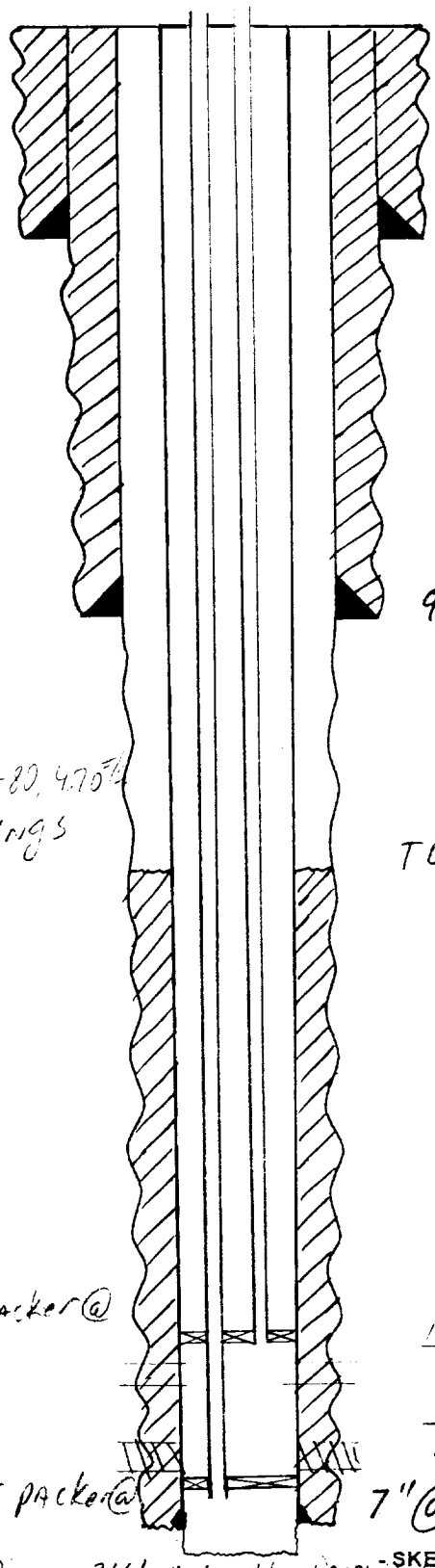
LOCATION: 1500' FSL & 1500' FEL, Sec 11, T11S, R34E, Lea Co, NM.

GL: 4,142' ZERO: _____ AGL: _____ KB: 4,160'

SPUD DATE: _____ COMPLETION DATE: _____

COMMENTS: _____

CASING PROGRAM	
SIZE/WT/GR/CONN	DEPTH SET
13 3/8", 48.0 #/ft, H-40, ST+C	444'
9 5/8", 36.00 & 40.0 #/ft, J-55, ST&C	4,172'
7", 26.0 & 29.0 #/ft, HC-P110 & S-95 LT&C	13,184'



17½" hole

13 3/8" @ 444', CMTD w/ 375 SACKS, circ to surface

12¼" hole

9 5/8" @ 4,172', CMTD w/ 1,850 SACKS, circ to surface

Attachment A
Page 4

2 - 2 3/8", L-80, 4.7#/ft tbg strings

TOC: 8,500' EST

8¾" hole

after

Baker A-5 packer @ 12,000'

Morrow
12,138' – 12,196'

Woodford SAND
13,064' – 13,082' SQZD w/ 200 SACK cement

Arrowset-I packer @ 13,100'

7" @ 13,184', CMTD w/ 1,675 SACKS

TD: 13,400

216' OH in the Devonian

- SKETCH NOT TO SCALE -

DATE: 4/14/00 JWP

WELLNAME: Sand Springs "HSU" State #3 FIELD: Sand Springs

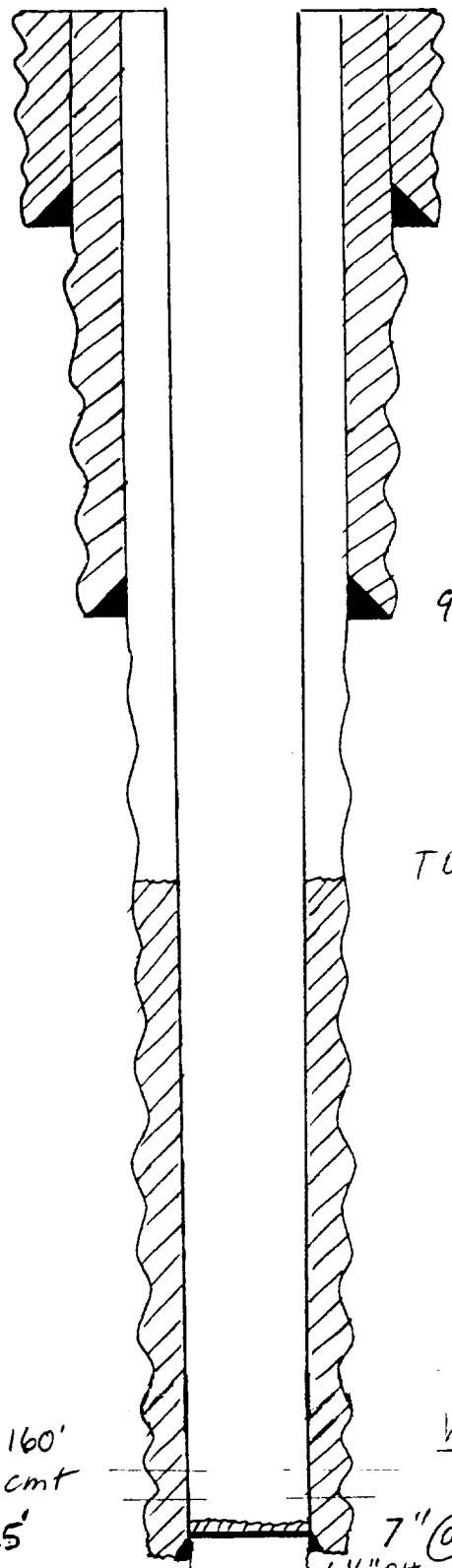
LOCATION: 1500' FSL & 1500' FEL, Sec 11, T11S, R34E, Lea Co, NM.

