

MARTIN YATES, III  
1912 - 1985  
FRANK W. YATES  
1936 - 1986



105 SOUTH FOURTH STREET  
ARTESIA, NEW MEXICO 88210

TELEPHONE (505) 748-1471

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August 10, 1990

N.M. Oil Conservation Division  
P.O. Box 2088  
Santa Fe, N.M. 87503

Attn: David Catanach

Re: Routh "NU" Deep Com #2  
660 FNL & 1980 FEL  
Sec 14-T19S-R24E  
Eddy Co., NM

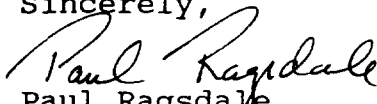
Gentlemen:

Yates Petroleum is requesting approval to convert the referenced Routh "NU" Deep Com #2 from a producing Morrow gas well into a Devonian disposal well. A C-108 applying for the authorization to inject is enclosed. It is proposed to squeeze the existing perfs, drill out the squeeze cement retainer & the casing shoe and establish disposal in the Devonian Formation in open hole.

This project was originally proposed in 1989 to dual the referenced well by injecting down the tubing in the Devonian and producing the Morrow up the tubing-casing annulus. Since that time it has been determined that the "Morrow" is no longer economic and will be abandoned. Therefore we are not applying for a "dual completion/injection" but only an injection/disposal well.

If you need further information, please let me know.

Sincerely,

  
Paul Ragsdale  
PR/gb

APPLICATION FOR AUTHORIZATION TO INJECT

- I. Purpose: ☐ Secondary Recovery ☐ Pressure Maintenance ☒ Disposal ☐ Storage  
Application qualifies for administrative approval? ☒ yes ☐ no
- II. Operator: YATES PETROLEUM CORPORATION  
Address: 105 S. 4TH STREET ARTESIA, N.M. 38210  
Contact party: Paul Ragsdale Phone: (505) 743-1471
- 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 ☒ 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: Paul Ragsdale Title Petroleum Engineer  
Signature: Paul Ragsdale Date: 3-10-90
- \* 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.

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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  
ROUTH "NU" DEEP #2  
B SEC 14-T19S-R24E  
EDDY COUNTY, NEW MEXICO

- I. The purpose of this application is to dispose of Dagger Draw-Upper Pennsylvanian produced waters into the Devonian formation.

Yates Petroleum proposes to abandon the Morrow production in the subject well and convert the well to a salt water disposal well in the Devonian formation.

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

- III. Well Data: See Attachment A.

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

- V. See attached map, Attachment B.

- VI. There are no wells within the area of review which which penetrate the Devonian, the proposed injection zone. The nearest well which penetrates the Devonian formation is the Yates Petroleum "Allison CQ Federal #7", located about 1.4 miles SW of the Routh "NU" Deep #2 well. The Allison CQ Federal #7 is in Unit E of Section 23, Township 19 South, Range 24 East and is producing from the Morrow formation. The Well Completion Record has been filed with you office in July, 1981.

A tabulation of data on all wells within the area of review is attached (See Attachment C). As stated above, the well does not penetrate the Devonian.

- VII. 1. Proposed average daily injection volume approximately 8,000 BWPd.  
Maximum daily injection volume approximately 10,000 BWPd.
2. This will be a closed system.
3. Proposed average in pressure--unknown.  
Proposed maximum injection pressure--2200 psi.

C-108  
Application for Disposal  
Yates Petroleum Corp.  
ROUTH "NU" DEEP #2  
Page -2-

4. Sources of injected water would be produced water from the Dagger Draw--Upper Pennsylvanian. (See Attachment C).
  5. A chemical analysis of the Devonian formation water is attached.
- VIII.
1. The proposed injection interval is the portion of the Devonian formation consisting of porous dolomite from 9570'-9900'. Actual open-hole interval will be from 9398'-9900'.
  2. Fresh or brackish water zones overlying the Devonian formation are at depths to approximately 825 ft. There are no fresh water zones underlying the Devonian formation.
- IX. The proposed disposal interval will be acidized with 10,000 gallons of 15% HCL acid.
- X. Logs have been filed at your office in March, 1981.
- XI. We could not locate a windmill--fresh water well within one mile of the proposed injection well. The closest windmill exists approximately 1.1 miles NE of the subject location in the NW/4SE/4 of Section 12-T19S-R24E. Ned's well on the Shaffer Ranch.
- The location of this well is indicated on Attachment F. A water analysis is also attached, with the sample collected May 24, 1989.
- XII. Yates Petroleum Corporation has examined available geologic and engineering data and has found that there is no evidence of faulting in the proposed interval.
- XIII.
- A. Certified mail receipts sent to surface owner and offset operators--attached. (Attachment G)
  - B. Copy of legal advertisement attached. (Attachment H)
- XIV. Certification is signed.

