STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501

APPLICATION FOR AUTHORIZATION TO INJECT

RECEIVED
JUL 19 1993
CAMPBELL, CARR, et. al.

I. Purpose: [X] Secondary Recovery [ ] Pressure Maintenance [ ] Disposal [ ] Storage
Application qualifies for administrative approval? [ ] yes [X] no

II. Operator: Yates Petroleum Corporation

Address: 105 South 4th Street Artesia, New Mexico 88210

Contact party: Carolyn Bulovas Yates Phone: 505-748-1471

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
2. Whether the system is open or close
3. Proposed average and maximum inject
4. Sources and an appropriate analysis the receiving formation if other
5. If injection is for disposal purpos at or within one mile of the prop the disposal zone formation water literature, studies, nearby wells

BEFORE THE
OIL CONSERVATION DIVISION
Santa Fe, New Mexico

Case Nos. 10763 and 10794 Exhibit No. 5

Submitted by: Yates Petroleum Corporation

Hearing Date: August 12, 1993

*VIII. Attach appropriate geological data on the i detail, geological name, thickness, and dep bottom of all underground sources of drinki total dissolved solids concentrations of 10, 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: Carolyn Bulovas Yates Title Petroleum Engineer

Signature: Carolyn Bulovas Yates Date: July 14, 1993

* 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.

C-108
Application for Authorization to Inject
Yates Petroleum Corporation
Lea County, New Mexico

Billy "AES" State #2	**Hoover "ADR" State #2**
C 12-17S-33E	**O 1-17S-33E**
530'FNL & 1750'FWL	**990'FSL & 2310'FEL**

I. The purpose of this application is to request authorization to inject Queen produced water and Ogallala fresh water into the Queen formation for secondary recovery.

II. Operator: Yates Petroleum Corporation
105 South Fourth Street
Artesia, New Mexico 88210
Carolyn Bulovas Yates (505) 748-1471

III. Well data: (See Attachment A)

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

V. See maps, Attachment B.

VI. A tabulation of the data on all wells within the area of review which penetrate the Queen formation can be found in Attachment C. Schematics of the three plugged wells within the area of review can be found in Attachment D.

VII. 1. Proposed average daily injection volume approximately 500 BWPD per injection well. Maximum daily injection volume approximately 1000 BWPD per injection well.

2. This will be a closed system.

3. Proposed average injection pressure: 750 psi
Proposed maximum injection pressure: 950 psi

4. Sources of injected water would be Queen produced water and Ogallala fresh water. Attachment E contains water analyses of a produced water sample (Sweet Thing "AEB"#1) and an Ogallala water sample (Williams Ranch overflow). Both show little to no scaling tendencies at 80°F. The produced water is high in chlorides and total dissolved solids. The fresh water will be mixed with the produced water at surface before injection. The compatibility study of a 50/50 mix of the produced water with fresh water is also found in Attachment E. This study shows no scaling tendencies at 80°F.

5. Not applicable.

VIII. 1. The proposed injection interval is the Queen formation at approximately 3762' to 3782'. These sands were deposited in a supratidal environment.

2. Fresh water in the Ogallala overlie the Queen to depths of approximately 450'.

IX. The proposed injection interval will be stimulated with 1000 gallons of 7 1/2% NEFE acid.

X. Logs were filed at the Oil Conservation Division when the wells were originally drilled.

XI. The approximate location of the nearest fresh water well is in NW/4 of the SE/4 of Section 12-T17S-R33E. A water analysis of a sample from this well can be found in Attachment F.

XII. Not applicable.

XIII. Proof of Notice

1. Copies of certified letters sent to the surface owners and offset operators within the area of review are in Attachment G.

XIV. Certification is signed.

Yates Petroleum Corporation
Billy "AES" State #2
C 12-17S-33E

Attachment A

III. Well Data

A. 1. LEASE NAME/LOCATION:
Billy "AES" State #2
Unit C Sec. 12-T17S-R33E
530'FNL & 1750'FWL

2. CASING STRINGS AND HOLE SIZE:
9 5/8" 36# 8rd J-55 ST&C set at 1534' with 450 sacks Pacesetter "C" Lite with 1/4# per sack celloseal, 5# per sack Gilsonite and 3% CaCl2, tailed in with 150 sacks Class "C" with 2% CaCl2. Circulated 50 sacks. Hole size 12 1/4". 7" 23# 8rd K-55 LT&C set at 4800' with 750 sacks Class "C" with .5% CF-1 and 10% salt. TOC at 2900' as per CBL. Hole size 8 3/4".

3. TUBING:
Propose to use 2 7/8" 6.5# J-55 plastic coated tubing set at approximately 3716'.

4. PACKER:
Propose to use Guiberson Uni VI or Baker plastic coated or nickel plated packer set at approximately 3716'.

B. 1. Injection Formation: Queen
Field: Sanmal Queen

2. Injection interval will be through perforations from 3766' to 3782'.

3. Well was originally drilled as a wildcat to test the San Andres formation and intermediate zones.

4. Other perforations are:
4585'-88' and 4591'-95' San Andres Vacuum pay with a RBP set at 3796'.

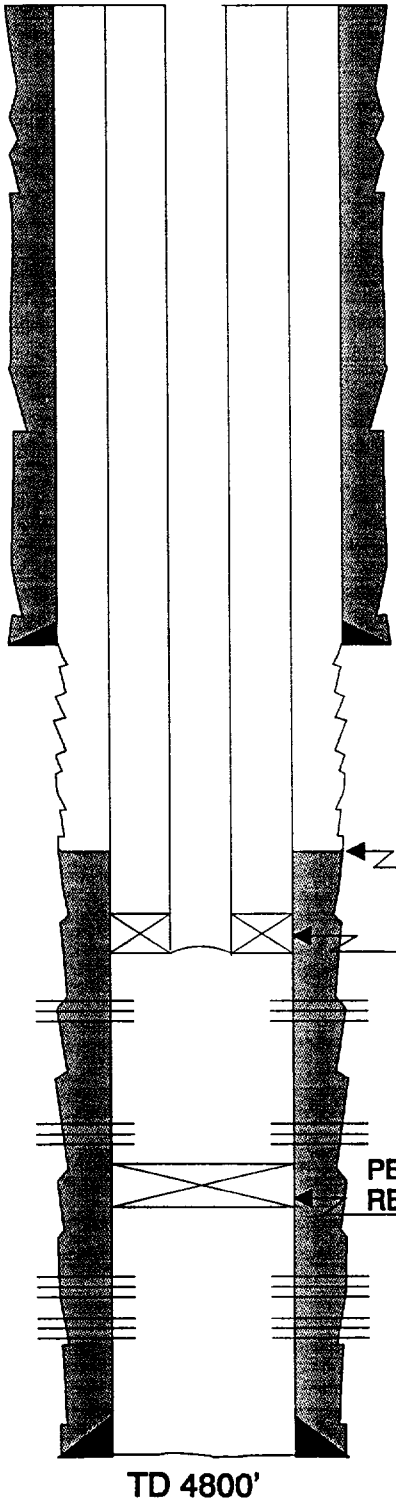
5. Next higher (shallower) oil zone is the Seven Rivers. The next lower (deeper) oil zone is the Grayburg.

