

APPLICATION FOR AUTHORIZATION TO INJECT

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

II. Operator: BARBER OIL, INC.

Address: P. O. BOX 1658 CARLSBAD, NM 88221-1658

Contact party: MICHAEL D. GARRINGER Phone: 887-2566

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.

*well is currently an active SWD*

\* X. Attach appropriate logging and with the Division they need no

**BEFORE THE**  
**OIL CONSERVATION DIVISION**  
Santa Fe, New Mexico

\* XI. Attach a chemical analysis of available and producing) with location of wells and dates sa

Case No. 10772 Exhibit No. 1

XII. Applicants for disposal wells examined available geologic an or any other hydrologic connec source of drinking water.

Submitted by: Barber Oil Inc.

XIII. Applicants must complete the "

Hearing Date: November 4, 1993 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: MICHAEL D. GARRINGER Title PRESIDENT

Signature: *Michael D. Garringer* Date: 5/18/93

\* 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. WELL WAS REWORKED ON 2/18/93 INFORMATION SUBMITTED AT THAT TIME.

## 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  
BARBER OIL, INC.  
STOVALL-WOOD #5  
C 20-20S-30E  
EDDY COUNTY, NEW MEXICO

- I. The purpose of permitting this well is for disposal of produced water from the Barber Pool in the Yates formation.
- II. OPERATOR: Barber Oil, Inc.  
P. O. Box 1658  
Carlsbad, NM 88221-1658  
Michael D. Garringer, President  
(505) 887-2566
- III. See Attachment "A"
- IV. This project is not an expansion of an existing project.
- V. See map - Attachment "B"
- VI. All wells within the area of review are operated by Barber Oil, Inc. All wells and well information are on file with the OCD.
- VII.
  1. Proposed average daily injection volume is  $\pm 5,000$  BWPD. Maximum injection is  $\pm 5,000$  BWPD.
  2. The system is closed.
  3. Average injection pressure - NONE (on vacuum)
  4. Reinjecting produced water from the Yates-Seven Rivers formation only.
  5. The Rustler formation has accepted water from this field for over 50 years. The natural characteristics of the Rustler formation in this area are not known as there is extensive potash mining in the area and all known ground water is brackish and heavy with chlorides. See Attachment "C" for water analysis on both produced water, injected water and a water sample from a nearby pond.
- VIII.
  1. The injection interval is in the Rustler Lime formation. The interval extends from 195' to 255'.
  2. There are no fresh water zones above or below this formation. Surface water (as noted in VII. 5 above) is brackish and briny and has been since at least the early 1950's as reported by our employees who have lived at the location.
- IX. The interval is untreated.
- X. No logs or well tests have been performed on this well. The well was originally drilled in the late 1930's as a water disposal well and no logs or well tests were performed at that time.
- XI. No working windmills exist within the area of review. Several years ago the only working windmill in the area was shut in and all fresh water for the rancher in the area, as well as for our lease facilities are obtained from a nearby potash mine.

C-108 (continued)  
Barber Oil, Inc.

Stovall-Wood #5  
C 20-20S-30E

XII. There is no evidence of geologic faulting in the proposed interval.

XIII. Proof of Notice:

A. Photocopy of Certified Letter to the surface owner. There are no offset operators in the area of review. See Attachment "D".

B. Photocopy of legal notice as published in the Carlsbad Current-Argus. See Attachment "E"

XIV. Certification is signed.

BARBER OIL, INC.  
STOVALL-WOOD #5  
C 20-20S-30E

ATTACHMENT 'A'  
PAGE 1

III. WELL DATA

A. 1. Lease Name/Location

Stovall-Wood #5  
C 20-20S-30E  
880' FNL and 1580' FWL

2. Casing Strings

A. Present Well Condition

8-5/8" 24# @ 195' (cement unknown) upper portion of pipe is  
totally destroyed as of 2/18/98

on 2/18/98 ran 7" 26# set at 114' and cemented to surface.

Present T.D. 255'

Well taking up to 5,000 BWPD on vacuum.

3. Tubing:

\*90.6' 5 1/2" 17# N-80 LT&C. 5 1/2" X 7" annulus filled with Baker  
packer fluid.

NOTE: We have just purchased a new string of 5 1/2" 17# and had it  
plastic coated. Ready to run in well.

