

BARBER OIL, INC.

901 WEST PIERCE

PHONE 887-2566

BOX 1658

CARLSBAD, NEW MEXICO

August 31, 1978

Oil Conservation Commission Division
Energy and Minerals Department
State of New Mexico
Santa Fe, NM

Re: Case Nos. 6226 & 6238 combined into
Case No. 6238, Order No. R-5788

Atten: Dan Nutter

Gentlemen:

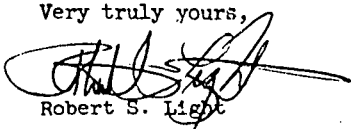
As requested on August 2, 1978 I enclose in duplicate the following:

- 1) Water analysis of produced water and fresh water in the vicinity of the Barber Oil, Inc., Saladar Unit, Eddy County, New Mexico.
- 2) Tabulation Summary - Well Data
This tabulation involves all wells near the proposed injection wells for the Barber Oil, Inc., Saladar Unit, Eddy County, New Mexico.
- 3) Schematic diagram of all plugged and abandoned wells within a one-half mile radius of the proposed injection Wells for the Saladar Unit.
- 4) A letter dated August 14, 1978 to Barber Oil, Inc. from Stephens Engineering concerning the pressure limitation placed on the Saladar Unit by the Oil Conservation Commission and requesting an exemption to this limitation.

As requested in Order R-5788, subparagraph 3, I enclose a fully executed original copy of UNIT AGREEMENT for the development and operation of the Saladar Unit. This agreement is executed by all parties having a working interest.

Please be advised I will be out of the office September 3 - September 29 and would appreciate your contacting Mr. George H. Hunker, Jr., P.O. Box 1837 Roswell, NM for any additional requirements under the above captioned Case and Order.

Very truly yours,


Robert S. Light

Enclosures: 3

CC: George H. Hunker, Jr.
P.O. Box 1837
Roswell, NM 88201
CC: Joe L. Johnson
P.O. Box 2249
Wichita Falls, TX 76307



REPORT OF WATER ANALYSIS

Company Barber Oil Company
Saladar Lease

Date December 26, 1977.
Analysis No.
Sampling Date
Date Sample Rec'd.

Sample Marked Fresh Water

DISSOLVED SOLIDS

Cations	mg/l	meq/l
Sodium, Na (Calc.)	1567	68.16
Calcium, Ca	640	32
Magnesium, Mg	947	78
Barium, Ba	3.5	.05

Cations Total 3166.5 178.21

Anions

Chloride, Cl	1396	39
Sulfate, SO ₄	39	.81
Carbonate, CO ₃		
Bicarbonate, HCO ₃	170	2.8

Anions Total 1605 41.89

Total Dissolved Solids (Calc.) 4771.5
Total Iron, Fe .15
Acidity to Phenolphthalein, CO₂ 79.2

RESULTS AS COMPOUNDS

	mg/l
as NaCl	5500
as CaCO ₃	1600
as CaCO ₃	3900
as BaSO ₄	6

as NaCl	2300
as Na ₂ SO ₄	58
as CaCO ₃	
as CaCO ₃	140

as Fe .15
as CaCO₃ 180

OTHER PROPERTIES

pH 7.2
Specific Gravity
Turbidity (JTU)

CaCO₃ STABILITY INDEX
@ 70° F.
@ 120° F.
@ 160° F.
Method of Stiff & Davis

Remarks:

NALCO CHEMICAL COMPANY
VISCO CHEMICALS

P. O. BOX 87 • SUGAR LAND, TEXAS 77478



trademarks of Nalco Chemical Company.



REPORT OF WATER ANALYSIS

Company Barber Oil Company
Saladar Lease

Date December 26, 1977.
Analysis No.
Sampling Date
Date Sample Rec'd.