YATES PETROLEUM CORPORATION

BILLY "AES" STATE #2

530'FNL & 1750'FWL
SEC. 12-T17S-R33E
QUEEN FORMATION
LEA COUNTY, NEW MEXICO

DIAGRAMMATIC SKETCH OF PROPOSED INJECTION WELL



12-1/4" HOLE

RUSTLER 1520'
SALADO 1632'
TANSILL 2624'
YATES 2820'

SEVEN RIVERS 2918'

QUEEN 3753'

8-3/4" HOLE

GRAYBURG 4248'
SAN ANDRES 4563'

9-5/8" @ 1534' W/600 SX
CIRC 50 SX TO SURFACE

TOC @ 2900' (CBL)

2-7/8" PLASTIC-COATED TUBING
& PACKER @ 3716'

PERFS 3766-3772' W/24 HOLES
ACIDIZED W/750 GAL 7-1/2%
NEFE ACID & BALL SEALERS

NEW PERFS FROM 3773-3782'

PBTD 3796'
RBP @ 3796'

PERFS 4585-4588' & 4591-4595'
W/14 HOLES

7" @ 4800' W/750 SX

TD 4800'

Yates Petroleum Corporation
Hoover "ADR" State #2
O 1-17S-33E

III. Well Data

A. 1. LEASE NAME/LOCATION:
Hoover "ADR" State #2
Unit O Sec 1-T17S-R33E
990'FSL & 2310'FEL

2. CASING STRINGS AND HOLE SIZE:
8 5/8" 24# J-55 set at 1505' with 575 sacks Pacesetter Lite with 1/4# per sack celloseal and 2% CaCl2. Tailed in with 200 sacks Class "C" with 2% CaCl2. Circulated 10 sacks to pit. Hole size 12 1/4". 5 1/2" 15.5# J-55 set at 3900' with 300 sacks Class C with .5% CF-1. Top of cement at 2740' as per CBL. Hole size 7 7/8".

3. TUBING:
Propose to use 2 7/8" 6.5# J-55 plastic coated tubing set at approximately 3712'.

4. PACKER:
Propose to use Guiberson Uni VI or Baker plastic coated or nickel plated packer set at approximately 3712'.

B. 1. Injection Formation: Queen
Field: Sanmal Queen

2. Injection interval will be through 2 sand jet holes at 3762' and perfs from 3763'-3778'.

3. Well was originally drilled to test the Queen formation and intermediate zones.

4. No other perforations in this well.

5. Next higher (shallower) oil zone is the Seven Rivers. The next lower (deeper) oil zone is the Grayburg.

YATES PETROLEUM CORPORATION

HOOVER "ADR" STATE #2

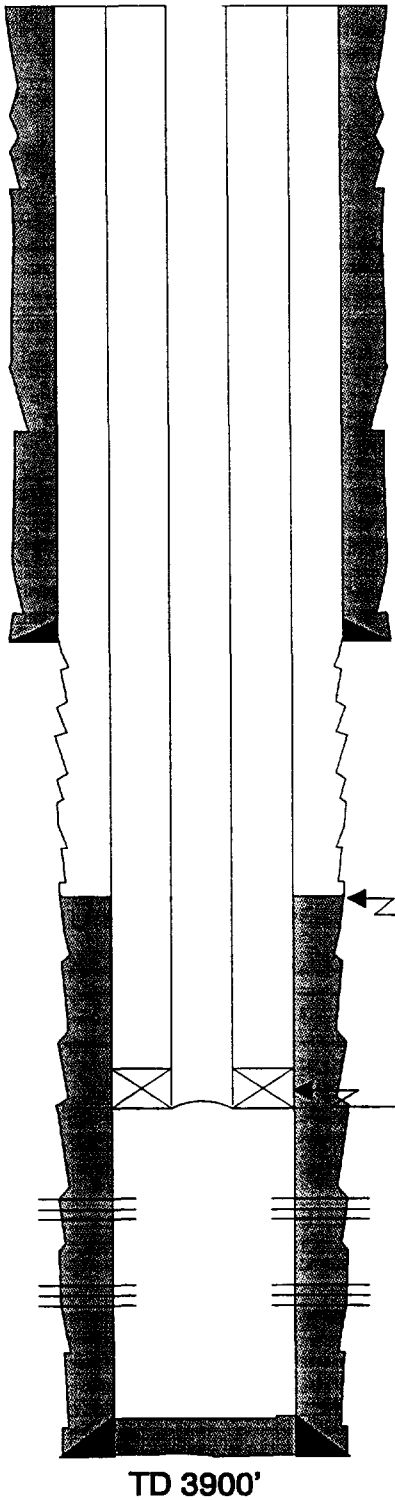
990'FSL & 2310'FEL

SEC. 1-T17S-R33E

QUEEN FORMATION

LEA COUNTY, NEW MEXICO

DIAGRAMMATIC SKETCH OF PROPOSED INJECTION WELL



12-1/4" HOLE

8-5/8" @ 1505' W/775 SX
CIRC 10 SX TO SURFACE

RUSTLER 1520'

SALADO 1636'

TANSILL 2624'

YATES 2816'

TOC @ 2740' (CBL)

7-7/8" HOLE

SEVEN RIVERS 2916'

2-7/8" PLASTIC-COATED TUBING
& PACKER @ 3712'

QUEEN 3750'

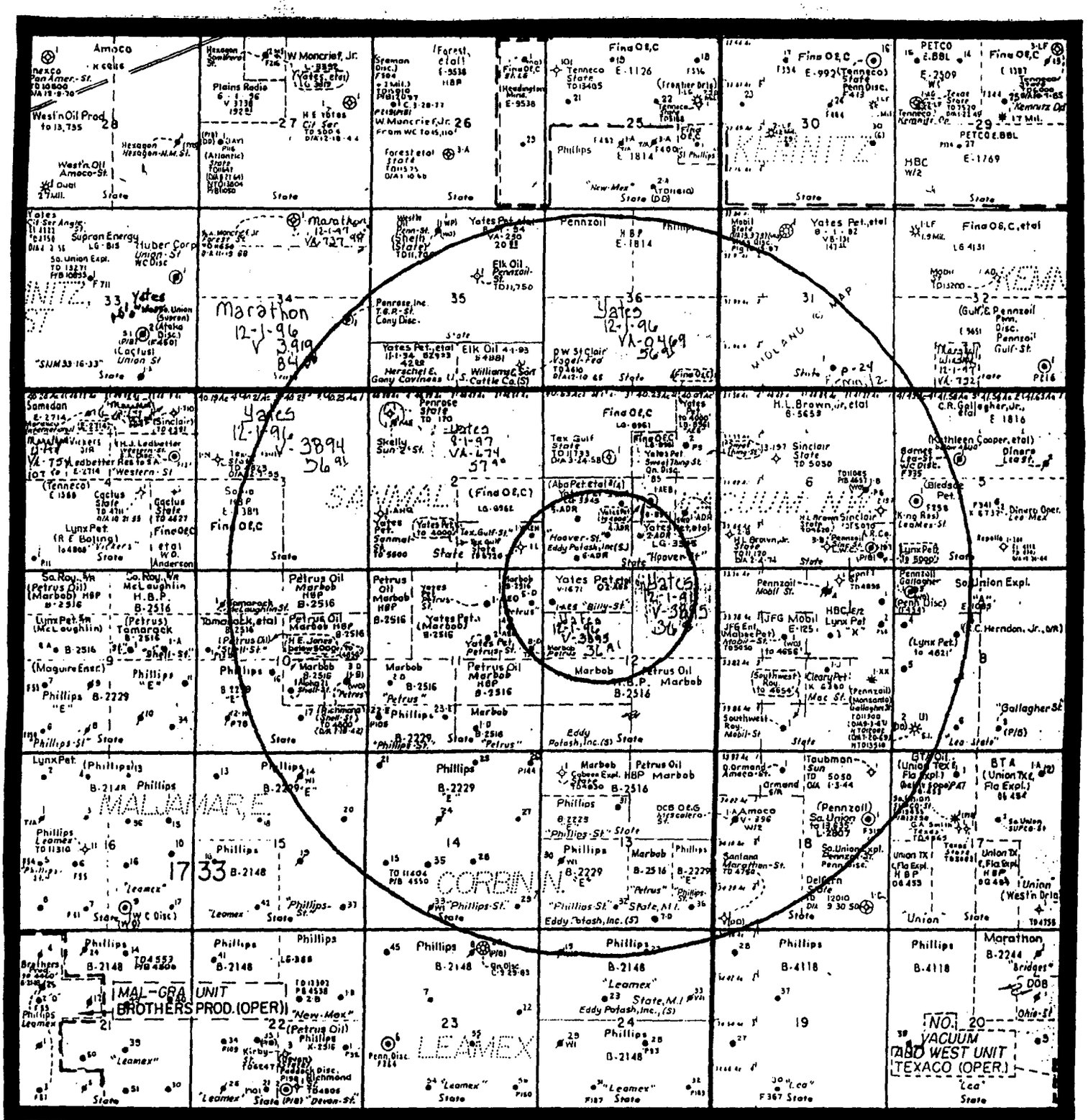
2 SAND JET HOLES @ 3762'
ACIDIZED W/750 GAL 7-1/2% HCL ACID