Yates Petroleum Corporation  
Routh "NU" Deep #2  
B Sec 14-T19S-R24E

ATTACHMENT A  
Page 1

III. Well Data

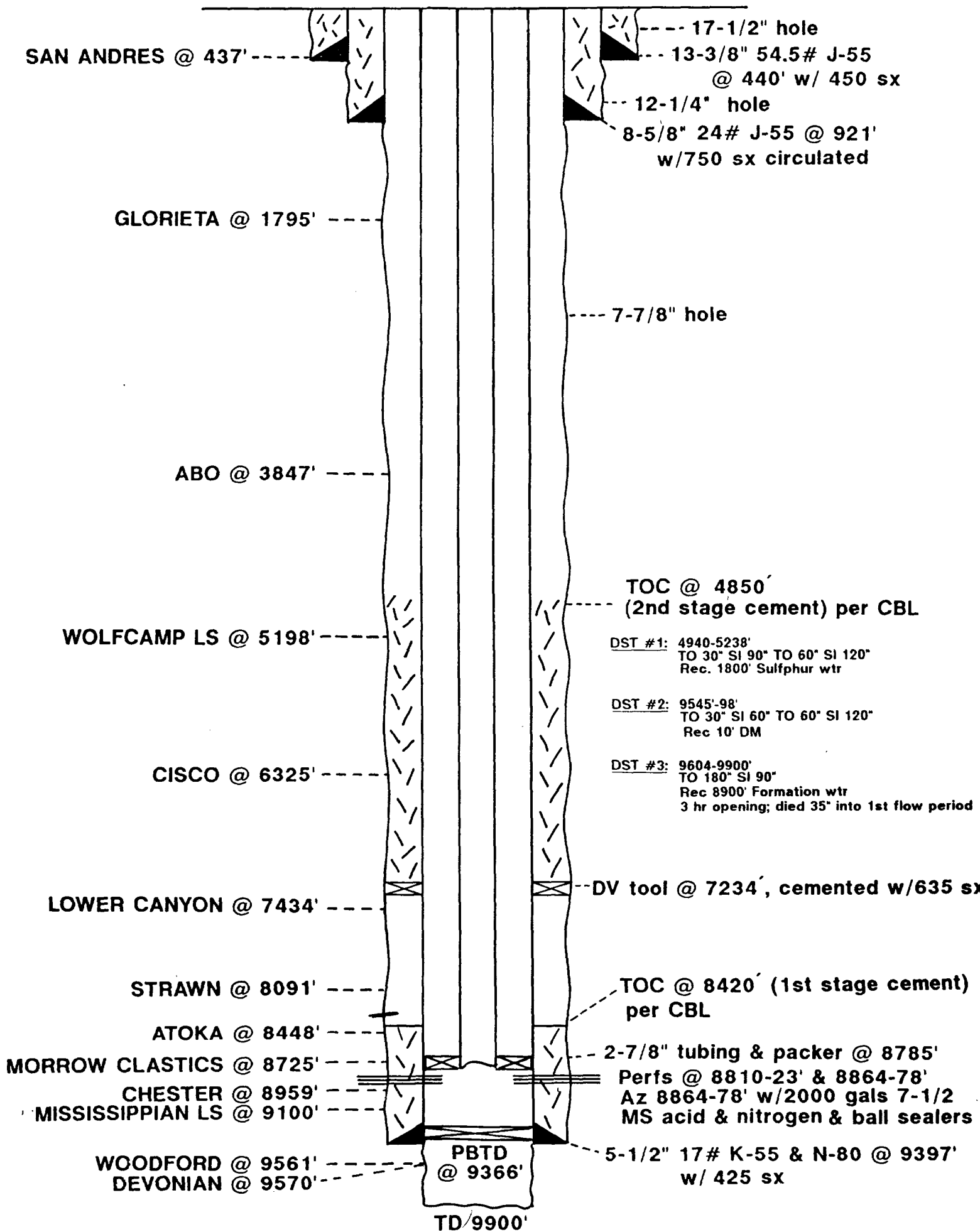
- A. 1. Lease Name/Location:  
Routh "NU" Deep #2  
B 14-19S-24E  
660' FNL & 1980' FEL
2. Casing Strings:  
a. Present Well Condition  
13-3/8" 54.5# J-55 set at 440' with 450  
sacks Cemented to surface  
8-5/8" 24# J-55 @ 921' with 750 sacks  
circulated  
5-1/2" 17# K-55 & N-80 @ 9397' with 1060  
sacks as follows:  
  
Stage 1 Cement--425 sacks, TOC @ 8420'  
per cement bond log  
Sage 2 Cement--635 sacks, TOC @ 4850'  
per cement bond log  
  
DV Tool @ 7234'.  
  
2-7/8" tubing set at 8785'  
  
Present TD: 9900', PBTD: 9366'  
Producing from Boyd Morrow through  
perforations @ 8810'-8823' and 8864'-8878'
- b. Proposed Well Condition--Propose to  
squeeze Morrow perfs and drill out plug  
at 9366', clean out hole to TD 9900'.
3. Tubing:  
Propose to replace present tubing with 2-7/8"  
6.5# J-55 plastic coated tubing set at  
approximately 9350'.
4. Packer:  
Propose to use Guiberson Uni VI or Baker  
Plastic-coated or nickel plated packer set  
at 9350'.

Yates Petroleum Corp.  
Routh "NU" Deep #2  
B 14-19S-24E  
Page -2-

ATTACHMENT A (cont'd)

- B. 1. Injection Formation: Devonian Undesignated
- 2. Injection Interval-- open hole 9570'-9900'
- 3. Well was originally drilled as an exploratory Morrow gas well.
- 4. Perforations: 8810'-8823'  
8864'-8878'  
Propose to squeeze perfs and then drill out.
- 5. Next higher (shallower) oil or gas zone  
within 1/2 mile-Yeso: within 2-miles-Morrow  
Next lower (deeper) oil or gas zone--NONE.