4. Arrow type S/L 5 1/2 X 7 packer set at 90.6' /

B. 1. Injection information - Rustler Lime formation (Ochoan)

2. Injection Interval - 195' - 255'

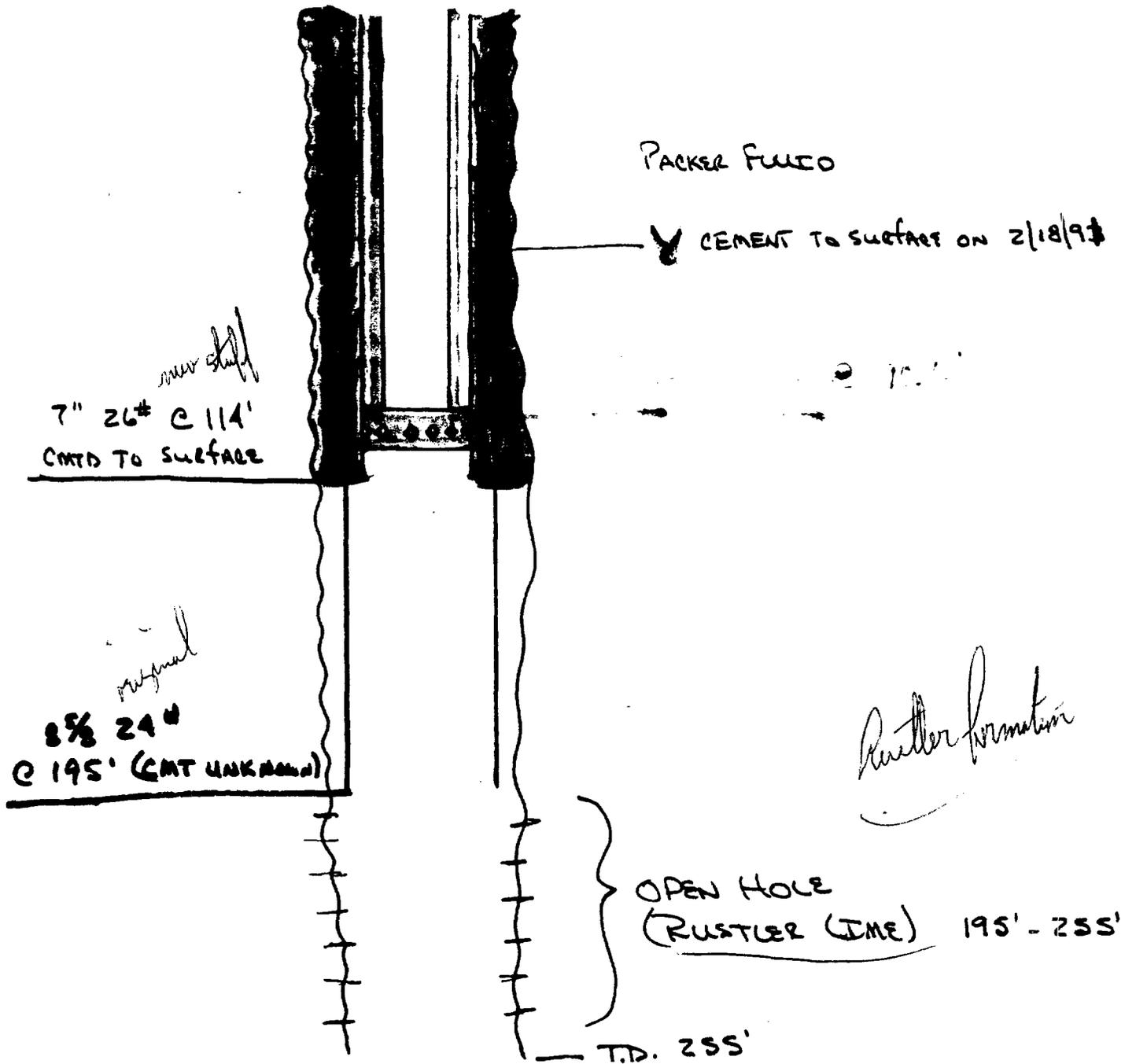
3. Well was drilled in 1938 as a water disposal well.