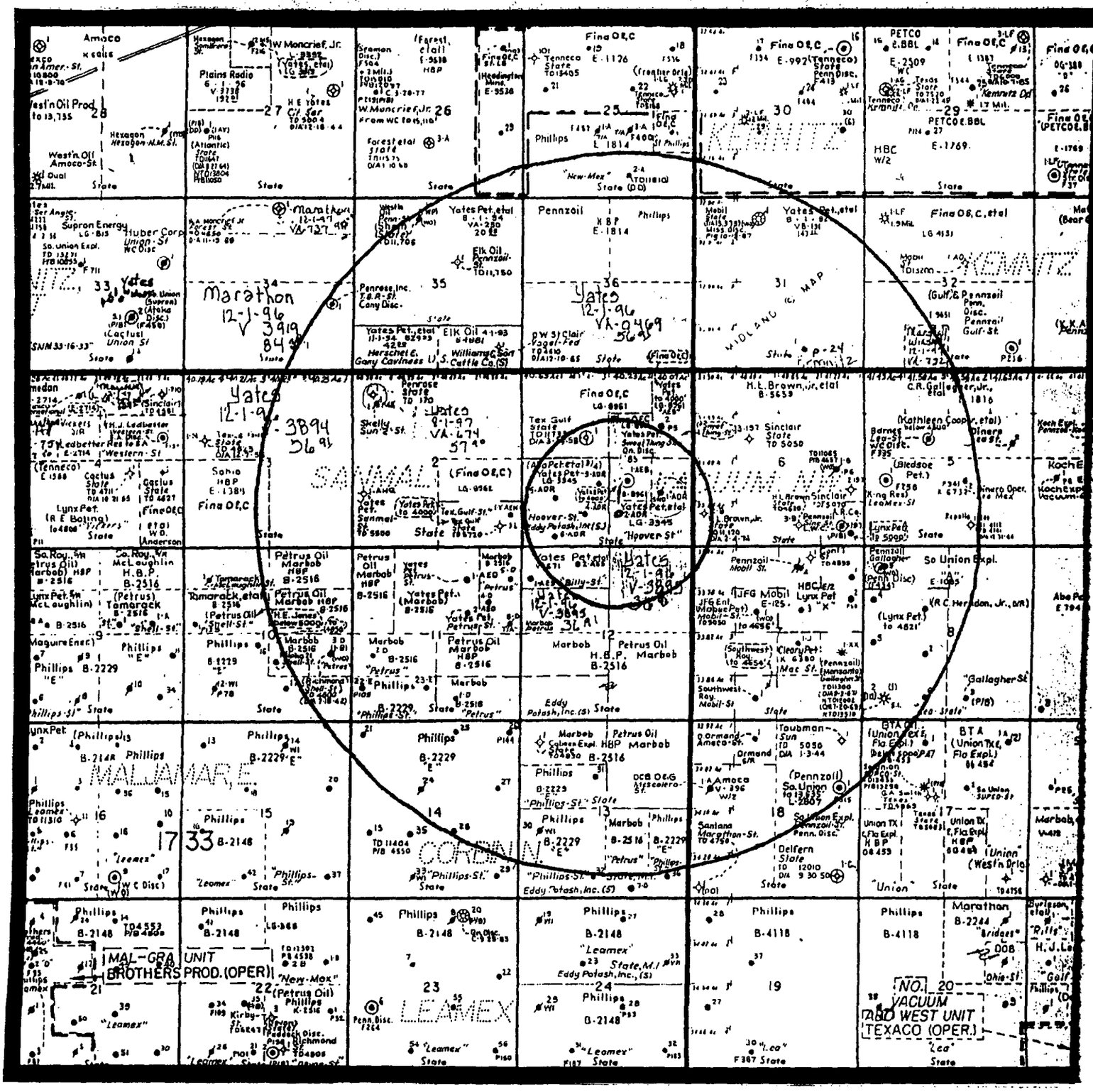
NEW PERFS FROM 3763-3778'

PBTD 3833'

5-1/2" @ 3900' W/300 SX

TD 3900'


Yates Petroleum Corporation
Billy "AES" State #2
Proposed Injection Well
Sec. 12-T17S-R33E
530'FNL & 1750'FWL
Lea County, NM
Attachment B



Yates Petroleum Corporation

Hoover "ADR" State #2

Proposed Injection Well

Sec. 1-T17S-R33E
990'FSL & 2310'FEL
Lea County, NM

Attachment B

Attachment C
Hoover "ADR" State #2 & Billy "AES" State #2
Tabulation of Data on Wells Within Area of Review