**YATES PETROLEUM CORP.**  
**ROUTH "NU" DEEP #2**  
**SEC. 14-19S-24E**  
**UNIT B**  
**660' FNL & 1980' FEL**  
**SPUD: 1-13-81      CMP: 3-2-81**  
**BOYD MORROW GAS PRODUCER**  
**DIAGRAMATIC SKETCH OF PRESENT WELL CONDITION**





**YATES PETROLEUM CORP.**

**PROPOSED SWD WELL**

**DEVONIAN INJECTION**

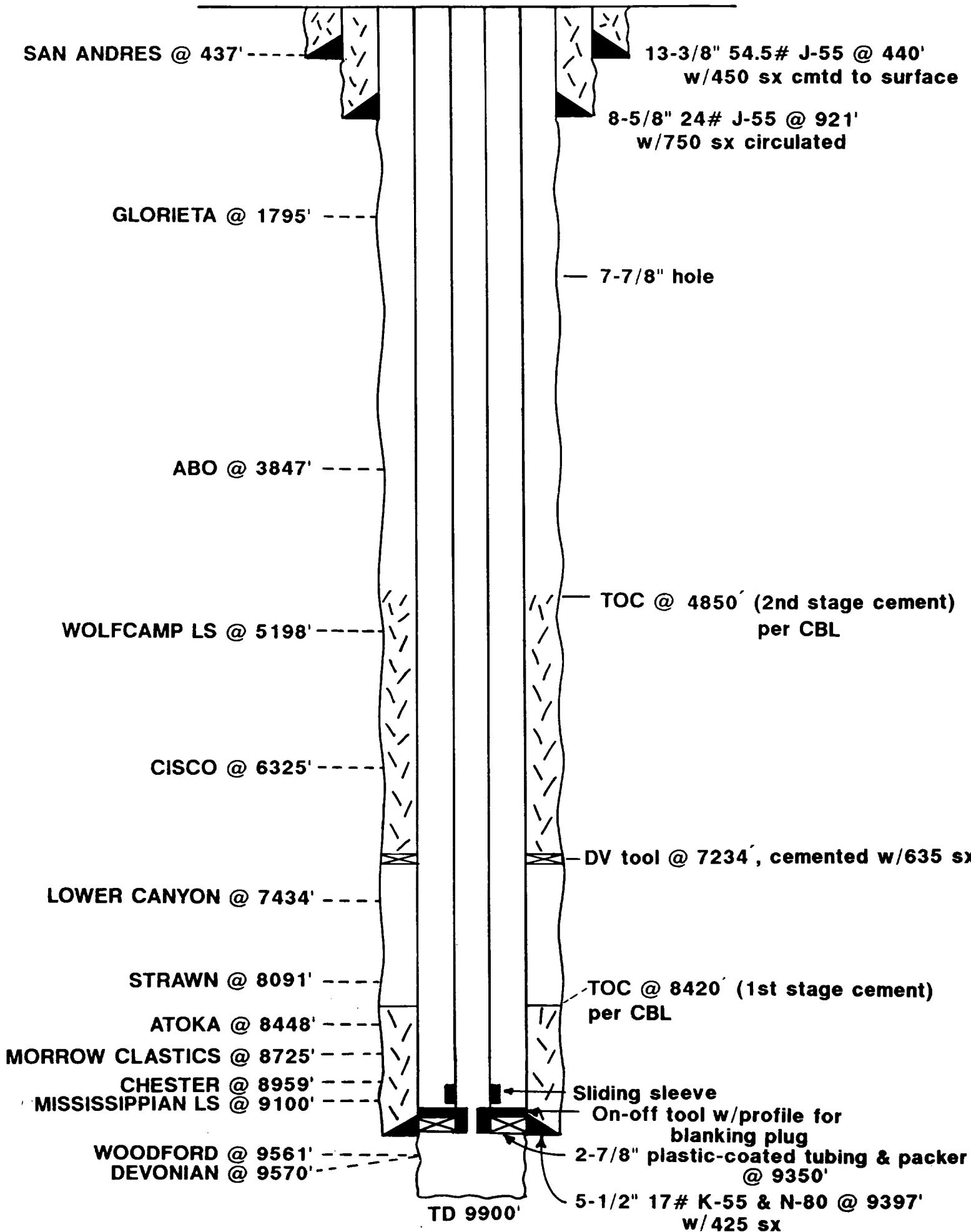
**ROUTH "NU" DEEP #2**

**SEC. 14-19S-24E**

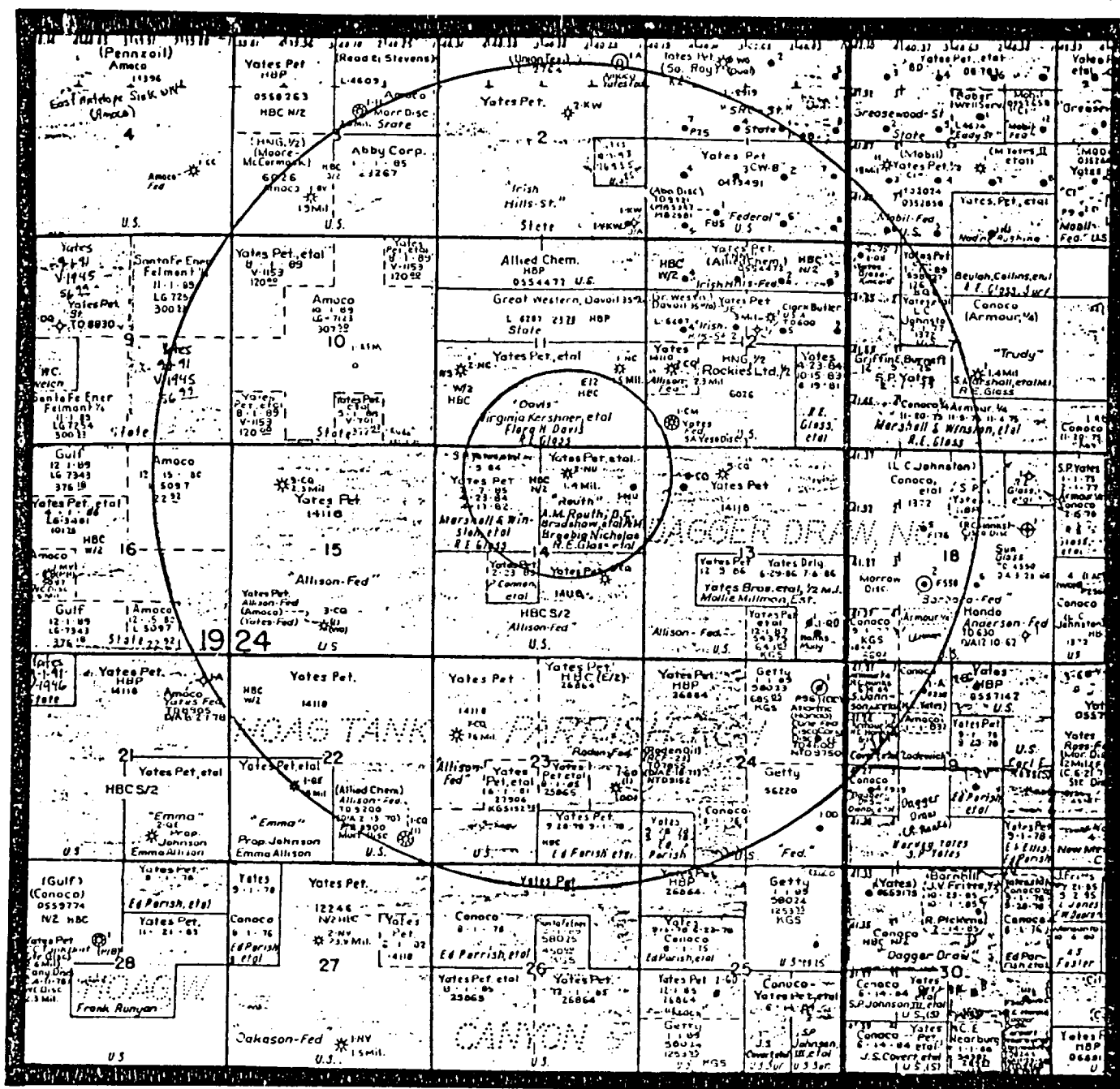
**UNIT B**

**660' FNL & 1980' FEL**

**DIAGRAMATIC SKETCH OF PROPOSED SALT WATER DISPOSAL WELL/PRODUCER**



**Propose to drill out plug @ 9366' and clean out hole to TD of 9900'. Plan to replace 2-7/8" tubing w/plastic-coated 2-7/8" 6.5# J-55 tubing and Guiberson VI or Baker plastic-coated or nickel-plated packer set @ 9350'. Propose to inject Dagger Draw Upper Pennsylvanian-produced waters down the tubing into the Devonian open hole**



# YATES PETROLEUM CORPORATION

## ROUTH "NU" DEEP #2

PROPOSED DUAL GAS PRODUCER

&

SALT WATER DISPOSAL WELL

SEC. 14-19S-24E

660' FNL & 1980' FEL

EDDY COUNTY, NEW MEXICO

(ATTACHMENT C)  
Page 1

Routh "NU" Deep #2  
Form C-108 (VI) Attachment  
Tabulation of Data on Wells Within Area of Review