GL: 4,142' ZERO: _____ AGL: _____ KB: 4,160'

SPUD DATE: _____ COMPLETION DATE: _____

COMMENTS: _____

CASING PROGRAM	
SIZE/WT/GR/CONN	DEPTH SET
13 3/8", 48.0 #/ft, H-40, ST+C	444'
9 5/8", 36.00 & 40.0 #/ft, J-55, ST&C	4,172'
7", 26.0 & 29.0 #/ft, HC-P110 & S-95 LT&C	13,184'



17½" hole

12¼" hole

8¾" hole

13 3/8" @ 444', CMTD w/ 375 SACKS, circ to surface

9 5/8" @ 4,172', CMTD w/ 1,850 SACKS, circ to surface

Attachment A
Page 5

TOC: 6,088' CBL

before

CIBP @ 13,160' w/ 35' of cmt

PBTD: 13,125'

TD: 13,184'

Woodford SAND 13,064' – 13,082'

7" @ 13,184', CMTD w/ 1,675 SACKS

6 1/8" OH

16' OH in the DEVONIAN 13,200' TD

- SKETCH NOT TO SCALE -

DATE: 4/14/00 JWP

YATES PETROLEUM CORPORATION

SAND SPRINGS ASU STATE #3

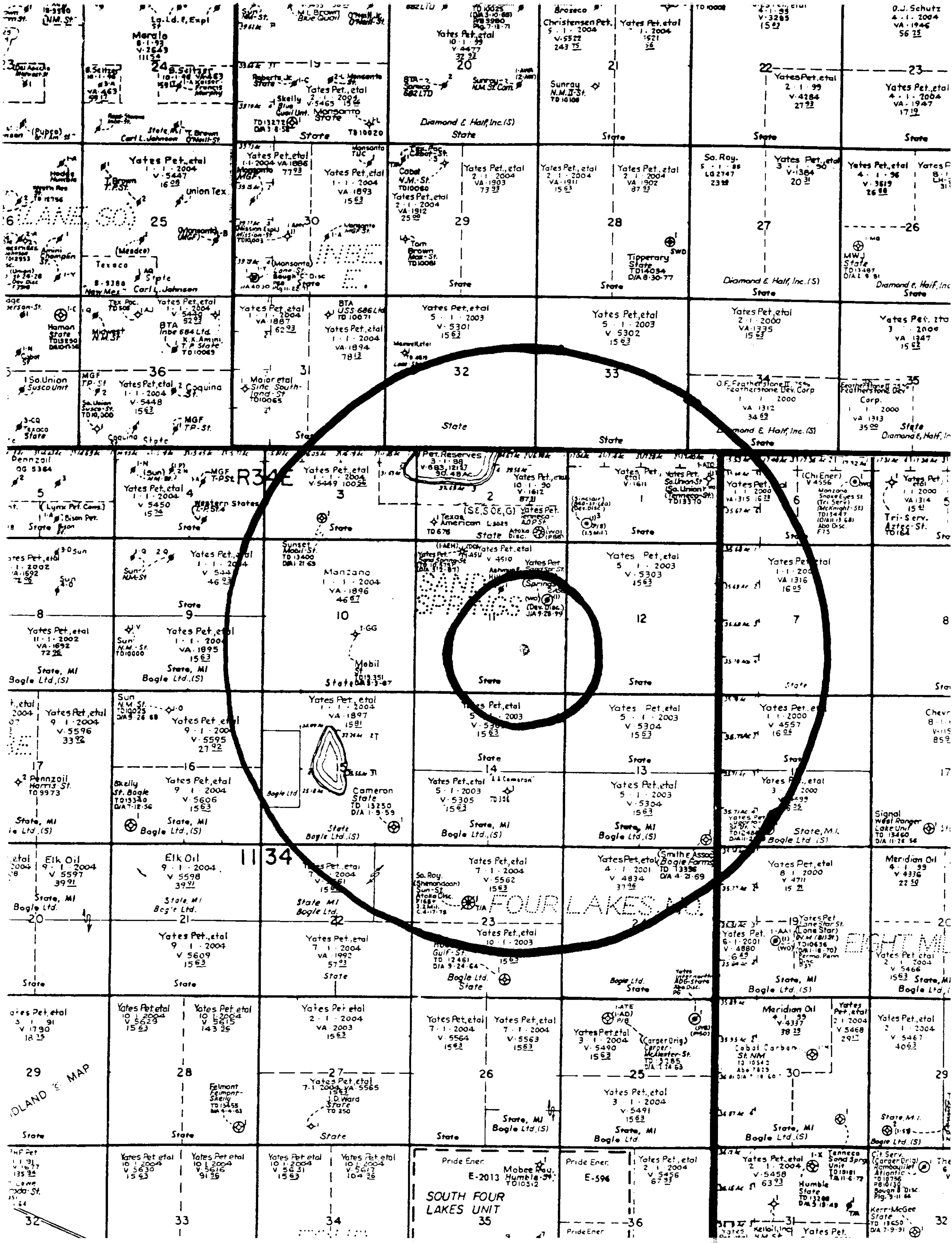
Proposed Salt Water Disposal Well

Sec. 11-T11S-R34E

1500'FSL & 1500'FEL

Lea County, New Mexico

Attachment B - Map



Yates Pet.,etal
Diamond & Half, Inc.(S)
State
Sunray N.M. II St.
Christensen Pet.
Merale
Carl L. Johnson
Texaco
Tipperary State
MWJ State
Hamon State
Midwest N.M.St.
BTA Inbe 684 Ltd.
Major etal Sinc. South-land-St.
Featherstone Dev. Corp.
R34E
Pennzoil
Western States
Lynx Pet. Corp.
Pet. Reserves
Texas American
Manzano
Mobil St.
Sunset Mobil-St.
Sun N.M.St.
Bogle Ltd.,(S)
Skelly St. Bogle
Cameron State
Signal West Ranger Lake Unit
Elk Oil
Meridian Oil
FOUR LAKES
Gulf-St.
Cabot Carbon St. NM
Felmont Feimont-Skelly
J.D. Ward State
Pride Ener.
Mobee Roy. Humble-St.
SOUTH FOUR LAKES UNIT
Humble State
Kerr-McGee State
MIDLAND MAP
11 34