WELL NAME	LOCATION	OPERATOR	WELL TYPE	SPUD DATE	COMPLETION DATE	TD (FT)	PRODUCTION ZONE	PERFORATIONS (FT)	COMPLETION INFORMATION
L. C. Harris State #1 formerly Tex-Gulf State "K" #1	F 1-17S-33E	Wilbanks & Rasmussen formerly Texas Gulf Prod. Co.	P & A P & A	1/31/65 re-spud 12/22/57	3/15/66 4/9/58	11,733 11,733	Seaman San Andres	11,634-11,653 5186-5258	13 3/8" @ 377' w/400 sx; 9 5/8" @ 4665' w/430 sx; 5 1/2" Liner 4538'-5290' w/200 sx; 2 7/8" tubing @ 11,733' w/400 sx. Acidized 11,634'-11,653' w/1500 gals acid then 10,000 gals acid. Acidized w/1000 gal. Reacidized w/2500 gal; reacidized w/10,000 gal.
Hoover "ADR" State #1	I 1-17S-33E	Yates Pet. Corp.	SWD	12/31/85	4/10/86 CTI=11/90	11,825 PB 4352	Queen	3767-3774	20" @ 38'; 13 3/8" @ 448' w/425 sx; 8 5/8" @ 4530' with 1725 sx; 2 7/8" tubing @ 3698'. Acidized 3767'-3774' w/2000 gals 7 1/2% acid + ball sealers. For CTI, acidized w/1500 gals 15% HCL and set 2 7/8" IPC tubing @ 3698' & Guiberson Uni VI packer @ 3700'.
Sweet Thing "AEB" State #1	J 1-17S-33E	Yates Pet. Corp.	Oil	5/22/86	7/4/86	3,900 PB 3850	Queen	3744-3761	20" @ 40'; 8 5/8" @ 406' w/275 sx; 5 1/2" @ 3900' w/1030 sx; 2 7/8" tubing @ 3685'. Acidized 3744'-3761' w/4000 gals 7 1/2% acid; Frac w/10,000 gals gel KCL + 20,000 # sand.
Hoover "ADR" State #3	K 1-17S-33E	Yates Pet. Corp.	Oil	2/6/87	2/26/87	3900 PB 3840	Queen	3745-3762	8 5/8" @ 1515' w/775 sx; 5 1/2" @ 3900' w/325 sx; 2 7/8" tubing @ 3364'. Acidized 3745'-3762' w/2500 gals 7 1/2% HCL. Frac w/15,000 gals gel KCL + 26,000 # sand.
Hoover "ADR" State #5	L 1-17S-33E	Yates Pet. Corp.	Oil	1/16/88	3/15/88	4750 PB 4692	Queen	3752-3764	8 5/8" @ 1520' with 775 sx; 5 1/2" @ 4750' w/700 sx; 2 7/8" tubing @ 3681'. Acidized 3752'-3764' w/1500 gals 7 1/2% acid. Frac w/60,000 gals gel KCL + 100,000 # sand.
Hoover "ADR" State #6	M 1-17S-33E	Yates Pet. Corp.	Oil	6/22/87	12/10/87	4750 PB 3950	Queen	3757-3767 3771-3775	8 5/8" @ 1535' w/775 sx; 5 1/2" @ 4750' w/515 sx; 2 7/8" @ 3667'. Acidized w/1500 gals 7 1/2% NEFE plus ball sealers. Frac 3757'-3775' w/40,000 gals gelled 2% KCL + 60,000# sand; Frac 3757'-3775' w/120,000 gals gel + 192,500# sand. Perfed 4661'-65' and AT w/1000 gals 7 1/2% NEFE; Perfed 4596'-4600' and AT w/1000 gals 15% NEFE; Perfed 4596'-4600' and AT w/5000 gals gelled 2% KCL+ 10,000 gals 20% NEFE gelled acid;

Attachment C
Hoover "ADR" State #2 & Billy "AES" State #2
Tabulation of Data on Wells Within Area of Review

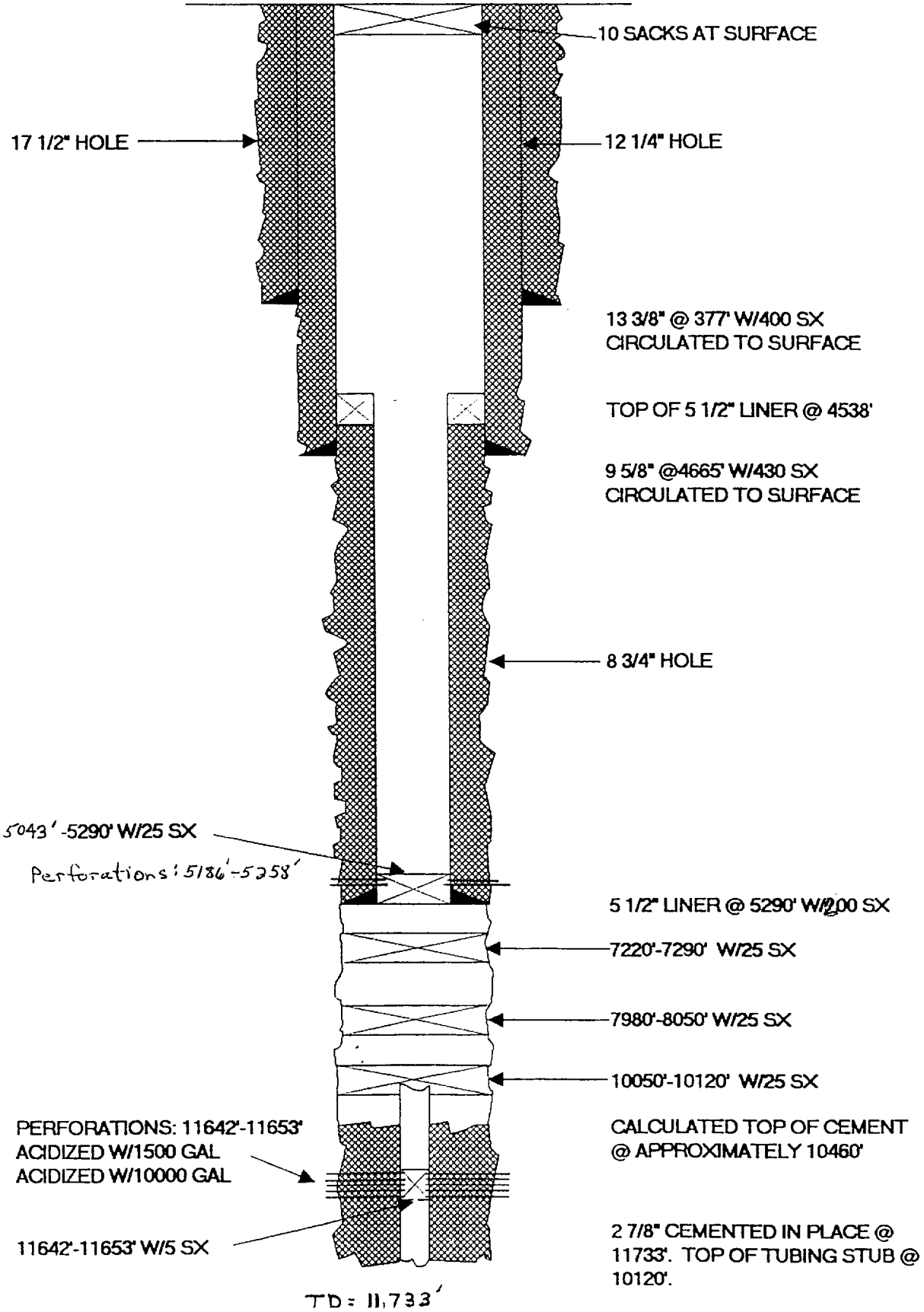
WELL NAME	LOCATION	OPERATOR	WELL TYPE	SPUD DATE	COMPLETION DATE	TD (FT)	PRODUCTION ZONE	PERFORATIONS (FT)	COMPLETION INFORMATION
Hoover "ADR" State #6 cont'd									Acidized 4470'-74' w/1000 gals 7 1/2% NEFE. Acidized 4521'-26' w/1000 gals 7 1/2% NEFE; SF 4470'-4600' w/52,000 gals 40# gel + 90,000 # sand.
Hoover "ADR" State #4	N 1-17S-33E	Yates Pet. Corp.	Oil	2/16/87	3/24/87	3900 PB 3853	Queen	3753-3763	8 5/8" @ 1537' w/775 sx; 5 1/2" @ 3900' w/225 sx; 2 7/8" tubing @ 3677'. Acidized 3753'-3763' w/2000 gals 7 1/2% NEFE plus ball sealers.
Hoover "ADR" State #2	O 1-17S-33E	Yates Pet. Corp.	Oil	1/8/87	2/23/87	3900 PB 3833	Queen	3762 (2 JS holes)	8 5/8" @ 1505' w/775 sx; 5 1/2" @ 3900' w/300 sx; 2 7/8" tubing @ 3763'. Acidized 3762' w/750 gals 7 1/2% acid.
Tex -Gulf "AEN" State #1-Y	P 2-17S-33E	Yates Pet. Corp.	Oil	4/9/87	5/13/87	3900 PB 3820	Queen	3768-3773	8 5/8" @ 1547 w/700 sx; 5 1/2" @ 3900' w/250 sx; 2 7/8" tubing @ 3467'. Acidized 3768'-3773' w/2500 gals 7 1/2% NEFE plus ball sealers. Frac w/20,000 gals gel + 36,000# sand.
Tex-Gulf "AEN" State #1	P 2-17S-33E	Yates Pet. Corp.	J & A	3/31/87 re spud	4/5/87	5270	---	---	13 3/8" @ 388' w/450 sx.
formerly Tex-Gulf State "L" #1		formerly Texas Gulf Prod. Co.	D & A	1/10/58	3/24/58	5270	---	---	
Petrus D State #5	A 11-17S-33E	Mack Energy formerly Marbob & Petrus Oil	Oil	2/9/88	2/26/88	3840 PB 3803	Queen	3767-3786	8 5/8" @ 1496' w/800 sx; 5 1/2" @ 3840' w/903 sx; 2 3/8" tubing @ 3682'. Acidized 3767'-3786' w/2000 gals 7 1/2% NEFE ; Frac w/24,650 gals gel + 45,000# sand + 15% CO2.
Petrus D State #4	H 11-17S-33E	Mack Energy	Oil	8/20/90 recomp.	8/30/90	4700 PB 4673	Queen Grayburg San Andres	3760-4402 4428-4485 4584-4596	8 5/8" @ 1496' w/800 sx; 5 1/2" @ 4700' w/1215 sx. 2 3/8" tubing @ 4628'. Acidized 4400'-4485' w/1000 gals 15% NEFE. Frac 4584'-4596' w/20,000 gals gel 1% KCL + 18,000# sand. Frac 4400'-4485' w/20,000 gals gel + 22,500# sand.
formerly Petrus "11" State #1		formerly Petrus Oil	Oil	1/17/88	2/14/88	4700 PB 4550	Queen	3760-3780	Perfed 4592'-4596' and acidized w/1000 gals 15% NEFE; set BP at 4550'. Acidized 3760'-3780' w/2000 gals 7 1/2% NEFE; Frac 3760'-3780' w/24,000 gals + 90,000# sand.