Well Name/Location	Operator	Well Type	Spud Date	Completion Date	TD (ft)	Production Zone	Perforations	Completion Information
Routh "NU" #1 A 14-198-24E 990' FNL & 330' FEL	Yates Petr.	Oil	05-06-80	07-01-80	2800	SA-Yeso	2477'-2494'	Yeso perforations acidized with 500 gal 15% acid and sand fractured with 35280 gal. gal KCL water and 75,000# sand.
							2350'-2377'	Yeso perforations sand fractured with 31500 gal. gal KCL water and 75,000# sand.

10-3/4" 30# K-55 @ 363' w/450 sx cemented to surface  
7" 20# K-55 @ 920' w/850 sx circulated  
4-1/2" 9.5# J-55 @ 2779' w/375 sx circulated  
2-3/8" 4.7# J-55 tubing @ 2331'

## ATTACHMENT D

HALLIBURTON DIVISION LABORATORY  
 HALLIBURTON SERVICES  
 MIDLAND DIVISION  
 ARTESIA, NEW MEXICO 88210  
 LABORATORY WATER ANALYSIS

No. W65, W66, & W67-88

To Yates Petroleum Corporation  
105 South Fourth Street  
Artesia, NM 88210

Date \_\_\_\_\_

This report is the property of Halliburton Company and neither it nor any part thereof nor a copy thereof is to be published or disclosed without first securing the express written approval of laboratory management; it may however, be used in the course of regular business operations by any person or concern and employees thereof receiving such report from Halliburton Company.