ATTACHMENT C

Page 1

Sand Springs ASU State #3

Tabulation of Data on Wells Within Area of Review

Well Name	Location	Operator	Type	Spud	Completed	TD	Injection Zone	Perfs	Completion Information
State 11 #1	11-11S-34E	Ashmun & Hilliard	P&A	12/19/63	02/28/64	13,140'	Devonian	Openhole 13,129'-13,140'	13 3/8" @ 355' w/325 sx 8 5/8" @ 4,200' w/350 sx 5 1/2" @ 13,129' w/500 s.
Trainer Springs #1	11-11S-34E	NM Salt Water Disposal Company	P&A			13,400	Devonian	13,128'-13,207'	13 3/8" @ 332' w/275 sx 8 5/8" @ 4,159' w/1000 sx 5 1/2" @ 13,225' w/150 sx

WELL NAME: Hill & Meeke State "11" #1 FIELD AREA: _____

LOCATION: 1650' FNL & 2310' FEL Sec 11 T11S R34E Lea Co, NM

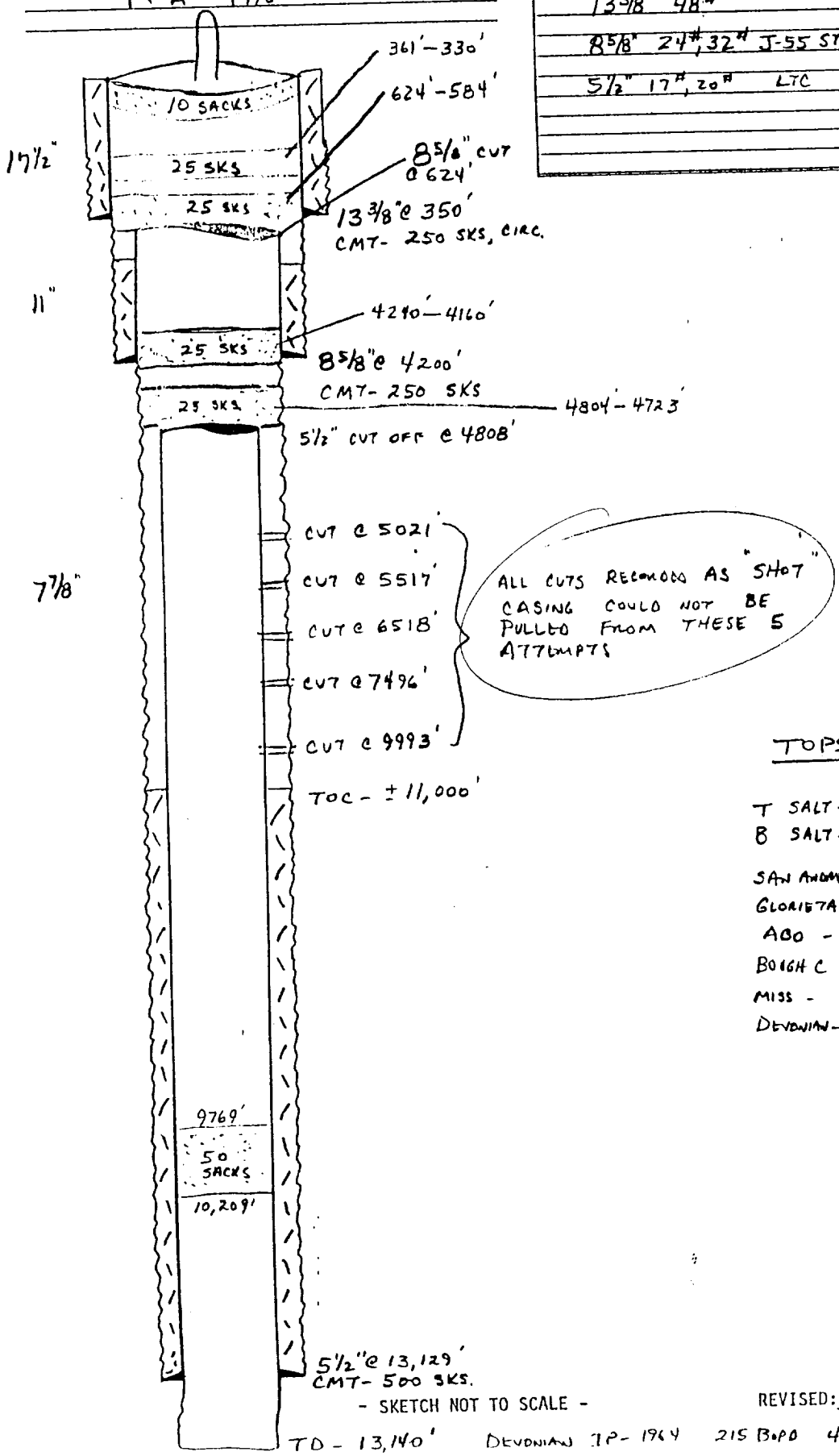
GL: 4153' ZERO: _____' AGL: _____'

KB: _____' ORIG. DRLG./COMPL. DATE: _____

COMMENTS: Drilled & Completed — 1964
P & A — 1970

CASING PROGRAM:

SIZE/WT./GR./CONN.	DEPTH SET
13 3/8" 48#	
8 5/8" 24#, 32# J-55 STC	4200'
5 1/2" 17#, 20# LTC	13,129



- SKETCH NOT TO SCALE -

TOPS

T SALT - 2088
B SALT - 2680
SAN ANDRES - 4145
GLORIETA - 5490
ABO - 7760
BOUGH C - 9944
MISS - 12,110
DEVONIAN - 13,096

TD - 13,140' DEVONIAN TP - 1964 215 BOPD 46° API NO WATER

REVISED: 12/98 M Keith

Attachment C
Page 2

TRAINER STRINGS "J" → YPC Sand Springs ASU St # 2

WELL NAME: New Mexico Sr Water Disposal FIELD AREA: ____

LOCATION: 1980' FNL & 660' FEL Sec 11 T11S R34E Lea Co, NM

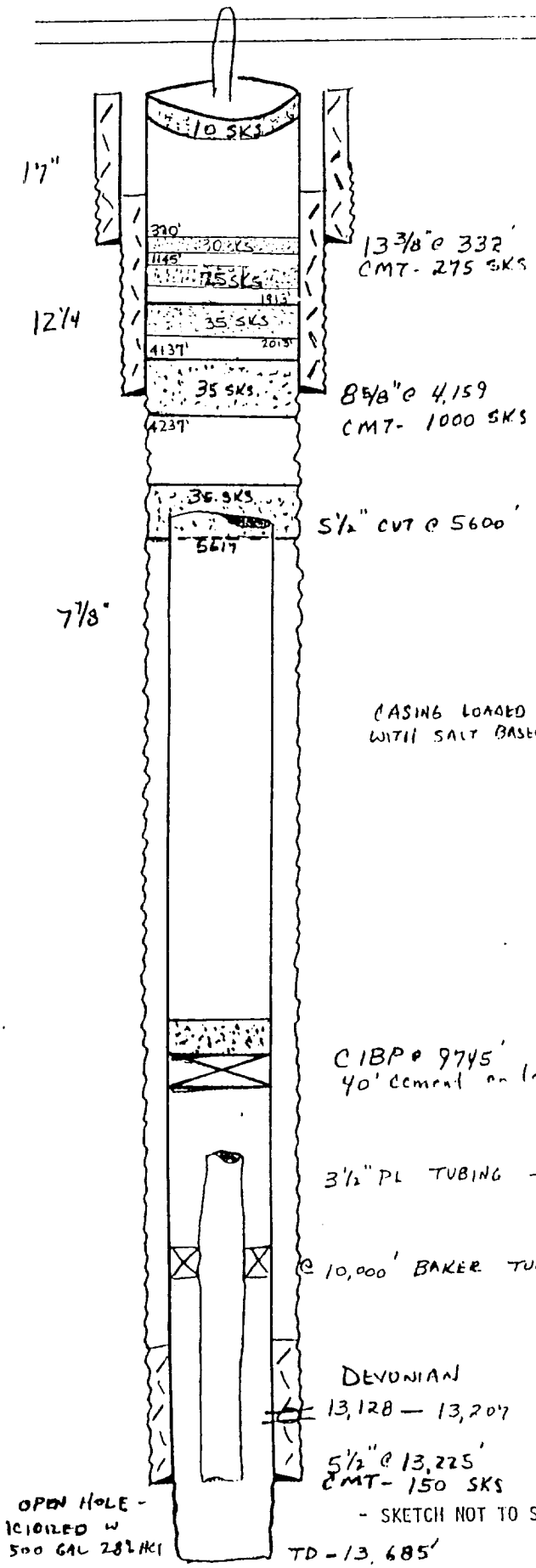
GL: ____' ZERO: ____' AGL: ____'

KB: 4165' ORIG. DRLG./COMPL. DATE: ____

COMMENTS: Drilled & Completed 1961

CASING PROGRAM:

SIZE/WT./GR./CONN.	DEPTH SET
13 3/8" 40#	
8 5/8" 24#, 32#	4159
5 1/2" 17# 20# pulled from 5600'	13,225



TOPS

T SALT	2140
B SALT	2735
SAN ANDRES	4056
GLORIETA	5517
ABO	7800
WOLFCAMP	9087
MISSISSIPPIAN	12,265
DEVONIAN	13,126

IP - 384 BOPD 44° API
0 BWPD

- SKETCH NOT TO SCALE -

9/13/99 Ray S

REVISED: 12/98 M Keith

BJ SERVICES

Water Analysis

Date: 01-May-00

2708 West County Road, Hobbs NM 88240
Phone (505) 392-5556 Fax (505) 392-7307

Analyzed For Devonian

Company	Well Name	County	State
Yates Petroleum Corp.	sand spring asu st.3	Lea	New Mexico

Sample Source	**Swab Sample**	***Sample #***	**1**
Formation		***Depth***	

Specific Gravity	**1.010**	*SG @ 60 °F*	**1.012**
pH	**8.08**	*Sulfides*	**Absent**
Temperature (°F)	**68**	*Reducing Agents*	**Not Tested**

Cations

Sodium (Calc)	*in Mg/L*	**7,516**	*in PPM*	**7,429**
Calcium	*in Mg/L*	**224**	*in PPM*	**221**
Magnesium	*in Mg/L*	**41**	*in PPM*	**40**
Soluable Iron (FE2)	*in Mg/L*	**0.0**	*in PPM*	**0**

Anions

Chlorides	*in Mg/L*	**11,760**	*in PPM*	**11,625**
Sulfates	*in Mg/L*	**310**	*in PPM*	**306**
Bicarbonates	*in Mg/L*	**107**	*in PPM*	**106**

Total Hardness (as CaCO3)	*in Mg/L*	**730**	*In PPM*	**722**
Total Dissolved Solids (Calc)	*In Mg/L*	**19,958**	*In PPM*	**19,729**
Equivalent NaCl Concentration	*in Mg/L*	**19,527**	*In PPM*	**19,303**

Scaling Tendencies

**Calcium Carbonate Index*	**24,049**
Below 500,000 Remote / 500,000 - 1,000,000 Possible / Above 1,000,000 Probable	
**Calcium Sulfate (Gyp) Index*	**69,440**
Below 500,000 Remote / 500,000 - 10,000,00 Possible / Above 10,000,000 Probable	

****This Calculation is only an approximation and is only valid before treatment of a well or several weeks after treatment.***

Remarks rw = .33 potassium =1500 mike allen 505-365-8906 or 505-748-3628

Report # 457

MCI
CHEMICALS and CONSULTING

MILLER CHEMICALS, INC.
Post Office Box 298
Artesia, N.M. 88211-0298
(505) 746-1919 Artesia Office
(505) 393-2893 Hobbs Office
(505) 746-1918 Fax

WATER ANALYSIS REPORT

Company : YATES PETROLEUM
Address : ARTESIA, NM
Lease : SAND SPRINGS "ASU" S
Well : #4
Sample Pt. : WELLHEAD