4. No other intervals are perforated

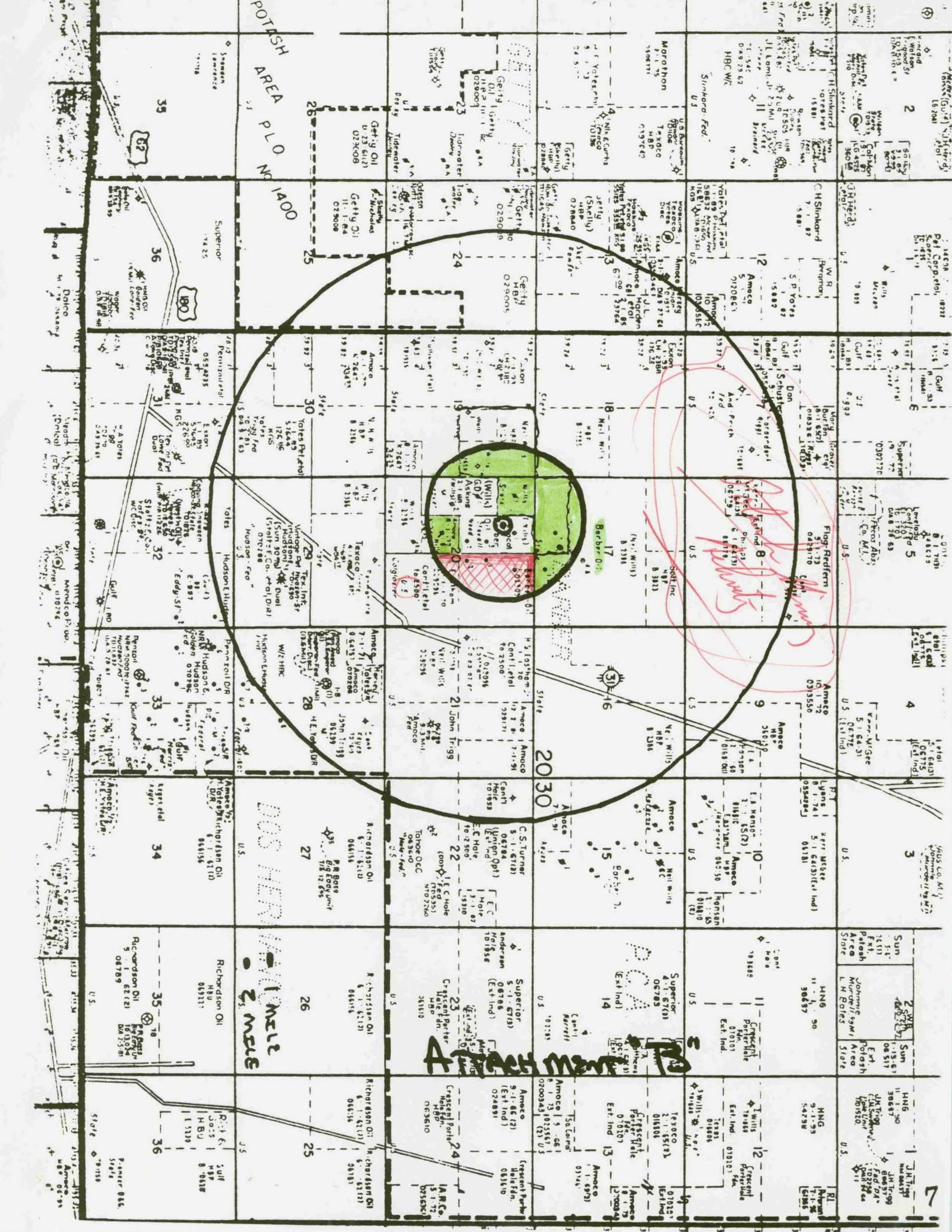
5. Next Higher oil or gas zone- NONE

Next Lower oil or gas zone- Yates/Seven Rivers (about 1500')

See Schematic Next Page



SKETCH NOT TO SCALE  
ATTACHMENT A-2



POTASH AREA PLO No. 1400

DOS HERMAN WELLS  
2 WELLS

D.C.A. (Ext. Ind)

2

1. J. H. ...  
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# ATTACHMENT C-1



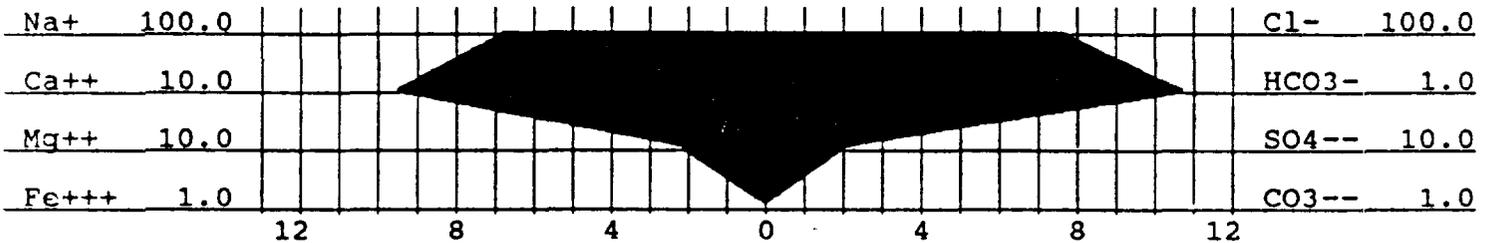
WATER ANALYSIS  
for  
BARBER OIL COMPANY

*water that is currently being analyzed*

<p><b>Date of Analysis:</b> APRIL 28, 1992  <b>Company:</b> BARBER OIL COMPANY  <b>State:</b> N.M.  <b>Lease:</b> SWD (STOUALL WOOD #5)  <b>Oil (bbl/day):</b> N/D  <b>Type of Water:</b> PRODUCED  <b>Sample Source:</b> WELL HEAD  <b>Representative:</b> STEVE STROUD</p>	<p><b>Analysis #:</b> N/D  <b>Company Address:</b> CARLSBAD  <b>Field:</b> N/D  <b>Well #:</b> N/D  <b>Water (bbl/day):</b> N/D  <b>Temp., C:</b> 29.15  <b>Date of Sampling:</b> APRIL 24, 1992  <b>Analysis By:</b> JEFF EMERSON</p>
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### WATER ANALYSIS PATTERN

(number beside ion symbol indicates me/l scale unit)



#### DISSOLVED SOLIDS

CATIONS	me/l	mg/l
Total Hardness :	120.00	
Calcium, (Ca++) :	98.00	1964.72
Magnesium, (Mg++) :	22.00	267.33
Iron, (Fe+++)	0.00	0.00
Barium, (Ba++) :	N/D	N/D
Sodium, Na+(calc) :	701.66	16138.17
Manganese, (Mn++) :	0.00	0.00

ANIONS	me/l	mg/l
Chloride, Cl-	788.73	27998.93
Sulfate, SO4-- :	20.29	975.00
Carbonate, CO3-- :	0.00	0.00
Bicarbonate, HCO3-- :	11.00	671.14
Hydroxyl, OH-	0.00	0.00
Sulfide, S-- :	1.64	26.32
<b>TOTAL SOLIDS (quant. ) :</b>		<b>48041.61</b>