Submitted by \_\_\_\_\_ Date Rec. \_\_\_\_\_

Well No. \_\_\_\_\_ Depth \_\_\_\_\_ Formation \_\_\_\_\_

County \_\_\_\_\_ Field \_\_\_\_\_ Source \_\_\_\_\_

	<u>Ross EC Fed. #2</u>	<u>Foster AN Com. #1</u>	<u>Parish IV Comm.</u>
Resistivity .....	.91 @ 60°	.9 @ 60°	.89 @ 60°
Specific Gravity .....	1.005 @ 60°	1.005 @ 60°	1.005 @ 60°
pH .....	7.5	7.3	7.0
Calcium (Ca) .....	1,000	1,000	1,000 *MPL
Magnesium (Mg) .....	600	500	650
Chlorides (Cl) .....	4,000	5,000	5,000
Sulfates (SO <sub>4</sub> ) .....	Heavy	Heavy	Heavy
Bicarbonates (HCO <sub>3</sub> ) .....	1,200	1,000	1,100
Soluble Iron (Fe) .....	Nil	Nil	Nil
.....			
.....			
.....			

Remarks:

\*Milligrams per liter

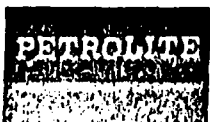
Respectfully submitted,

Analyst: Art Carrasco - District Engineer  
 CC:

HALLIBURTON COMPANY

## NOTICE

This report is limited to the described sample tested. Any user of this report agrees that Halliburton shall not be liable



Petrolite Corporation

369 Marshall Avenue • St. Louis, Missouri 63119  
314 961-3500 • Telex: 44-2417

### STABILITY INDEX CALCULATIONS

(Stiff-Davis Method)

CaCO<sub>3</sub> Scaling Tendency

Water Analysis No. 168

pH 9.00

TOTAL IONIC STRENGTH 0.19

SI at ( 80 )°F = + 2.66

SI at ( 120 )°F = + 3.16

REMARKS: Severe calcium carbonate scaling tendencies at 80°F and 120°F

### SCALING TENDENCY CALCULATIONS

(Skillman-McDonald-Stiff Method)

Calcium Sulfate

X = 0.009

S = 2,517 mg/l @ 70 °F

S = 2,564 mg/l @ 110 °F

PETROLITE

**WATER ANALYSIS REPORT**

COMPANY Yates Petroleum Company ADDRESS Artesia, N.M. DATE 4-23-87  
 SOURCE State "CO" Disposal DATE SAMPLED 3-18-87 ANALYSIS NO. 168  
 Analysis Mg/L \*Meq/L

1. pH	<u>7.0</u>		
2. H <sub>2</sub> S (Qualitative)	<u>Pos.</u>		
3. Specific Gravity	<u>1.005</u>		
4. Dissolved Solids	<u>7,072</u>		
5. Suspended Solids	<u>          </u>		
6. Phenolphthalein Alkalinity (CaCO <sub>3</sub> )	<u>40</u>		
7. Methyl Orange Alkalinity (CaCO <sub>3</sub> )	<u>0</u>		
8. Bicarbonate (HCO <sub>3</sub> )	HCO <sub>3</sub> <u>342</u>	÷ 61	<u>5.6</u> HCO <sub>3</sub>
9. Chlorides (Cl)	Cl <u>2,046</u>	÷ 35.5	<u>58</u> Cl
10. Sulfates (SO <sub>4</sub> )	SO <sub>4</sub> <u>2,250</u>	÷ 48	<u>47</u> SO <sub>4</sub>
11. Calcium (Ca)	Ca <u>368</u>	÷ 20	<u>18</u> Ca
12. Magnesium (Mg)	Mg <u>80</u>	÷ 12.2	<u>7</u> Mg
13. Total Hardness (CaCO <sub>3</sub> )	<u>1,250</u>		
14. Total Iron (Fe)	<u>36 ppm</u>		
15. Barium (Qualitative)			
16. Strontium			

\*Milli equivalents per liter

**PROBABLE MINERAL COMPOSITION**

Compound	Equiv. Wt.	X	Meq/L	=	Mg/L
Ca (HCO <sub>3</sub> ) <sub>2</sub>	81.04		<u>5.6</u>		<u>454</u>
Ca SO <sub>4</sub>	68.07		<u>12</u>		<u>817</u>
Ca Cl <sub>2</sub>	55.50				
Mg (HCO <sub>3</sub> ) <sub>2</sub>	73.17				
Mg SO <sub>4</sub>	60.19		<u>7</u>		<u>421</u>
Mg Cl <sub>2</sub>	47.62				
Na HCO <sub>3</sub>	84.00				
Na <sub>2</sub> SO <sub>4</sub>	71.03		<u>28</u>		<u>1,989</u>
Na Cl	58.46		<u>58</u>		<u>3,391</u>

Ca	←	HCO <sub>3</sub>	<u>5.6</u>
Mg	←	SO <sub>4</sub>	<u>47</u>
Na	←	Cl	<u>58</u>

Saturation Values	Distilled Water 20°C
Ca CO <sub>3</sub>	13 Mg/L
Ca SO <sub>4</sub> • 2H <sub>2</sub> O	2,090 Mg/L
Mg CO <sub>3</sub>	103 Mg/L

REMARKS Allison (4) - Stenzel - File

Respectfully submitted

TRETOLITE™ Chemicals and Services

Ray Shaffner

PETROLITE OILFIELD CHEMICALS GROUP  
ARTESIA, NEW MEXICO  
WATER ANALYSIS REPORT

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COMPANY NAME : YATES PETROLEUM  
LEASE NAME : STATE 'CO' SWD  
SAMPLE POINT : UPSTREAM OF PUMP  
SAMPLE DATE : 10-9-87