Sample Marked Produced Water

DISSOLVED SOLIDS

Cations	mg/l	meq/l
Sodium, Na (Calc.)	11306	491.57
Calcium, Ca	1200	60
Magnesium, Mg	1458	119
Barium, Ba	2.3	.03

Cations Total 13966.3 670.60

Anions

Chloride, Cl	23673	667
Sulfate, SO ₄	28	.5
Carbonate, CO ₃	96	3.1
Bicarbonate, HCO ₃		

Anions Total 23797 670.60

Total Dissolved Solids (Calc.) 37763.3
Total Iron, Fe .10
Acidity to Phenolphthalein, CO₂

OTHER PROPERTIES

pH 7.0
Specific Gravity
Turbidity (JTU)

RESULTS AS COMPOUNDS

	mg/l
as NaCl	9000
as CaCO ₃	3000
as CaCO ₃	6000
as BaSO ₄	4

as NaCl	39000
as Na ₂ SO ₄	42
as CaCO ₃	160
as CaCO ₃	

as Fe .10
as CaCO₃

CaCO₃ STABILITY INDEX

@ 70° F.
@ 120° F.
@ 160° F.

Method of Stiff & Davis

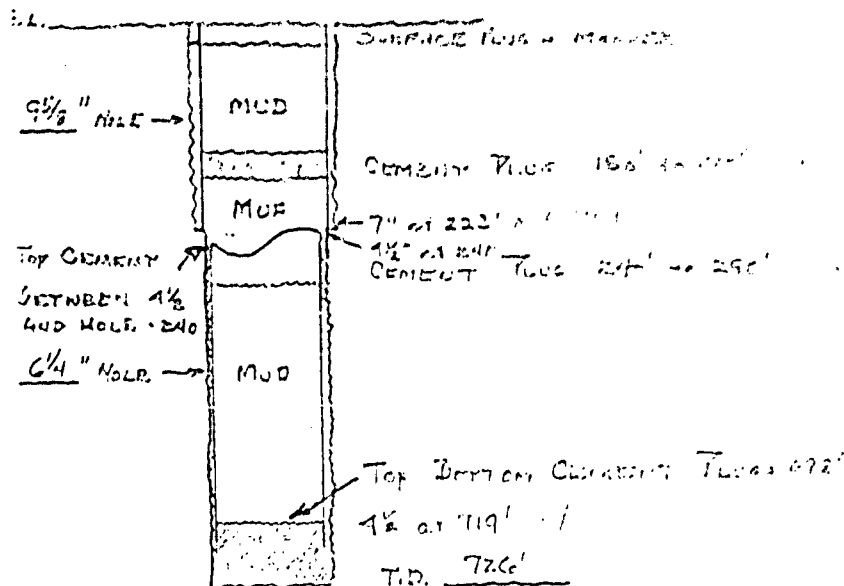
Remarks: Sulfide, as H₂S is 3.0

NALCO CHEMICAL COMPANY
VISCO CHEMICALS

Manufacturers of Plastic Chemical Compounds

DAMMER OIL, INC.
SALAMAN UNIT
EDDY COUNTY, NEW MEXICO
TACULAR COMPANY - WELL DATA
ALL WELLS BEAR PROPOSED INJECTION

Operator Lease & Well No.	Location	Compl. Date	Initial Prod.	Surface Casing	Production Casing	Original T.D. Feet	Plug Back T.D. Feet	Original Completion Feet	Subsequent Treatments Workovers or Remarks
<u>G. E. Conley</u> Conley No. 1	J-33-20-28	8-8-56	P & A	7" #141' w/10 sks	5 1/2" #655' w/2 sks	737	-	695-737	P & A
Mayfield No. 1	O-33-20-28	7-8-57	P & A	7" #100' w/10 sks	None	699	-	-	Lost Hole # 699'. P & A
Mayfield No. 1-X	O-33-20-28	11-25-57	.5 BOPD	7" #100' w/10 sks	4" #700' w/18 sks	716	-	700-716	None
Mayfield No. 2	O-33-20-28	10-30-57	15 BOPD	7" #123' w/2 sks	4" #625' w/35 sks	675	-	695-675	Fraced w/8,000 Gals.
Mayfield No. 3	O-33-20-28	6-19-61	P & A	7 5/8" #177' w/2 sks	4 1/2" #637' w/10 sks	662	-	637-662	P & A - 6-19-61
<u>G. D. Riera</u> Mayfield No. 4	O-33-20-28	7-28-64	30 BOPD	7" #841' w/2 sks	5 1/2" #649' w/100 sks	730	660	640-660	Fraced w/11,000#
<u>Malco Ref. Inc.</u> Keystone No. 1	I-32-20-28	7-18-56	P & A	8 5/8" #236' w/0 sks	None	715	-	-	Dry Hole