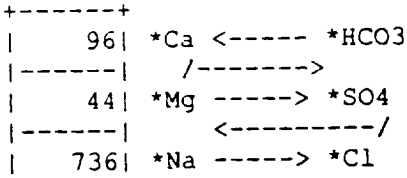
Date : 9/22/00
Date Sampled : 9/20/00
Analysis No. : 00189

Duerian

	ANALYSIS		mg/L		* meq/L
1.	pH	6.7			
2.	H2S	0			
3.	Specific Gravity	1.030			
4.	Total Dissolved Solids		50952.1		
5.	Suspended Solids		NR		
6.	Dissolved Oxygen		NR		
7.	Dissolved CO2		NR		
8.	Oil In Water		NR		
9.	Phenolphthalein Alkalinity (CaCO3)				
10.	Methyl Orange Alkalinity (CaCO3)				
11.	Bicarbonate	HCO3	512.0	HCO3	8.4
12.	Chloride	Cl	29820.0	Cl	841.2
13.	Sulfate	SO4	1250.0	SO4	26.0
14.	Calcium	Ca	1920.0	Ca	95.8
15.	Magnesium	Mg	535.6	Mg	44.1
16.	Sodium (calculated)	Na	16914.5	Na	735.7
17.	Iron	Fe	0.0		
18.	Barium	Ba	NR		
19.	Strontium	Sr	NR		
20.	Total Hardness (CaCO3)		7000.0		

PROBABLE MINERAL COMPOSITION

*milli equivalents per Liter



Compound	Equiv wt	X meq/L	= mg/L
Ca(HCO3)2	81.0	8.4	680
CaSO4	68.1	26.0	1772
CaCl2	55.5	61.4	3406
Mg(HCO3)2	73.2		
MgSO4	60.2		
MgCl2	47.6	44.1	2098
NaHCO3	84.0		
Na2SO4	71.0		
NaCl	58.4	735.7	42996

Saturation Values Dist. Water 20 C

CaCO3	13 mg/L
CaSO4 * 2H2O	2090 mg/L
BaSO4	2.4 mg/L

REMARKS: 0 % KCL PRESENT

SCALE TENDENCY REPORT

Company	: YATES PETROLEUM	Date	: 9/22/00
Address	: ARTESIA, NM	Date Sampled	: 9/20/00
Lease	: SAND SPRINGS "ASU" S	Analysis No.	: 00189
Well	: #4	Analyst	: A. MILLER
Sample Pt.	: WELLHEAD		

STABILITY INDEX CALCULATIONS
(Stiff-Davis Method)
CaCO3 Scaling Tendency

S.I. =	0.4	at	70	deg. F or	21	deg. C
S.I. =	0.5	at	90	deg. F or	32	deg. C
S.I. =	0.5	at	110	deg. F or	43	deg. C
S.I. =	0.6	at	130	deg. F or	54	deg. C
S.I. =	0.7	at	150	deg. F or	66	deg. C

****

CALCIUM SULFATE SCALING TENDENCY CALCULATIONS
(Skillman-McDonald-Stiff Method)
Calcium Sulfate

S =	3775	at	70	deg. F or	21	deg C
S =	3933	at	90	deg. F or	32	deg C
S =	4028	at	110	deg. F or	43	deg C
S =	4044	at	130	deg. F or	54	deg C
S =	4017	at	150	deg. F or	66	deg C

Respectfully submitted,
A. MILLER

B J Services Water Analysis

Artesia **District** Laboratory
(505)-746-3140

Date: 11-Aug-00
Company: Yates Petroleum
Lease: Hyteck
State: N.M.
Depth:

Test #:
Well #: AUM#1
County:
Formation: Morrow
Source:

pH:	5.17
Specific Gravity	1.006

Temp (F): 70.5

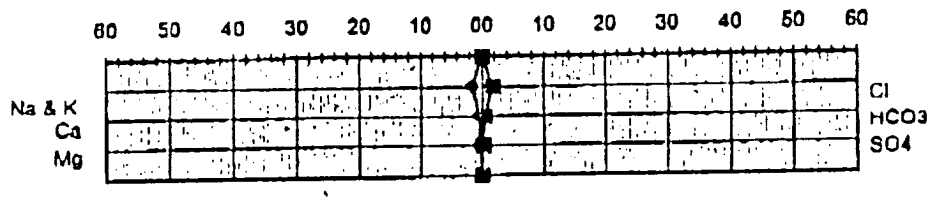
	mg/l	me/l	ppm
CATIONS			
Sodium (calc.)	3792	165.0	3773
Calcium	80	4.0	80
Magnesium	49	4.0	48
Barium	< 25	—	—
Potassium	< 10	—	—
Iron	25	0.9	25
ANIONS			
Chloride	6000	169.3	5970
Sulfate	80	1.2	59
Carbonate	< 1	—	—
Bicarbonate	244	4.0	243
Total Dissolved Solids(calc.)	10250		10199
Total Hardness as CaCO3	400	8.0	398

COMMENTS:

SCALE ANALYSIS:

CaCO3 Factor	19566.8 Calcium Carbonate Scale Probability-->	Remote
CaSO4 Factor	4812 Calcium Sulfate Scale Probability --->	Remote

Stiff Plot



BJ SERVICES

Water Analysis

Date: 01-May-00

2708 West County Road, Hobbs NM 88240
Phone (505) 392-5556 Fax (505) 392-7307

Analyzed For Atoka

Company	Well Name	County	State
Yates Petroleum Corp.	Blitzen "AUB" State 1	Lea	New Mexico

Sample Source	Swab Sample	**Sample #**	1/630 am
Formation		**Depth**	

Specific Gravity	1.045	SG @ 60 °F	1.048
pH	6.84	Sulfides	Absent
Temperature (°F)	76	Reducing Agents	Not Tested

Cations

Sodium (Calc)	in Mg/L	24,012	in PPM	22,908
Calcium	in Mg/L	6,800	in PPM	6,487
Magnesium	in Mg/L	1,200	in PPM	1,145
Soluable Iron (FE2)	in Mg/L	10.0	in PPM	10

Anions

Chlorides	in Mg/L	52,000	in PPM	49,609
Sulfates	in Mg/L	300	in PPM	286
Bicarbonates	in Mg/L	307	in PPM	293
Total Hardness (as CaCO3)	in Mg/L	22,000	in PPM	20,988
Total Dissolved Solids (Calc)	in Mg/L	84,630	in PPM	80,738
Equivalent NaCl Concentration	in Mg/L	81,192	in PPM	77,459

Scaling Tendencies

*Calcium Carbonate Index 2,090,592

Below 500,000 Remote / 500,000 - 1,000,000 Possible / Above 1,000,000 Probable

*Calcium Sulfate (Gyp) Index 2,040,000

Below 500,000 Remote / 500,000 - 10,000,00 Possible / Above 10,000,000 Probable

*This Calculation is only an approximation and is only valid before treatment of a well or several weeks after treatment.