#### DISSOLVED GASES

Hydrogen sulfide:	157.00	mg/l
Carbon dioxide :	150.48	mg/l
Oxygen :	N/D	mg/l

#### PHYSICAL PROPERTIES

pH :	6.25
Spec Grav. :	1.040
TDS (calc.) :	48027.94

#### SCALE STABILITIES

Temp., C	CaCO3	CaSO4	BaSO4
25.0	-0.37	3650	0
45.0	0.08	3929	0
65.0	0.67	3612	1
<b>Max entity, (calc.)</b>		<b>1401</b>	<b>0</b>

RESIDUAL HYDROCARBONS: N/D

N/D = not determined

@20'C...CALCIUM SULFATE SCALING IS UNLIKELY.  
 @20'C...SLIGHTLY CORROSIVE.



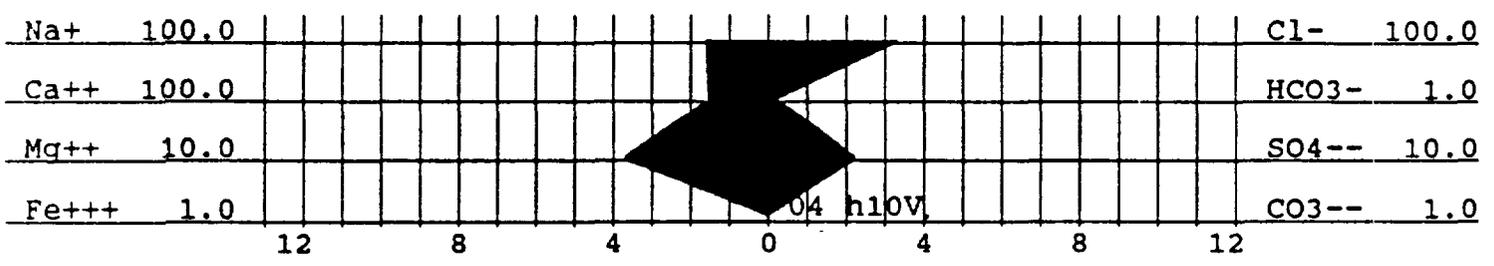


WATER ANALYSIS for BARBER OIL COMPANY

*is found that in 150/200 zone. Results checked well*

Date of Analysis: APRIL 28, 1992 Analysis #: N/D
Company: BARBER OIL COMPANY Company Address: CARLSBAD
State: N.M. Field: N/D
Lease: POND WATER Well #: N/D
Oil (bbl/day): N/D Water (bbl/day): N/D
Type of Water: FRESH WATER Temp., C: 27.50
Sample Source: SURFACE Date of Sampling: APRIL 24, 1992
Representative: STEVE STROUD Analysis By: JEFF EMERSON

WATER ANALYSIS PATTERN (number beside ion symbol indicates me/l scale unit)



DISSOLVED SOLIDS

Table with 3 columns: CATIONS, me/l, mg/l. Rows include Total Hardness, Calcium, Magnesium, Iron, Barium, Sodium, and Manganese.

DISSOLVED GASES

Table with 4 columns: Gas name, concentration, and units. Rows include Hydrogen sulfide, Carbon dioxide, and Oxygen.

PHYSICAL PROPERTIES

Table with 3 columns: Property, value, and units. Rows include pH, Spec Grav., and TDS (calc.).

SCALE STABILITIES

Table with 4 columns: Temp., CaCO3, CaSO4, BaSO4. Rows include temperatures 25.0, 45.0, 65.0 and Max entity (calc.).

Table with 3 columns: ANIONS, me/l, mg/l. Rows include Chloride, Sulfate, Carbonate, Bicarbonate, Hydroxyl, Sulfide, and TOTAL SOLIDS (quant.).

N/D = not determined

@20'C...CALCIUM SULFATE SCALING IS UNLIKELY.
@20'C...SLIGHTLY CORROSIVE, AND SLIGHT CARBONATE SCALING.

BARBER OIL, INC.  
111 West Mermod  
Post Office Box 1658  
CARLSBAD, NEW MEXICO 88220  
(505) 887-2566

May 18, 1993

Snyder Ranches  
P. O. Box 2158  
Hobbs, NM 88241

Attn: Mr. Larry Squires

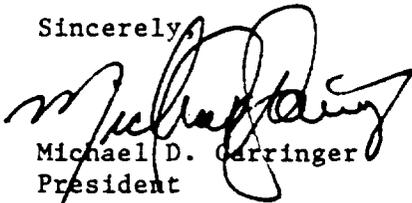
CERTIFIED - Return Receipt Requested  
Item No. P 603 313 683

Dear Mr. Squires:

Please find enclosed a copy of Form C-108 (Application for Authority to Inject) on Barber's Stovall-Wood #5 located in Unit C of Section 20, T20S-R30E, Eddy County, New Mexico.

Should you have any questions, please feel free to contact me at (505) 887-2566.

Sincerely,



Michael D. Carringer  
President

Enclosure

ATTACHMENT "D"

# Affidavit of Publication

State of New Mexico,  
County of Eddy, ss.