Attachment C
Hoover "ADR" State #2 & Billy "AES" State #2
Tabulation of Data on Wells Within Area of Review

WELL NAME	LOCATION	OPERATOR	WELL TYPE	SPUD DATE	COMPLETION DATE	TD (FT)	PRODUCTION ZONE	PERFORATIONS (FT)	COMPLETION INFORMATION
Petrus D State #8	H 11-17S-33E	Mack Energy formerly Marbob	T/A	10/27/90	12/16/90	6895 PB 4200	Queen	3775-3795	8 5/8" @ 1424' w/1000 sx; 5 1/2" @ 5114' w/2400 sx; 2 7/8" tubing @ 3844'. Acidized 3775'-3795' w/500 gals 15% NEFE. Frac w/20,000 gals gel + 24,000# sand. Perfed 4340'-4561' + 4674'-4889' and acidized all with 3500 gals 15% NEFE; set BP @ 4200'.
Billy "AES" State #2	C 12-17S-33E	Yates Pet. Corp.	Oil S/I	8/14/87	10/7/87	4800 PB 3796	Queen	3766-3772	9 5/8" @ 1534' w/600 sx; 7" @ 4800' w/750 sx; 2 3/8" tubing @ 3800'. Acidized 3766'-3772' with 750 gal 7 1/2% NEFE.
Billy "AES" State #1	D 12-17S-33E	Yates Pet. Corp.	Oil	7/12/87	8/15/87	4800 PB 4750	Queen	3767-3784	8 5/8" @ 1550' w/725 sx; 5 1/2" @ 4800' w/515 sx; 2 7/8" tubing @ 3721'. Acidized 3767'-3784' with 1500 gals 7 1/2% acid. Frac w/30,000 gals gel KCL + 50,000# sand.
State B #2	M 6-17S-34E	H. L. Brown, Jr.	P & A	9/20/73	12/27/73	11,120	---	---	11 3/4" @ 387' w/400 sx; 8 5/8" @ 4700' w/250 sx;

WILBANKS & RASMUSSEN

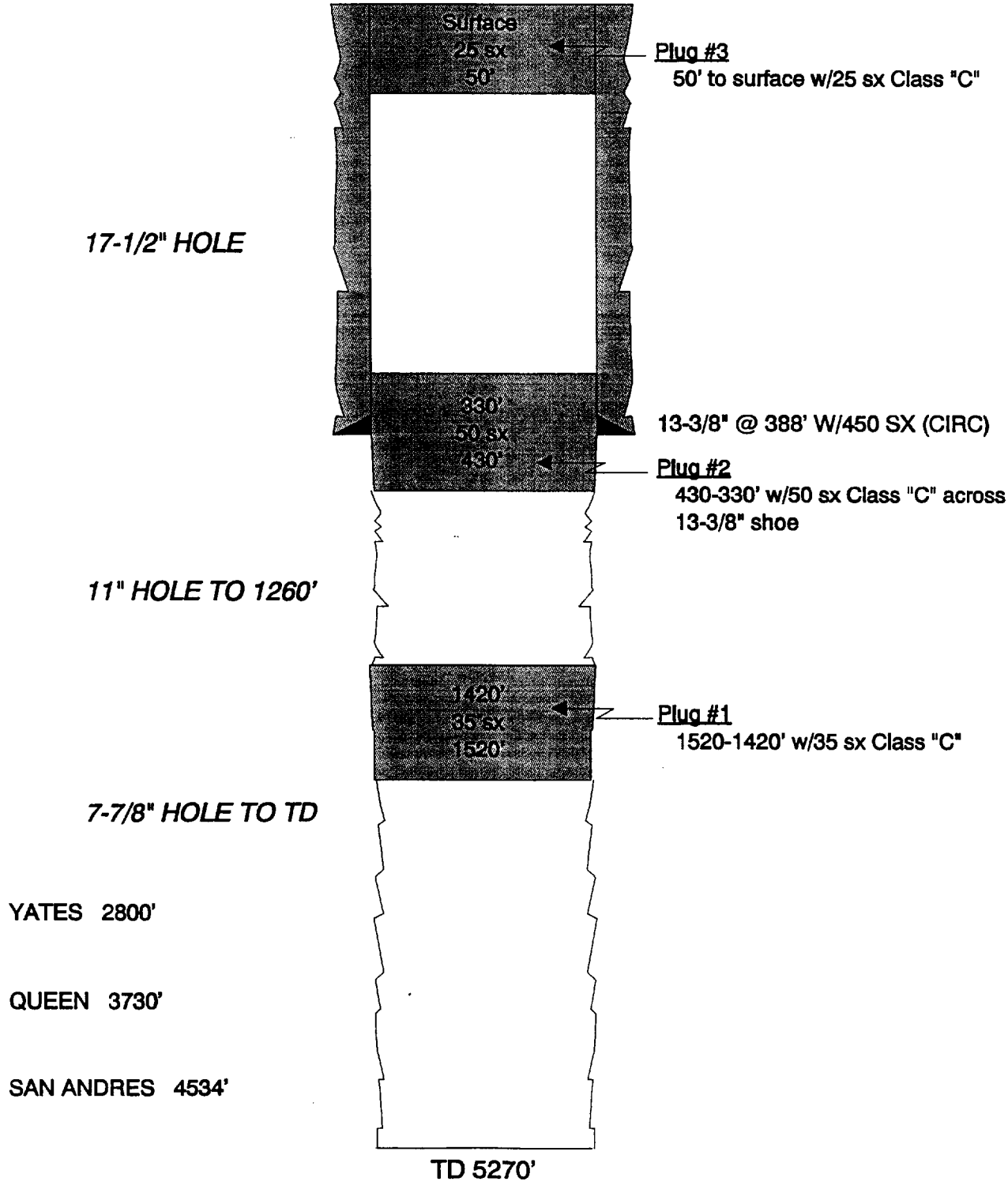
L. C. HARRIS STATE #1
SEC. 1 - 17S - 33E
UNIT F
1980' FNL & 1980' FWL
RE - SPUD : 01 - 31 - 65 COMPL. : 03 - 15 - 66
PLUGGED & ABANDONED 6-21-66