Remarks rw = .15 potassium =350 mike allen 505-365-8906 or 505-748-3828

Report # 458

MILLER CHEMICALS, INC.
Post Office Box 298
Artesia, N.M. 88211-0298
(505) 746-1919 Artesia Office
(505) 393-2893 Hobbs Office
(505) 746-1918 Fax

WATER ANALYSIS REPORT

Company	: YATES PETROLEUM	Date	: 10/9/00
Address	: ARTESIA, NM	Date Sampled	: 10/5/00
Lease	: SAND SPRINGS "ASU"#1	Analysis No.	: 00192
Well	: WINDMILL NW		
Sample Pt.	: TANK		

	ANALYSIS		mg/L		* meq/L
1.	pH	6.9			
2.	H2S	0			
3.	Specific Gravity	1.000			
4.	Total Dissolved Solids		10963.5		
5.	Suspended Solids		NR		
6.	Dissolved Oxygen		NR		
7.	Dissolved CO2		NR		
8.	Oil In Water		NR		
9.	Phenolphthalein Alkalinity (CaCO3)				
10.	Methyl Orange Alkalinity (CaCO3)				
11.	Bicarbonate	HCO3	329.0	HCO3	5.4
12.	Chloride	Cl	6390.0	Cl	180.3
13.	Sulfate	SO4	450.0	SO4	9.4
14.	Calcium	Ca	560.0	Ca	27.9
15.	Magnesium	Mg	680.4	Mg	56.0
16.	Sodium (calculated)	Na	2554.0	Na	111.1
17.	Iron	Fe	0.0		
18.	Barium	Ba	NR		
19.	Strontium	Sr	NR		
20.	Total Hardness (CaCO3)		4200.0		

PROBABLE MINERAL COMPOSITION

*milli equivalents per Liter

```
+------+                    +------+
|   28| *Ca <----- *HCO3    |    5|
|------|   /------->        |------|
|   56| *Mg -----> *SO4     |    9|
|------|     <---------/    |------|
|  111| *Na -----> *Cl      |  180|
+------+                    +------+
```

Saturation Values Dist. Water 20 C

CaCO3	13 mg/L
CaSO4 * 2H2O	2090 mg/L
BaSO4	2.4 mg/L

Compound	Equiv wt	X meq/L	= mg/L
Ca(HCO3)2	81.0	5.4	437
CaSO4	68.1	9.4	638
CaCl2	55.5	13.2	731
Mg(HCO3)2	73.2		
MgSO4	60.2		
MgCl2	47.6	56.0	2665
NaHCO3	84.0		
Na2SO4	71.0		
NaCl	58.4	111.1	6492

REMARKS:

SCALE TENDENCY REPORT

Company	: YATES PETROLEUM	Date	: 10/9/00
Address	: ARTESIA, NM	Date Sampled	: 10/5/00
Lease	: SAND SPRINGS "ASU" #	Analysis No.	: 00192
Well	: WINDMILL NW	Analyst	: A. MILLER
Sample Pt.	: TANK		

STABILITY INDEX CALCULATIONS
(Stiff-Davis Method)
CaCO3 Scaling Tendency

S.I. =	0.1	at	70 deg. F or	21 deg. C
S.I. =	0.2	at	90 deg. F or	32 deg. C
S.I. =	0.2	at	110 deg. F or	43 deg. C
S.I. =	0.2	at	130 deg. F or	54 deg. C
S.I. =	0.3	at	150 deg. F or	66 deg. C

****

CALCIUM SULFATE SCALING TENDENCY CALCULATIONS
(Skillman-McDonald-Stiff Method)
Calcium Sulfate

S =	2508	at	70 deg. F or	21 deg C
S =	2576	at	90 deg. F or	32 deg C
S =	2608	at	110 deg. F or	43 deg C
S =	2600	at	130 deg. F or	54 deg C
S =	2574	at	150 deg. F or	66 deg C

Respectfully submitted,
A. MILLER

MILLER CHEMICALS, INC.
Post Office Box 298
Artesia, N.M. 88211-0298
(505) 746-1919 Artesia Office
(505) 393-2893 Hobbs Office
(505) 746-1918 Fax

WATER ANALYSIS REPORT

Company : YATES PETROLEUM
Address : ARTESIA, NM
Lease : SAND SPRINGS "ASU" # 1
Well : WINDMILL NW
Sample Pt. : FILL PIPE

Date : 10/9/00
Date Sampled : 10/5/00
Analysis No. : 00193

	ANALYSIS		mg/L		* meq/L
1.	pH	6.9			
2.	H2S	0			
3.	Specific Gravity	1.000			
4.	Total Dissolved Solids		9651.0		
5.	Suspended Solids		NR		
6.	Dissolved Oxygen		NR		
7.	Dissolved CO2		NR		
8.	Oil In Water		NR		
9.	Phenolphthalein Alkalinity (CaCO3)				
10.	Methyl Orange Alkalinity (CaCO3)				
11.	Bicarbonate	HCO3	427.0	HCO3	7.0
12.	Chloride	Cl	5538.0	Cl	156.2
13.	Sulfate	SO4	425.0	SO4	8.9
14.	Calcium	Ca	600.0	Ca	29.9
15.	Magnesium	Mg	680.5	Mg	56.0
16.	Sodium (calculated)	Na	1980.5	Na	86.1
17.	Iron	Fe	0.0		
18.	Barium	Ba	NR		
19.	Strontium	Sr	NR		
20.	Total Hardness (CaCO3)		4300.0		