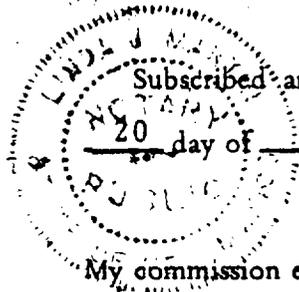
E. C. Cantwell, being first duly sworn,  
on oath says:

That he is publisher of the Carlsbad Current-Argus, a newspaper published daily at the City of Carlsbad, in said county of Eddy, state of New Mexico and of general paid circulation in said county; that the same is a duly qualified newspaper under the laws of the state wherein legal notices and advertisements may be published; that the printed notice attached hereto was published in the regular and entire edition of said newspaper and not in supplement thereof on the date as follows, to wit:

<u>                    </u>	, 19	<u>93</u>
<u>                    </u>	, 19	<u>          </u>
<u>                    </u>	, 19	<u>          </u>
<u>                    </u>	, 19	<u>          </u>

that the cost of publication is \$ 21.00 ,  
and that payment thereof has been made  
and will be assessed as court costs.

E C Cantwell



Subscribed and sworn to before me this  
20 day of MAY, 19 93

Linda J Ratti

My commission expires 7/22/96  
Notary Public

**May 20, 1993**

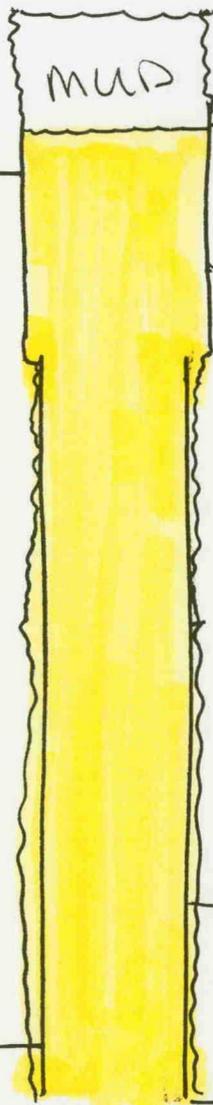
**LEGAL NOTICE**

Barber Oil Inc., P. O. Box 1056, 111 W. Marmon, Carlsbad, NM 88221, has filed form C-106 (Application for Authorization to Inject) with the New Mexico Oil Conservation Division seeking administrative approval for an injection well. The well, known as the "Stovall-Wood #5" located 880' FNL and 1580' FWL of Section 20, Township 20 South, Range 30 East, Eddy County, New Mexico, will be used for saltwater disposal only. Disposal waters from the Yase-Seven Rivers will be injected into the Rueter formation at a depth of 195'-255' at a rate of 5,000 BWPD on vacuum.

All interested parties opposing the aforementioned must file objections or requests for a hearing with the Oil Conservation Division, P. O. Box 2068, Santa Fe, New Mexico 87501, within 15 days. Additional information may be obtained by contacting Mike Geringer at (505) 887-2568.

Attachment "E"

MORRIS ? HOOPER No. 2  
UL-L, SEC. 20, T20S, R30E  
EDDY Co., NM



± 267' OF ORIGINAL

406' OF 8 5/8" 28# CSQ  
CEMENTED W/ SO SAK

(TOP 139' KNOCKED OFF AND  
PULLED)

T.D.C. ~~200~~ TAGGED AT  
150'

BEFORE THE  
OIL CONSERVATION DIVISION  
Santa Fe, New Mexico

Case No. 10772 Exhibit No. 2

Submitted by: Barber Oil Inc.

Hearing Date: November 4, 1993

BASE OF MASSIVE SALT @ ± 1200'

± 962' OF ORIGINAL

1397' OF 6 5/8" 20# CSQ  
CEMENTED W/ SO SAK

T.D. 1507'