YATES PETROLEUM CORPORATION

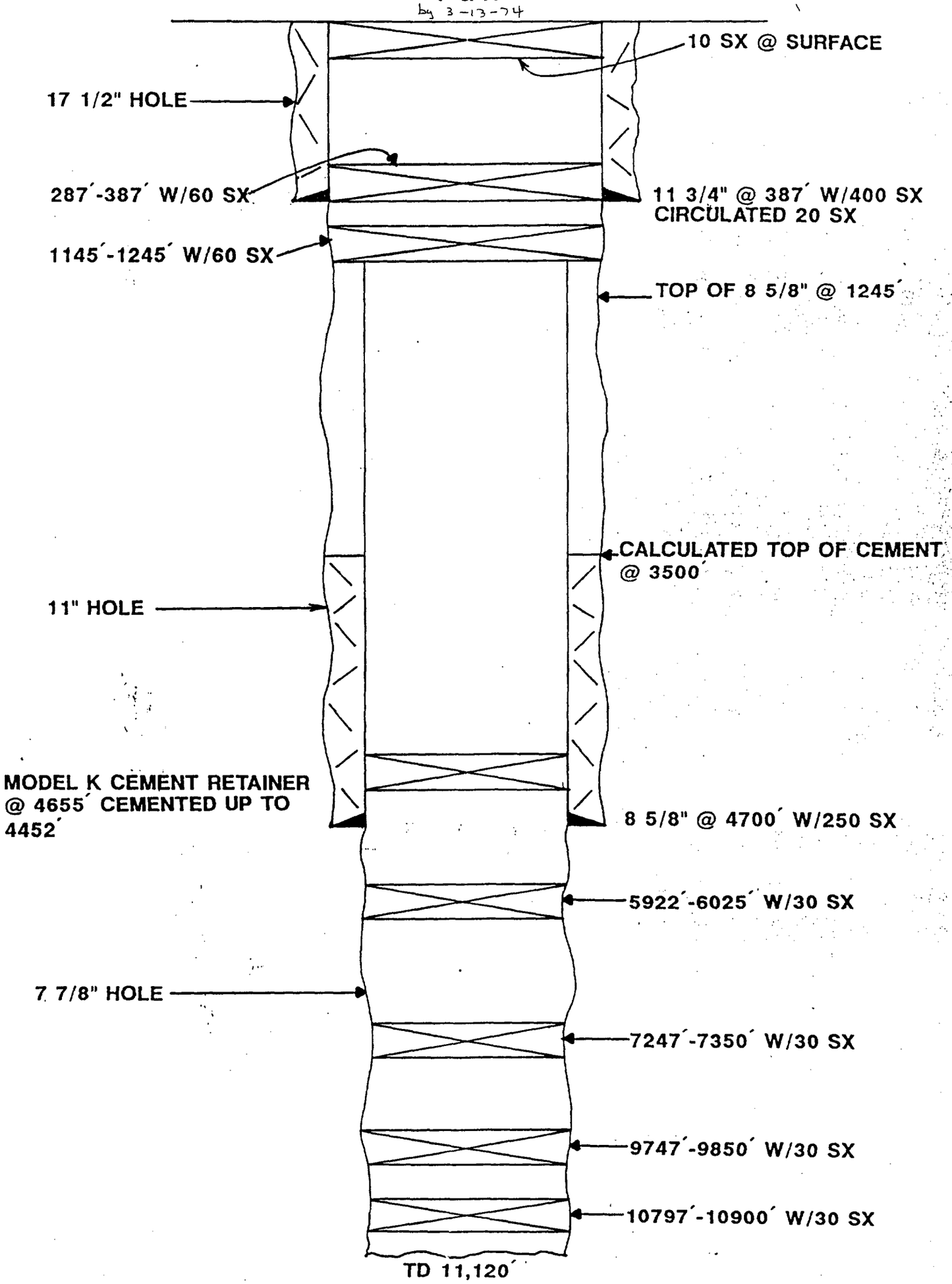
TEX-GULF "AEN" STATE #1

660'FSL & 660'FEL
UNIT P SEC. 2-T17S-R33E
QUEEN FORMATION
LEA COUNTY, NEW MEXICO
RE-SPUD: 3/31/87
P&A: 4/5/87



H. L. BROWN JR.

STATE "B" #2
SEC. 6-T17S-R34E
UNIT M
990' FSL & 330' FWL
LEA COUNTY, NEW MEXICO
SPUD: 9-20-73
COMPLETION: 12-27-73
P & A
by 3-13-74



TRETOLITE
Chemicals and Services

16010 Barker's Point Lane • Houston, Texas 77079
713 558-5200 • Telex: 4620346 • FAX: 713 589-4737

Reply to: P.O. Box FF
Artesia, New Mexico 88210
(505) 746-3588 Phone
(505) 746-3580 Fax

WATER ANALYSIS REPORT

Company : YATES PETROLEUM
Address : ARTESIA, NM
Lease : SWEETTHING "AEB" STA
Well : #1
Sample Pt. : WELLHEAD

Date : 07/09/92
Date Sampled : 07/08/92
Analysis No. : 574

	ANALYSIS		mg/L		* meq/L
1.	pH	5.6			
2.	H2S	3 PPM			
3.	Specific Gravity	1.205			
4.	Total Dissolved Solids		339140.9		
5.	Suspended Solids		NR		
6.	Dissolved Oxygen		NR		
7.	Dissolved CO2		440 PPM		
8.	Oil In Water		NR		
9.	Phenolphthalein Alkalinity (CaCO3)				
10.	Methyl Orange Alkalinity (CaCO3)		100.0		
11.	Bicarbonate	HCO3	122.0	HCO3	2.0
12.	Chloride	Cl	208375.3	Cl	5878.0
13.	Sulfate	SO4	2100.0	SO4	43.7
14.	Calcium	Ca	3262.5	Ca	162.8
15.	Magnesium	Mg	8066.1	Mg	663.6
16.	Sodium (calculated)	Na	117187.8	Na	5097.3
17.	Iron	Fe	27.2		
18.	Barium	Ba	0.0		
19.	Strontium	Sr	0.0		
20.	Total Hardness (CaCO3)		41357.2		

PROBABLE MINERAL COMPOSITION

*milli equivalents per Liter

163	*Ca <----- *HCO3	2
	/------->	
664	*Mg -----> *SO4	44
	<----------/	
5097	*Na -----> *Cl	5878

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/
Ca(HCO3)2	81.0	2.0	162
CaSO4	68.1	43.7	2976
CaCl2	55.5	117.1	6496
Mg(HCO3)2	73.2		
MgSO4	60.2		
MgCl2	47.6	663.6	31591
NaHCO3	84.0		
Na2SO4	71.0		
NaCl	58.4	5097.3	297888