PROBABLE MINERAL COMPOSITION

*milli equivalents per Liter

```
+------+                    +------+
|   30| *Ca <----- *HCO3    |    7|
|------|   /------->        |------|
|   56| *Mg -----> *SO4     |    9|
|------|     <---------/    |------|
|   86| *Na -----> *Cl      |  156|
+------+                    +------+
```

Saturation Values Dist. Water 20 C

CaCO3	13 mg/L
CaSO4 * 2H2O	2090 mg/L
BaSO4	2.4 mg/L

Compound	Equiv wt	X meq/L	= mg/L
Ca(HCO3)2	81.0	7.0	567
CaSO4	68.1	8.9	602
CaCl2	55.5	14.1	782
Mg(HCO3)2	73.2		
MgSO4	60.2		
MgCl2	47.6	56.0	2665
NaHCO3	84.0		
Na2SO4	71.0		
NaCl	58.4	86.1	5034

REMARKS: BOGLE 4 LAKES RANCH

SCALE TENDENCY REPORT

Company	: YATES PETROLEUM	Date	: 10/9/00
Address	: ARTESIA, NM	Date Sampled	: 10/5/00
Lease	: SAND SPRINGS "ASU" # 1	Analysis No.	: 00193
Well	: WINDMILL NW	Analyst	: A. MILLER
Sample Pt.	: FILL PIPE		

STABILITY INDEX CALCULATIONS
(Stiff-Davis Method)
CaCO3 Scaling Tendency

S.I. =	0.3	at	70 deg. F or	21 deg. C
S.I. =	0.3	at	90 deg. F or	32 deg. C
S.I. =	0.4	at	110 deg. F or	43 deg. C
S.I. =	0.4	at	130 deg. F or	54 deg. C
S.I. =	0.4	at	150 deg. F or	66 deg. C

****

CALCIUM SULFATE SCALING TENDENCY CALCULATIONS
(Skillman-McDonald-Stiff Method)
Calcium Sulfate

S =	2310	at	70 deg. F or	21 deg C
S =	2373	at	90 deg. F or	32 deg C
S =	2401	at	110 deg. F or	43 deg C
S =	2392	at	130 deg. F or	54 deg C
S =	2366	at	150 deg. F or	66 deg C

Respectfully submitted,
A. MILLER

M C I
CHEMICALS and CONSULTING

MILLER CHEMICALS, INC.
Post Office Box 298
Artesia, N.M. 88211-0298
(505) 746-1919 Artesia Office
(505) 393-2893 Hobbs Office
(505) 746-1918 Fax

WATER ANALYSIS REPORT

Company	: YATES PETROLEUM	Date	: 10/9/00
Address	: ARTESIA, NM	Date Sampled	: 10/5/00
Lease	: SAND SPRINGS"ASU"#3	Analysis No.	: 00194
Well	: WINDMILL ESE		
Sample Pt.	: TANK		

	ANALYSIS		mg/L		* meq/L
1.	pH	6.9			
2.	H2S	0			
3.	Specific Gravity	1.000			
4.	Total Dissolved Solids		10218.7		
5.	Suspended Solids		NR		
6.	Dissolved Oxygen		NR		
7.	Dissolved CO2		NR		
8.	Oil In Water		NR		
9.	Phenolphthalein Alkalinity (CaCO3)				
10.	Methyl Orange Alkalinity (CaCO3)				
11.	Bicarbonate	HCO3	329.0	HCO3	5.4
12.	Chloride	Cl	5964.0	Cl	168.2
13.	Sulfate	SO4	400.0	SO4	8.3
14.	Calcium	Ca	640.0	Ca	31.9
15.	Magnesium	Mg	631.9	Mg	52.0
16.	Sodium (calculated)	Na	2253.8	Na	98.0
17.	Iron	Fe	0.0		
18.	Barium	Ba	NR		
19.	Strontium	Sr	NR		
20.	Total Hardness (CaCO3)		4200.0		

PROBABLE MINERAL COMPOSITION

*milli equivalents per Liter

```
+------+                    +------+
|   32| *Ca <------ *HCO3   |    5|
|------|   /-------->       |------|
|   52| *Mg ------> *SO4    |    8|
|------|     <----------/   |------|
|   98| *Na ------> *Cl     |  168|
+------+                    +------+
```

Saturation Values Dist. Water 20 C

CaCO3	13 mg/L
CaSO4 * 2H2O	2090 mg/L
BaSO4	2.4 mg/L

Compound	Equiv wt	X meq/L	= mg/L
Ca(HCO3)2	81.0	5.4	437
CaSO4	68.1	8.3	567
CaCl2	55.5	18.2	1011
Mg(HCO3)2	73.2		
MgSO4	60.2		
MgCl2	47.6	52.0	2475
NaHCO3	84.0		
Na2SO4	71.0		
NaCl	58.4	98.0	5729

REMARKS: BOGLE 4 LAKE RANCH

SCALE TENDENCY REPORT

Company	: YATES PETROLEUM	Date	: 10/9/00
Address	: ARTESIA, NM	Date Sampled	: 10/5/00
Lease	: SAND SPRINGS"ASU"#3	Analysis No.	: 00194
Well	: WINDMILL ESE	Analyst	: A. MILLER
Sample Pt.	: TANK		

STABILITY INDEX CALCULATIONS
(Stiff-Davis Method)
CaCO3 Scaling Tendency

S.I. = 0.2 at 70 deg. F or 21 deg. C
S.I. = 0.2 at 90 deg. F or 32 deg. C
S.I. = 0.3 at 110 deg. F or 43 deg. C
S.I. = 0.3 at 130 deg. F or 54 deg. C
S.I. = 0.4 at 150 deg. F or 66 deg. C

****

CALCIUM SULFATE SCALING TENDENCY CALCULATIONS
(Skillman-McDonald-Stiff Method)
Calcium Sulfate

S = 2297 at 70 deg. F or 21 deg C
S = 2361 at 90 deg. F or 32 deg C
S = 2391 at 110 deg. F or 43 deg C
S = 2382 at 130 deg. F or 54 deg C
S = 2356 at 150 deg. F or 66 deg C

Respectfully submitted,
A. MILLER

MILLER CHEMICALS, INC.
Post Office Box 298
Artesia, N.M. 88211-0298
(505) 746-1919 Artesia Office
(505) 393-2893 Hobbs Office
(505) 746-1918 Fax