CEMENT PUMP SET ON 3/7/62

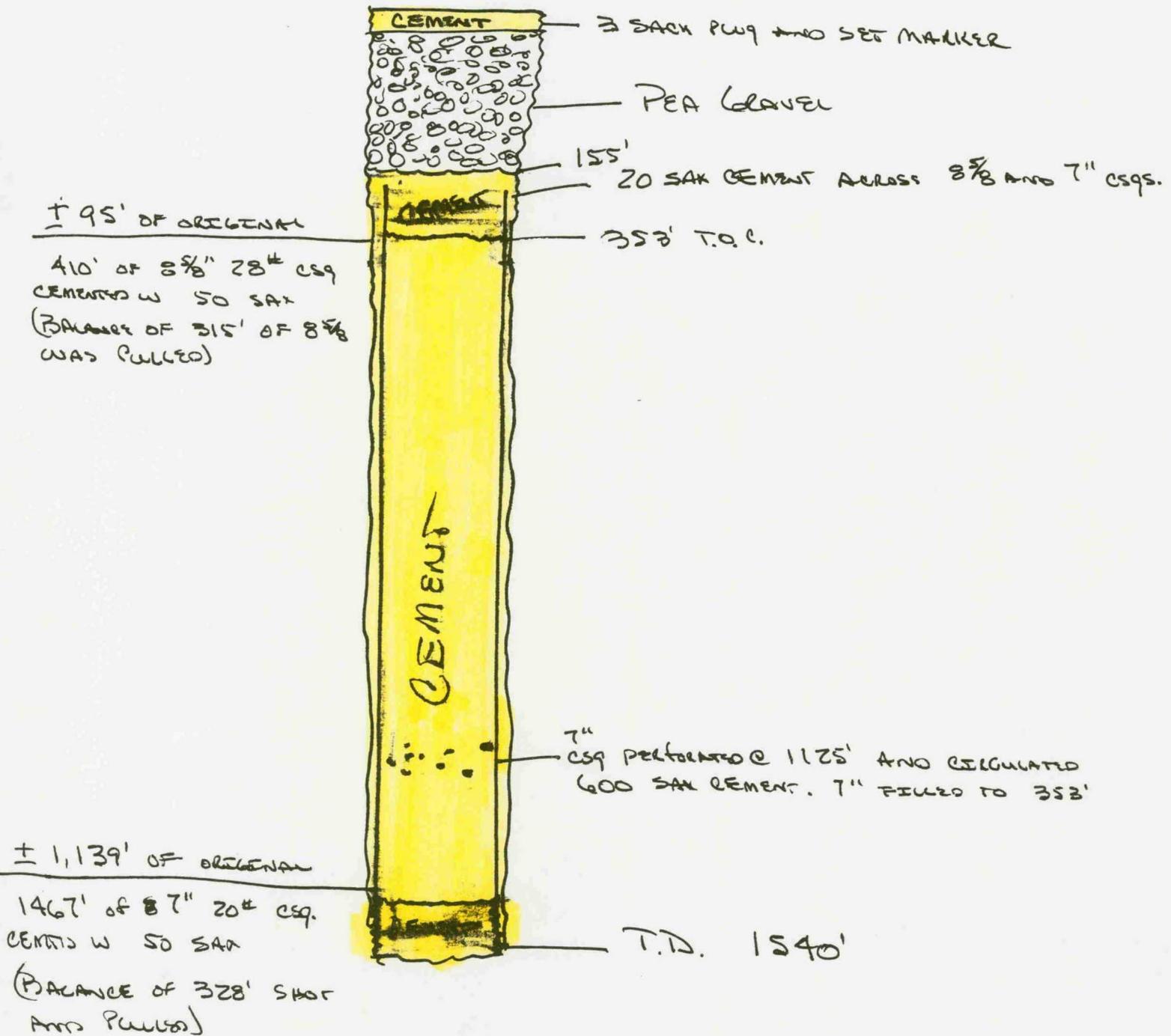
TAGGED ON 3/8/62

HOLE FILLED WITH MUD ? MARKER SET

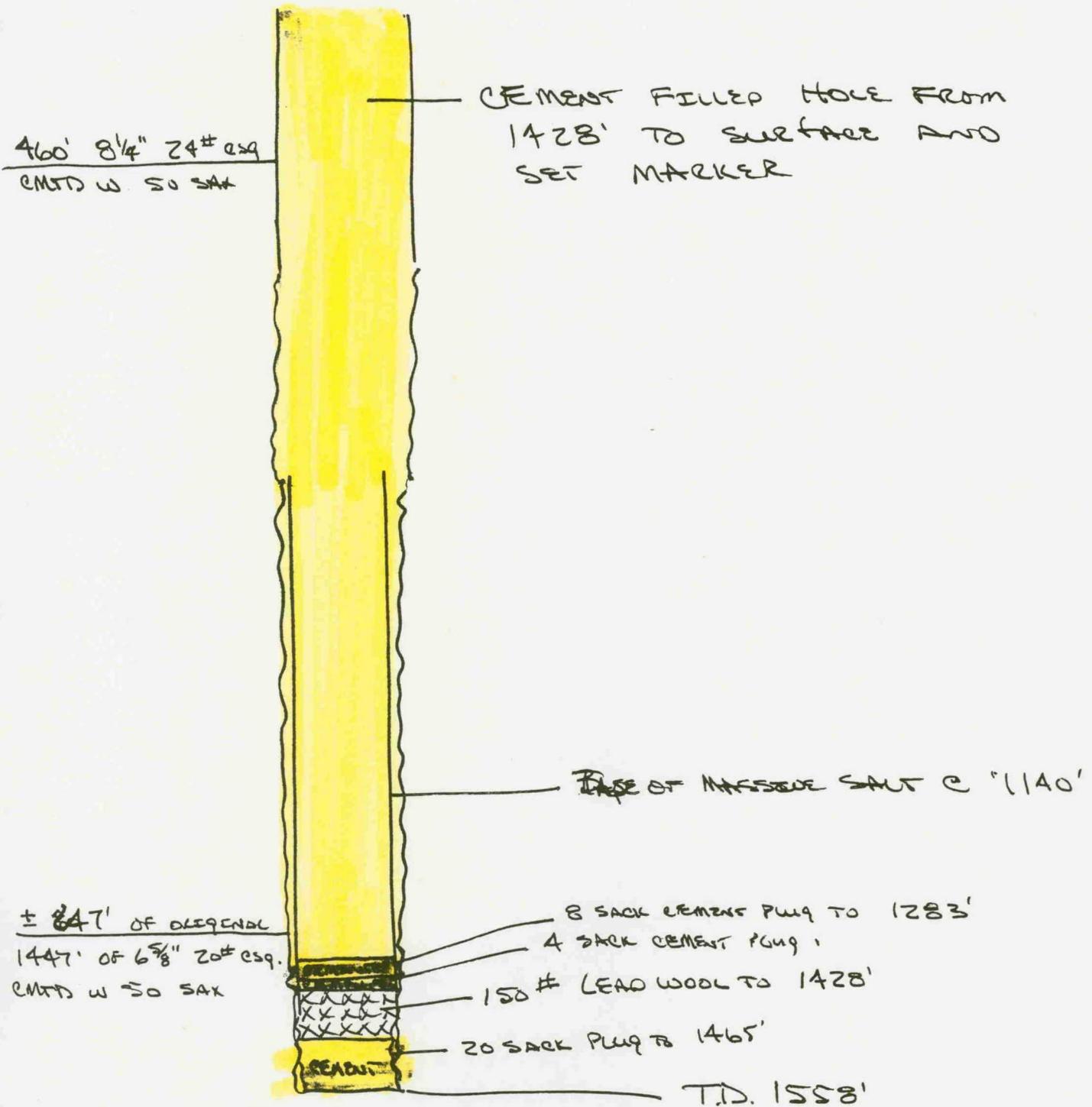
STATE No. 1

UL-D SEC 20, T20S, R30E

EDDY Co., NM

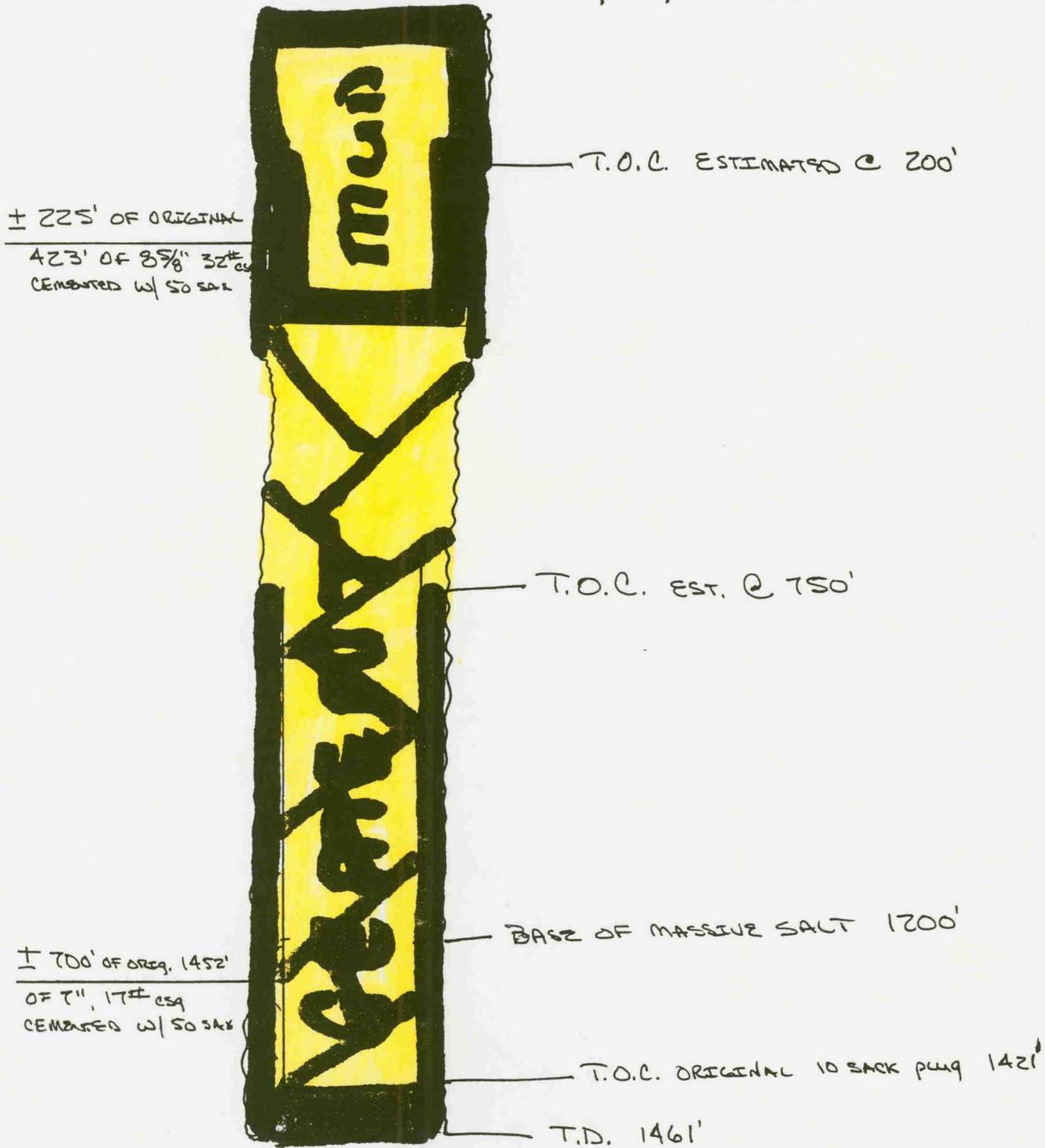


STATE "B" No. 1-B  
 WL-K Sec. 20, T20S, R30E  
 Eddy Co., NM



CEMENT PLUG

MORRIS & HOOVER No. 1  
 UL-E, SEC. 20, T20S, R30E  
 EDDY Co., NEW MEXICO



- ORIGINAL CEMENT SETTING CASING
- ORIGINAL PLUG/CEMENT
- ORIGINAL PLUG/MUD
- PROPOSED PLUG CEMENT

STATE "A" No. 2  
UL-H, SEC. 19, T20S, R30E  
EDDY Co., NEW MEXICO

± 200' OF ORIG.  
382' OF 8 5/8" 32#  
CSG. CEMENT W/  
50 SACK

T.O.C. ± 360'

5 SACK CEMENT PLUG @ 380'

± 537' OF ORIGINAL  
1487' OF 7" 24# CSG  
CEMENTED W/ 50 SACK

T.O.C. ± 1280' (BASE OF MASSIVE SALT)

LEAD WOOL AND 5 SACK PLUG @ ± 1300'

ROCK FILL TO 1300'

T.P. 1650'

ORIGINAL MUD  
PLUGS

ORIGINAL CEMENT  
PLUGS

ORIGINAL CEMENT  
SETTING CASING

PROPOSED CEMENT  
PLUG.

T  
L

WELL NAME	OPERATOR	TYPE	SPUD	COMPLETION	TOTAL DEPTH	PRODUCING ZONE	PERFORATION	COMPLETION INFORMATION