PH = 8.00  
SAMPLE TEMP. = N/A  
H2S (QUALITATIVE) = POS.  
SPECIFIC GRAVITY = 1.000

## TITRATED AND CALCULATED IONS

HCO3 (MG/LTR) =	1025.00	HCO3 (MEQ/LTR) =	16.80
CL (MG/LTR) =	3025.00	CL (MEQ/LTR) =	85.21
SO4 (MG/LTR) =	2000.00	SO4 (MEQ/LTR) =	41.66
CA (MG/LTR) =	600.00	CA (MEQ/LTR) =	30.00
MG (MG/LTR) =	131.00	MG (MEQ/LTR) =	10.73
NA (MG/LTR) =	2392.00	NA (MEQ/LTR) =	104.00

IONIC STRENGTH = 0.10  
TOTAL HARDNESS = 2029.00  
TOTAL DISSOLVED SOLIDS = 9147.31  
TOTAL IRON (FE) = 0.0

CA(HCO3)2 (MG/LTR) =	1361.73	CA(HCO3)2 (MEQ/LTR) =	16.80
CASO4 (MG/LTR) =	898.30	CASO4 (MEQ/LTR) =	13.19
CACL2 (MG/LTR) =	0.0	CACL2 (MEQ/LTR) =	0.0
MG(HCO3)2 (MG/LTR) =	0.0	MG(HCO3)2 (MEQ/LTR) =	0.0
MGSO4 (MG/LTR) =	646.30	MGSO4 (MEQ/LTR) =	10.73
MGCL2 (MG/LTR) =	0.0	MGCL2 (MEQ/LTR) =	0.0
NAHCO3 (MG/LTR) =	0.0	NAHCO3 (MEQ/LTR) =	0.0
NA2SO4 (MG/LTR) =	1259.52	NA2SO4 (MEQ/LTR) =	17.73
NACL (MG/LTR) =	4981.45	NACL (MEQ/LTR) =	85.21

## CALCULATED SCALING TENDENCIES

## SCALING INDEX

CAC03 @ 80 DEG F = 1.00  
CAC03 @ 120 DEG F = 2.30

## SATURATION POINT

CASO4 @ 70 DEG F (MG/LTR) = 3494.52  
CASO4 @ 110 DEG F (MG/LTR) = 3541.99  
THIS SAMPLE CONTAINED 898.30 MG/LTR

PETROLITE OILFIELD CHEMICALS GROUP  
ARTESIA, NEW MEXICO  
WATER ANALYSIS REPORT

COMPANY NAME : YATES PETROLEUM  
LEASE NAME : STATE CO  
SAMPLE POINT : UPSTREAM  
SAMPLE DATE : 12-8-87

PH = 8.00  
SAMPLE TEMP. = N/A  
H2S (QUALITATIVE) = POS.  
SPECIFIC GRAVITY = 1.000

## TITRATED AND CALCULATED IONS

HCO3 (MG/LTR) =	1135.00	HCO3 (MEQ/LTR) =	18.60
CL (MG/LTR) =	3195.00	CL (MEQ/LTR) =	90.00
SO4 (MG/LTR) =	2000.00	SO4 (MEQ/LTR) =	41.66
CA (MG/LTR) =	632.00	CA (MEQ/LTR) =	31.60
MG (MG/LTR) =	126.00	MG (MEQ/LTR) =	10.32
NA (MG/LTR) =	2507.00	NA (MEQ/LTR) =	109.00

IONIC STRENGTH = 0.19  
TOTAL HARDNESS = 2008.52  
TOTAL DISSOLVED SOLIDS = 9578.44  
TOTAL IRON (FE) = 0.0

CA(HCO3)2 (MG/LTR) =	1507.07	CA(HCO3)2 (MEQ/LTR) =	10.60
CA SO4 (MG/LTR) =	834.46	CA SO4 (MEQ/LTR) =	12.99
CA CL2 (MG/LTR) =	0.0	CA CL2 (MEQ/LTR) =	0.0
MG(HCO3)2 (MG/LTR) =	0.0	MG(HCO3)2 (MEQ/LTR) =	0.0
MG SO4 (MG/LTR) =	621.63	MG SO4 (MEQ/LTR) =	10.32
MG CL2 (MG/LTR) =	0.0	MG CL2 (MEQ/LTR) =	0.0
NAHCO3 (MG/LTR) =	0.0	NAHCO3 (MEQ/LTR) =	0.0
NA2SO4 (MG/LTR) =	1008.07	NA2SO4 (MEQ/LTR) =	10.34
NA CL (MG/LTR) =	5261.40	NA CL (MEQ/LTR) =	90.00