WATER ANALYSIS REPORT

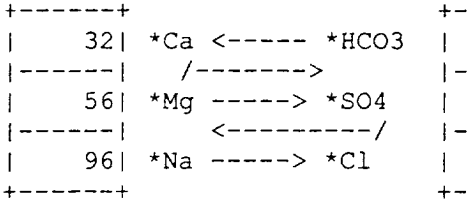
Company : YATES PETROLEUM
Address : ARTESIA, NM
Lease : SAND SPRINGS"ASU"#3
Well : WINDMILL ESE
Sample Pt. : FILLPIPE

Date : 10/9/00
Date Sampled : 10/5/00
Analysis No. : 00195

	ANALYSIS		mg/L		* meq/L
1.	pH	6.9			
2.	H2S	0			
3.	Specific Gravity	1.000			
4.	Total Dissolved Solids		10326.9		
5.	Suspended Solids		NR		
6.	Dissolved Oxygen		NR		
7.	Dissolved CO2		NR		
8.	Oil In Water		NR		
9.	Phenolphthalein Alkalinity (CaCO3)				
10.	Methyl Orange Alkalinity (CaCO3)				
11.	Bicarbonate	HCO3	439.0	HCO3	7.2
12.	Chloride	Cl	5964.0	Cl	168.2
13.	Sulfate	SO4	400.0	SO4	8.3
14.	Calcium	Ca	640.0	Ca	31.9
15.	Magnesium	Mg	680.5	Mg	56.0
16.	Sodium (calculated)	Na	2203.4	Na	95.8
17.	Iron	Fe	0.0		
18.	Barium	Ba	NR		
19.	Strontium	Sr	NR		
20.	Total Hardness (CaCO3)		4400.0		

PROBABLE MINERAL COMPOSITION

*milli equivalents per Liter



Saturation Values Dist. Water 20 C

CaCO3	13 mg/L
CaSO4 * 2H2O	2090 mg/L
BaSO4	2.4 mg/L

Compound	Equiv wt	X meq/L	= mg/L
Ca(HCO3)2	81.0	7.2	583
CaSO4	68.1	8.3	567
CaCl2	55.5	16.4	911
Mg(HCO3)2	73.2		
MgSO4	60.2		
MgCl2	47.6	56.0	2665
NaHCO3	84.0		
Na2SO4	71.0		
NaCl	58.4	95.8	5601

REMARKS: BOGLE 4 LAKES RANCH

SCALE TENDENCY REPORT

Company	: YATES PETROLEUM	Date	: 10/9/00
Address	: ARTESIA, NM	Date Sampled	: 10/5/00
Lease	: SAND SPRINGS"ASU"#3	Analysis No.	: 00195
Well	: WINDMILL ESE	Analyst	: A. MILLER
Sample Pt.	: FILLPIPE		

STABILITY INDEX CALCULATIONS
(Stiff-Davis Method)
CaCO3 Scaling Tendency

S.I. =	0.3	at	70 deg. F or	21 deg. C
S.I. =	0.3	at	90 deg. F or	32 deg. C
S.I. =	0.4	at	110 deg. F or	43 deg. C
S.I. =	0.4	at	130 deg. F or	54 deg. C
S.I. =	0.5	at	150 deg. F or	66 deg. C

****

CALCIUM SULFATE SCALING TENDENCY CALCULATIONS
(Skillman-McDonald-Stiff Method)
Calcium Sulfate

S =	2319	at	70 deg. F or	21 deg C
S =	2384	at	90 deg. F or	32 deg C
S =	2415	at	110 deg. F or	43 deg C
S =	2406	at	130 deg. F or	54 deg C
S =	2380	at	150 deg. F or	66 deg C

Respectfully submitted,
A. MILLER

Attachment F

YATES PETROLEUM CORPORATION

105 SOUTH FOURTH STREET
ARTESIA, NEW MEXICO 88210-2118
TELEPHONE (505) 748-1471

October 31, 2000

Bogle Farms, Inc.
P. O. Box 358
Dexter, NM 88230

Gentlemen:

Enclosed please find a copy of form C-108 (Application for Authorization to Inject) on the Sand Springs ASU State #3 located in Unit J of Section 11-T11S-R34E of Lea County, New Mexico.

Should you have any questions, please feel free to contact me at (505) 748-4182.

Sincerely,

James W. Pringle
Operations Engineer

JWP/th

Enclosures

YATES PETROLEUM CORPORATION

105 SOUTH FOURTH STREET
ARTESIA, NEW MEXICO 88210-2118
TELEPHONE (505) 748-1471

October 31, 2000

Hobbs News Sun
P. O. Box 850
Hobbs, NM 88241

Gentlemen:

Yates Petroleum Corporation desires to place a public notice in your newspaper for one day. The notice is enclosed.

Please place this notice in your paper on Sunday, November 5, 2000, and forward a copy of it along with your billing as soon as possible to:

Yates Petroleum Corporation
105 South Fourth Street
Artesia, NM 88210
Attn: James W. Pringle

If you have any questions, please contact me at 748-4182. Thank you for your cooperation in this matter.

Sincerely,

James W. Pringle

James W. Pringle
Operations Engineer

JWP/th

Enclosure

ATTACHMENT G

Legal Notice

Yates Petroleum Corporation, 105 South Fourth Street, Artesia, NM 88210, has filed form C-108 (Application for Authorization to Inject) with the New Mexico Oil Conservation Division seeking administrative approval for an injection well. The proposed well, the "Sand Springs ASU State #3" located 1500'FSL & 1500'FEL of Section 11, Township 11 South, Range 34 East of Lea County, New Mexico, will be used for salt water disposal. Disposal waters from the Devonian, Morrow, Atoka will be re-injected into the Devonian at a depth of 13,184'-13,400' with a maximum pressure of 3000 psi and a maximum rate of 10,000 BWPD.

All interested parties opposing the aforementioned must file objections or requests for a hearing with the Oil Conservation Division, 2040 S. Pacheco Street, Santa Fe, NM 87505-5472, within 15 days. Additional information can be obtained by contacting James W. Pringle at (505) 748-4182.