State #2 N17-20-S30E	B/O	Oil	07/20/42	09/02/72	1520'	Seven Rivers	Open Hole	8 5/8" 32# @ 1400' w/50 sx 7" 22# @ 1400 w/50 sx
State #1-A O17-20S-30E	B/O	Oil	01/24/38 Deepened on 12/27/41	02/23/38	1476'	Yates	Open Hole	8 1/4" 36# @ 420' w/50 sx 7" 20# @ 1443' w/50 sx
State #2-A	NHW	P&A	02/28/38	04/18/38	1650'	P&A	P&A	8 5/8" 32# @ 382' w/50 sx
Collazier #1 B20-20S-30E	B/O	Oil	01/16/37	02/11/37	1445'	Seven Rivers	Open Hole	8 5/8" 32# @ 405' w/50 sx 7" 17# @ 1433' w/50 sx
Collazier #2 620-20S-30E	B/O	Oil	08/19/38	09/18/38	1436'	Seven Rivers	Open Hole	8 5/8" 28# @ 438' w/50 sx 7" 17# @ 1418' w/50 sx
Collazier #3 620-20S-30E	B/O	Oil	12/28/53	02/06/54	1553'	Seven Rivers	Open Hole	8 5/8" 34# @ 422' w/100 sx 7" 20# @ 1315' w/200 sx
Morris & Hoover #1 E20-20S-30E	B/O	Oil			1461'	Yates	Open Hole	8 5/8" 32# @ w/50 sx 7" 17# @ 1452' w/50 sx

**BEFORE THE  
OIL CONSERVATION DIVISION  
Santa Fe, New Mexico**

Case No. 10772 Exhibit No. 3  
 Submitted by: Barber Oil Inc.  
 Hearing Date: November 4, 1993