REMARKS:
L. MALLETT / FILE

Petrolite Oilfield Chemicals Group

Respectfully submitted,
ROZANNE JOHNSON

PETROLITE

SCALE TENDENCY REPORT

Company	: YATES PETROLEUM	Date	: 07/09/92
Address	: ARTESIA, NM	Date Sampled	: 07/08/92
Lease	: SWEETTHING "AEB" STA	Analysis No.	: 574
Well	: #1	Analyst	: ROZANNE JOHNSON
Sample Pt.	: WELLHEAD		

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

S.I. =	-0.7	at	80 deg. F or	27	deg. C
S.I. =	-0.8	at	100 deg. F or	38	deg. C
S.I. =	-0.8	at	120 deg. F or	49	deg. C
S.I. =	-0.8	at	140 deg. F or	60	deg. C
S.I. =	-0.7	at	160 deg. F or	71	deg. C

****

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

S =	3616	at	80 deg. F or	27	deg C
S =	3786	at	100 deg. F or	38	deg C
S =	3857	at	120 deg. F or	49	deg C
S =	3903	at	140 deg. F or	60	deg C
S =	3849	at	160 deg. F or	71	deg C

Petrolite Oilfield Chemicals Group

Respectfully submitted,
ROZANNE JOHNSON

WATER ANALYSIS REPORT

Company : YATES PET.
Address : ARTESIA
Lease : WINDMILL
Well : WILLIAMS RANCH
Sample Pt. : OVERFLOW

Date : 10-25-90
Date Sampled : 10-23-90
Analysis No. : 1

	ANALYSIS		mg/L		* meq/L
1.	pH	7.5			
2.	H2S	NO			
3.	Specific Gravity	1.0			
4.	Total Dissolved Solids		1334.2		
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	207.0	HCO3	3.4
12.	Chloride	Cl	511.0	Cl	14.4
13.	Sulfate	SO4	150.0	SO4	3.1
14.	Calcium	Ca	72.0	Ca	3.6
15.	Magnesium	Mg	4.9	Mg	0.4
16.	Sodium (calculated)	Na	389.3	Na	16.9
17.	Iron	Fe	0.0		
18.	Barium	Ba	0.0		
19.	Strontium	Sr	0.0		
20.	Total Hardness (CaCO3)		200.0		

PROBABLE MINERAL COMPOSITION

*milli equivalents per Liter

4	*Ca <----- *HCO3	3
	/------->	
0	*Mg -----> *SO4	3
	<---------/	
17	*Na -----> *Cl	14

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	3.4	275
CaSO4	68.1	0.2	14
CaCl2	55.5		
Mg(HCO3)2	73.2		
MgSO4	60.2	0.4	24
MgCl2	47.6		
NaHCO3	84.0		
Na2SO4	71.0	2.5	179
NaCl	58.4	14.4	842

REMARKS:

Petrolite Oilfield Chemicals Group

Respectfully submitted,
LEE MALLETT

SCALE TENDENCY REPORT

Company	: YATES PET.	Date	: 10-25-90
Address	: ARTESIA	Date Sampled	: 10-23-90
Lease	: WINDMILL	Analysis No.	: 1
Well	: WILLIAMS RANCH	Analyst	: LEE MALLETT
Sample Pt.	: OVERFLOW		

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

S.I. =	0.0	at	60 deg. F	or	16 deg.	C
S.I. =	0.1	at	80 deg. F	or	27 deg.	C
S.I. =	0.2	at	100 deg. F	or	38 deg.	C
S.I. =	0.2	at	120 deg. F	or	49 deg.	C
S.I. =	0.3	at	140 deg. F	or	60 deg.	C

****

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

S =	1215	at	60 deg. F	or	16 deg	C
S =	1228	at	80 deg. F	or	27 deg	C
S =	1216	at	100 deg. F	or	38 deg	C
S =	1207	at	120 deg. F	or	49 deg	C
S =	1199	at	140 deg. F	or	60 deg	C

Petrolite Oilfield Chemicals Group

Respectfully submitted,
LEE MALLETT

WATER ANALYSIS REPORT

Company	: YATES PET.	Date	: 10-25-90
Address	: ARTESIA	Date Sampled	: 10-23-90
Lease	: FRESH-SWEETTHING	Analysis No.	: 1
Well	: 1		
Sample Pt.	: 50-50		

	ANALYSIS		mg/L		* meq/L
1.	pH	7.0			
2.	H2S	NO			
3.	Specific Gravity	1.080			
4.	Total Dissolved Solids		128209.8		
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	134.0	HCO3	2.2
12.	Chloride	Cl	78810.0	Cl	2223.1
13.	Sulfate	SO4	625.0	SO4	13.0
14.	Calcium	Ca	1200.0	Ca	59.9
15.	Magnesium	Mg	2964.0	Mg	243.8
16.	Sodium (calculated)	Na	44476.8	Na	1934.6
17.	Iron	Fe	0.0		
18.	Barium	Ba	0.0		
19.	Strontium	Sr	0.0		
20.	Total Hardness (CaCO3)		15200.0		

PROBABLE MINERAL COMPOSITION

*milli equivalents per Liter

60	*Ca <----- *HCO3	2
	/------->	
244	*Mg -----> *SO4	13
	<---------/	
1935	*Na -----> *Cl	2223

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	2.2	178
CaSO4	68.1	13.0	886
CaCl2	55.5	44.7	2479
Mg(HCO3)2	73.2		
MgSO4	60.2		
MgCl2	47.6	243.8	11608
NaHCO3	84.0		
Na2SO4	71.0		
NaCl	58.4	1934.6	113059

REMARKS:

Petrolite Oilfield Chemicals Group

Respectfully submitted,
LEE MALLETT

Attachment E

SCALE TENDENCY REPORT

Company	: YATES PET.	Date	: 10-25-90
Address	: ARTESIA	Date Sampled	: 10-23-90
Lease	: FRESH-SWEETTHING	Analysis No.	: 1
Well	: 1	Analyst	: LEE MALLETT
Sample Pt.	: 50-50		

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

S.I. =	-0.1	at	60 deg. F	or	16 deg. C
S.I. =	-0.1	at	80 deg. F	or	27 deg. C
S.I. =	0.0	at	100 deg. F	or	38 deg. C
S.I. =	0.1	at	120 deg. F	or	49 deg. C
S.I. =	0.2	at	140 deg. F	or	60 deg. C

****

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

S =	5673	at	60 deg. F	or	16 deg C
S =	6050	at	80 deg. F	or	27 deg C
S =	6290	at	100 deg. F	or	38 deg C
S =	6403	at	120 deg. F	or	49 deg C
S =	6485	at	140 deg. F	or	60 deg C

Petrolite Oilfield Chemicals Group

Respectfully submitted,
LEE MALLETT

WATER ANALYSIS REPORT
furnished by TRETOLITE CHEMICALS

COMPANY:	YATES PETROLEUM	
LEASE:	WILLIAMS WIND MILL	APPROXIMATE LOCATION:
SAMPLE POINT:	WATER TANK	NW/4 of SE/4 of
SAMPLE DATE:	7-18-90	Sec 12-T17S-R33E
SAMPLE TEMP.:	N/A	

pH:	8.0
H2S:	NO
SPECIFIC GRAVITY:	1

TITRATED AND CALCULATED IONS

	MILLIGRAMS PER LITER	MILLIEQUIVALENTS PER LITER
HCO3	122.00	2.00
Cl	3621.00	102.00
SO4	50.00	1.04
Ca	320.00	16.00
Mg	72.90	5.98
Na	1910.52	83.07

IONIC STRENGTH =	0.12
TOTAL HARDNESS =	1100.0 mg/ltr.
TOTAL DISSOLVED SOLIDS =	6092.8 mg/ltr.