## CALCULATED SCALING TENDENCIES

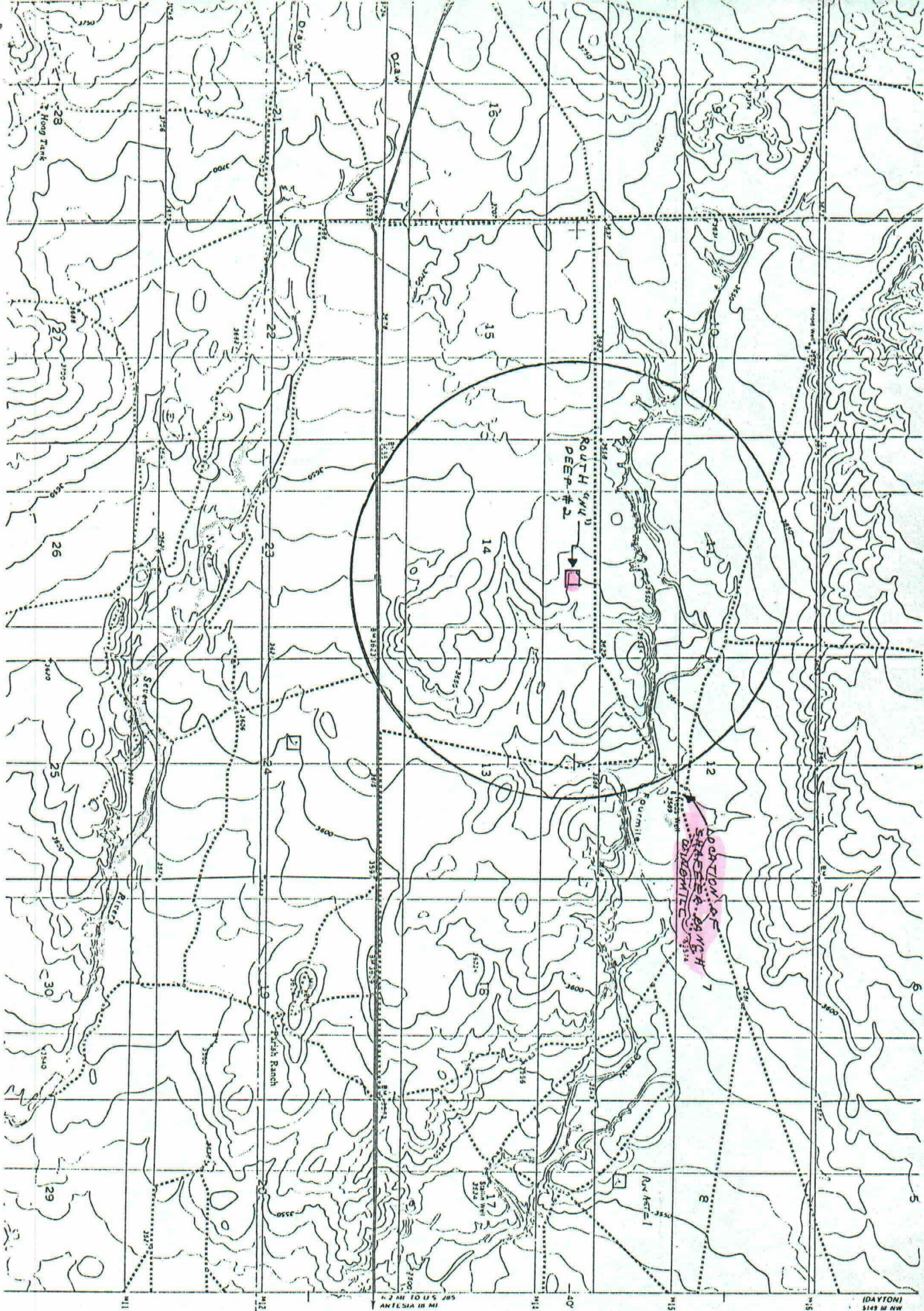
## SCALING INDEX

CAC03 @ 80 DEG F = 1.97  
CAC03 @ 120 DEG F = 2.37

## SATURATION POINT

CA SO4 @ 70 DEG F (MG/LTR) = 3433.60  
CA SO4 @ 110 DEG F (MG/LTR) = 3481.17  
THIS SAMPLE CONTAINED 834.46 MG/LTR







## HALLIBURTON DIVISION LABORATORY

## HALLIBURTON SERVICES

## ARTESIA DISTRICT

## LABORATORY REPORT

ATTACHMENT F

Page 2

No. W202 & W203-89

TO Yates Petroleum Corporation  
105 South Fourth Street  
Artesia, NM 88210

Date May 24, 1989

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Submitted by Theresa Padilla Date Rec. May 24, 1989

Well No. \_\_\_\_\_ Depth \_\_\_\_\_ Formation \_\_\_\_\_

Field \_\_\_\_\_ County \_\_\_\_\_ Source \_\_\_\_\_

	#1	#2 ✓
Resistivity .....	N.A.	N.A.
Specific Gravity ..	1.001	1.001
pH .....	7.0	7.0
Calcium .....	325	108
Magnesium .....	131	131
Chlorides .....	300	100
Sulfates .....	600	500
Bicarbonates .....	153	244
Soluble Iron .....	Nil	Nil
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Remarks: Sample #1 - from windmill by Cotton MX well, Phil Hefner ranch  
Sec. 14, T 19S, R 25E

Sample #2 - from Ned's well, Shaffer ranch, Routh NU #2  
Sec. 12, T 19, R 24E

*Rocky Chambers*  
Respectfully submitted

Analyst: Rocky Chambers - Field Engineer

HALLIBURTON SERVICES

## NOTICE:

This report is for information only and the content is limited to the sample described. Halliburton makes no warranties, express or implied, as to the accuracy of the contents or results. Any user of this report agrees Halliburton shall not be liable for any loss or damage, regardless of the cause, arising out of or from the use of this report.

ATTACHMENT G



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

S. P. YATES  
PRESIDENT  
JOHN A. YATES  
VICE PRESIDENT  
B. W. HARPER  
SEC. - TREAS.

June 12, 1989

CERTIFIED RETURN RECEIPT

Kincaid Estate  
Madlyn Cauhape Daboll  
Star Route  
Hope, New Mexico 88250

Dear Ms. Daboll:

Enclosed please find a copy of forms C-107 (Application for Multiple Completion) and C-108 (Application for Authorization to Inject) on Yates' Routh "NU" Deep #2 located in Unit B of Section 14-T19S-R24E.