WELL NAME	OPERATOR	TYPE	SPUD	COMPLETION	TOTAL DEPTH	PRODUCING ZONE	PERFORATION	COMPLETION INFORMATION
Morris & Hoover #2 L 20-205-30E	B/O	Oil	02/25/41	03/26/41	1507'	7 Rivers	Open Hole	8 5/8" 28# @ 406' w/50sx
			500 Sax Taggozo Form Cement @ 158' filled with mud and set marker					
Stovall Wood #1 C20-20S-30E	B/O	Oil	04/10/37	05/08/37	1438'	7 Rivers	Open Hole	8 1/4" 32# @ 394' w/50sx 7" 17# @ 1406' w/50sx
			Deepened to					
			1490'					
			02/04/92					
Stovall Wood #2 F20-20S-30E	B/O	Oil	07/18/38	08/18/38	1415'	Yates	Open Hole	8 5/8" 28# @ 1423' w/50sx 7" 17# @ 1254' w/50sx
			Deepened to					
			1473'					
			01/27/41					
			PBD					
			1440'					
Stovall Wood #3 F20-20S-30E	B/O	Oil	11/04/53	12/18/53	1470'	7 Rivers	Open Hole	8 5/8" 28# @ 1410' w/100sx 7" 20# @ 1306' w/200sx
			***					
			Plugged on 10/23/52					
State #1 D20-20S-30E	B/O	Oil	04/05/41	05/04/41	1540'	7 Rivers	Open Hole	8 5/8" 28# @ 410' w/50sx 7" 20# @ 1467' w/50sx
			***					
State "B" #1-B K20-20S-30E	B/O	Oil	04/05/41	05/04/41	1558'	7 Rivers	Open Hole	8 1/4" 24# @ 1460' w/50sx 6 5/8" 20# @ 1447' w/50sx