PROBABLE MINERAL COMPOSITION AND ION PAIRING

	MILLIEQUIVALENTS PER LITER	MILLIGRAMS PER LITER
Ca(HCO3)2	2.00	162.08
CaSO4	1.04	70.91
CaCl2	12.96	719.19
Mg(HCO3)2	0.00	0.00
MgSO4	0.00	0.00
MgCl2	5.98	284.55
NaHCO3	0.00	0.00
Na2SO4	0.00	0.00
NaCl	83.07	4856.05

CALCULATED SCALING TENDENCIES

SCALING INDEX

CaCO3 @ 80 DEG F. = 0.8
CaCO3 @ 120 DEG F. = 1.2

SATURATION POINT

CaSO4 @ 70 DEG F. = 2607.2 MG/LTR.
CaSO4 @ 110 DEG F. = 2654.4 MG/LTR.

(THIS SAMPLE CONTAINED 70.9 MG/LTR. CaSO4)

Attachment G

YATES PETROLEUM CORPORATION

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

July 14, 1993

CERTIFIED RETURN RECEIPT

H. L. Brown, Jr.
P. O. Box 2237
300 West Louisiana Street
Midland, Texas 79702

Gentlemen:

Enclosed please find a copy of form C-108 (Application for Authority to Inject) for the following Yates Petroleum wells in Lea County, New Mexico:

Billy "AES" State #2	C 12-17S-33E
Hoover "ADR" State #2	O 1-17S-33E

Should you have any questions, please feel free to contact me at (505) 748-1471.

Sincerely,

Carolyn Bulovas Yates

Carolyn Bulovas Yates
Petroleum Engineer

CBY/cvg

Enclosures

YATES PETROLEUM CORPORATION

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

July 14, 1993

CERTIFIED RETURN RECEIPT

Eddy Potash, Inc.
P. O. Box 31
Carlsbad, New Mexico 88220

Gentlemen:

Enclosed please find a copy of form C-108 (Application for Authority to Inject) for the following Yates Petroleum wells in Lea County, New Mexico:

Billy "AES" State #2	C 12-17S-33E
Hoover "ADR" State #2	O 1-17S-33E

Should you have any questions, please feel free to contact me at (505) 748-1471.

Sincerely,

Carolyn Bulovas Yates
Petroleum Engineer

CBY/cvg

Enclosures

YATES PETROLEUM CORPORATION

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

July 14, 1993

CERTIFIED RETURN RECEIPT

Mobil Oil Corporation
12450 Greenspoint Drive
Houston, Texas 77060-1991

Gentlemen:

Enclosed please find a copy of form C-108 (Application for Authority to Inject) for the following Yates Petroleum wells in Lea County, New Mexico:

Billy "AES" State #2	C 12-17S-33E
Hoover "ADR" State #2	O 1-17S-33E

Should you have any questions, please feel free to contact me at (505) 748-1471.

Sincerely,

Carolyn Bulovas Yates

Carolyn Bulovas Yates
Petroleum Engineer

CBY/cvg

Enclosures

YATES PETROLEUM CORPORATION

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

July 14, 1993

CERTIFIED RETURN RECEIPT

Commissioner of Public Lands
State Land Office
P. O. Box 1148
Santa Fe, New Mexico 87504-1148

Gentlemen:

Enclosed please find a copy of form C-108 (Application for Authority to Inject) for the following Yates Petroleum wells in Lea County, New Mexico:

Billy "AES" State #2	C 12-17S-33E
Hoover "ADR" State #2	O 1-17S-33E

Should you have any questions, please feel free to contact me at (505) 748-1471.

Sincerely,

Carolyn Bulovas Yates

Carolyn Bulovas Yates
Petroleum Engineer

CBY/cvg

Enclosures

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

July 14, 1993

CERTIFIED RETURN RECEIPT

Fina Oil & Chemical Company
P. O. Box 2990
6 Desta Drive
Suite 4400
Midland, Texas 79702

Gentlemen:

Enclosed please find a copy of form C-108 (Application for Authority to Inject) for the following Yates Petroleum wells in Lea County, New Mexico:

Billy "AES" State #2	C 12-17S-33E
Hoover "ADR" State #2	O 1-17S-33E

Should you have any questions, please feel free to contact me at (505) 748-1471.

Sincerely,

Carolyn Bulovas Yates

Carolyn Bulovas Yates
Petroleum Engineer

CBY/cvg

Enclosures

YATES PETROLEUM CORPORATION

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

July 14, 1993

CERTIFIED RETURN RECEIPT

Lynx Petroleum Consultants, Inc.
P. O. Box 1979
Hobbs, New Mexico 88241

Gentlemen:

Enclosed please find a copy of form C-108 (Application for Authority to Inject) for the following Yates Petroleum wells in Lea County, New Mexico:

Billy "AES" State #2	C 12-17S-33E
Hoover "ADR" State #2	O 1-17S-33E

Should you have any questions, please feel free to contact me at (505) 748-1471.

Sincerely,

Carolyn Bulovas Yates

Carolyn Bulovas Yates
Petroleum Engineer

CBY/cvg

Enclosures

YATES PETROLEUM CORPORATION

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

July 14, 1993

CERTIFIED RETURN RECEIPT

Penroc Oil Corporation
P. O. Box 5970
5014 Carlsbad Hwy
Hobbs, NM 88241

Gentlemen:

Enclosed please find a copy of form C-108 (Application for Authority to Inject) for the following Yates Petroleum wells in Lea County, New Mexico:

Billy "AES" State #2	C 12-17S-33E
Hoover "ADR" State #2	O 1-17S-33E

Should you have any questions, please feel free to contact me at (505) 748-1471.

Sincerely,

Carolyn Bulovas Yates

Carolyn Bulovas Yates
Petroleum Engineer

CBY/cvg

Enclosures

YATES PETROLEUM CORPORATION

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

July 14, 1993

CERTIFIED RETURN RECEIPT

Elk Oil Company
P. O. Box 310
Sunwest Bank Building
Suite 814
Roswell, NM 88202

Gentlemen:

Enclosed please find a copy of form C-108 (Application for Authority to Inject) for the following Yates Petroleum wells in Lea County, New Mexico:

Billy "AES" State #2	C 12-17S-33E
Hoover "ADR" State #2	O 1-17S-33E

Should you have any questions, please feel free to contact me at (505) 748-1471.

Sincerely,

Carolyn Bulovas Yates

Carolyn Bulovas Yates
Petroleum Engineer

CBY/cvg

Enclosures

YATES PETROLEUM CORPORATION

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

July 14, 1993

CERTIFIED RETURN RECEIPT

JFG Enterprises
P. O. Box 100
Artesia, NM 88210

Gentlemen:

Enclosed please find a copy of form C-108 (Application for Authority to Inject) for the following Yates Petroleum wells in Lea County, New Mexico:

Billy "AES" State #2	C 12-17S-33E
Hoover "ADR" State #2	O 1-17S-33E

Should you have any questions, please feel free to contact me at (505) 748-1471.

Sincerely,

Carolyn Bulovas Yates

Carolyn Bulovas Yates
Petroleum Engineer

CBY/cvg

Enclosures