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

Sincerely,

*Theresa Padilla*

Theresa Padilla  
Petroleum Engineer

TP/cvg

Enclosure



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

S. P. YATES  
PRESIDENT  
JOHN A. YATES  
VICE PRESIDENT  
B. W. HARPER  
SEC. - TREAS.

June 12, 1989

CERTIFIED RETURN RECEIPT

Ameriplor Corporation  
P. O. Box 297166  
Houston, Texas 77002

Dear Sir:

Enclosed please find a copy of forms C-107 (Application for Multiple Completion) and C-108 (Application for Authorization to Inject) on Yates' Routh "NU" Deep #2 located in Unit B of Section 14-T19S-R24E.

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

Sincerely,

A handwritten signature in cursive script that reads 'Theresa Padilla'.

Theresa Padilla  
Petroleum Engineer

TP/cvg

Enclosure



105 SOUTH FOURTH STREET  
ARTESIA, NEW MEXICO 88210

TELEPHONE (505) 748-1471

June 12, 1989

S. P. YATES  
PRESIDENT  
JOHN A. YATES  
VICE PRESIDENT  
B. W. HARPER  
SEC. - TREAS.

CERTIFIED RETURN RECEIPT

Davoil, Inc.  
P. O. Box 122269  
Forth Worth, Texas 76121-2269

Dear Sir:

Enclosed please find a copy of forms C-107 (Application for Multiple Completion) and C-108 (Application for Authorization to Inject) on Yates' Routh "NU" Deep #2 located in Unit B of Section 14-T19S-R24E.

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

Sincerely,

*Theresa Padilla*

Theresa Padilla  
Petroleum Engineer

TP/cvg

Enclosure



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

S. P. YATES  
PRESIDENT  
JOHN A. YATES  
VICE PRESIDENT  
B. W. HARPER  
SEC. - TREAS.

June 12, 1989

CERTIFIED RETURN RECEIPT

Great Western Drilling Company  
P. O. Box 1659  
Midland, Texas 79702

Dear Sir:

Enclosed please find a copy of forms C-107 (Application for Multiple Completion) and C-108 (Application for Authorization to Inject) on Yates' Routh "NU" Deep #2 located in Unit B of Section 14-T19S-R24E.

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

Sincerely,

A handwritten signature in cursive script that reads 'Theresa Padilla'.

Theresa Padilla  
Petroleum Engineer

TP/cvg

Enclosure

## ATTACHMENT H

### LEGAL NOTICE

Yates Petroleum Corporation, 105 South Fourth Street, Artesia, NM 88210, has filed form C-108 (Application for Authorization to Inject) and form C-107 (Application for Multiple Completion) with the New Mexico Oil Commission seeking administrative approval for a dual completion to dispose of Dagger Draw-Upper Pennsylvanian produced waters through the tubing into the Devonian formation and produce Morrow gas through the casing-tubing annulus. The proposed well, the Routh "NU" Deep #2, is located 660' FNL & 1980' FEL of Section 14, Township 19 South, Range 24 East of Eddy County, New Mexico, will be used for saltwater disposal in the Devonian formation through the tubing with production through the casing-tubing annulus. Disposal waters will be injected into the Devonian formation open-hole at a depth of 9570--9900 feet with a maximum rate of 10,000 BWPD and a maximum pressure of 1914 psi.

All interested parties opposing the aforementioned must file objections or requests for a hearing with the Oil Conservation Division, P. O. Box 2088, Santa Fe, NM 87501, within 15 days. Additional information can be obtained by contacting Theresa Padilla at (505) 748-1471.

Published in the Artesia Daily Press, Artesia, NM, June 11, 1989.



# Affidavit of Publication

Copy of Publication

No. 12791

STATE OF NEW MEXICO,  
County of Eddy:

Gary D. Scott being duly  
sworn, says: That he is the Publisher of The  
Artesia Daily Press, a daily newspaper of general circulation,  
published in English at Artesia, said county and state, and that  
the hereto attached Legal Notice

was published in a regular and entire issue of the said Artesia  
Daily Press, a daily newspaper duly qualified for that purpose  
within the meaning of Chapter 167 of the 1937 Session Laws of  
the State of New Mexico for 1 consecutive weeks on  
the same day as follows:

First Publication June 11, 1989

Second Publication

Third Publication

Fourth Publication

and that payment therefore in the amount of \$  
has been made

Subscribed and sworn to before me this 13th day  
of June, 1989

Barbara R. Boase  
Notary Public, Eddy County, New Mexico

My Commission expires September 23, 1991

## LEGAL NOTICE

Yates Petroleum Corporation, 105 South Fourth

Street, Artesia, NM 88210, has filed form C-108 (Application for Authorization to Inject) and form C-107 (Application for Multiple Completion) with the New Mexico Oil Commission seeking administrative approval for a dual completion to dispose of Dagger Draw-Upper Pennsylvanian produced waters through the tubing into the Devonian formation and produce Morrow gas through the casing-tubing annulus. The proposed well, the Routh "NU" Deep #2, is located 660' FNL & 1980' FEL of Section 14, Township 19 South, Range 24 East of Eddy County, New Mexico, will be used for salt-water disposal in the Devonian formation through

the tubing with production through the casing-tubing annulus. Disposal waters will be injected into the Devonian formation open-hole at a depth of 9570-9900 feet with a maximum rate of 10,000 BWPD and a maximum pressure of 1914 psi. All interested parties opposing the aforementioned must file objections or requests for a hearing with the Oil Conservation Division, P.O. Box 2088, Santa Fe, NM 87501, within 15 days. Additional information can be obtained by contacting Theresa Padilla at (505) 748-1471. Published in the Artesia Daily Press, Artesia, N.M. June 11, 1989. Legal 12791