<u>Morganito Company</u> Barton Flat Deep Unit No. 7	I-33-20-28	11-19-73	5.4 MCP	13 3/8 #8603' w/750 sks 5 5/8" #2950' w/1250 sks	5 1/2" #16,540' w/800 sks	11,540	11,475	11,221-11,475	4,000 Gals. 7 1/2 % Acid
<u>R. L. Bunnel</u> Coons No. 1	A-4-21-27	5-5-56	P & A	8 5/8 #252' w/2 sks	None	668	-	-	P & A
Coons No. 2	C-3-21-27	5-8-58	P & A	10 3/4 #62' w/2 sks 8 5/8 #183' w/2 sks	None	715	-	-	P & A
<u>Neil C. Salvich</u> Malco No. 1-X	E-33-20-28	5-15-57	P & A	7" #223' w/none	4 1/2" #719' w/15 sks	726	-	697-704	Fraced w/20,000# No Prod. P & A
<u>G. D. Riera</u> Mayfield No. 1	G-33-20-28	5-22-56	P & A	8 5/8 #366' w/2 sks	5 1/2" #702' w/2 sks	748	-	702-748	No Prod. P & A
Malco Ref. No. 1	L-33-20-28	3-30-56	10 BOPD	8 5/8 #737' w/none	7" #650' w/10 sks	690	-	690-690	Producing - No Workovers
Malco Ref. No. 2	L-33-20-28	9-26-56	0 BOPD	7 1/2" #153' w/10 sks	5 1/2" #670' w/45 sks	732	-	670-732	T.A.
Hughes Fed. No. 1	K-33-20-28	6-20-56	25 BOPD	none	5 1/2" #590' w/25 sks	673	-	590-673	Nitro (43 Qts.) Producing - No Workovers
Hughes Fed. No. 2	M-33-20-28	7-4-56	P & A	7" #80' w/ none	5 1/2" #608' w/20 sks	666	-	608-666	P & A - 7-26-56
Hughes Fed. No. 3	K-33-20-28	8-27-56	44 BOPD	7" #236' w/none	5 1/2" #642' w/40 sks	700	-	642-700	Fraced w/15,000# Producing - No Workovers
Hughes Fed. No. 4	F-33-20-28	9-10-56	52 BOPD	7" #187' w/8 sks	5 1/2" #641' w/45 sks	707	-	641-707	Fraced w/10,000# Producing
Hughes Fed. No. 5	K-33-20-28	8-4-62	18 BOPD	7" #460' w/0 sks	5 1/2" #658' w/100 sks	682	-	658-682	Fraced w/15,000# Producing
Hughes Fed. No. 6	H-33-20-28	11-9-62	40 BOPD	7" #460' w/100 sks	5 1/2" #628' w/35 sks	664	-	628-664	Fraced w/12,000# Producing
Hughes Fed. No. 7	N-33-20-28	3-29-65	5 BOPD	7" #424' w/0 sks	5 1/2" #602' w/100 sks	633	-	602-633	Fraced w/11,000# T.A.
<u>R. S. Light</u> Wills Fed. No. 1	B-3-21-27	12-17-62	P & A	7" #407' w/0 sks	None	642	-	-	P & A 12-20-62



OPERATOR: N.S. SALSICH
 LEASE: MALCO
 WELL NO.: 1-Y
 LOCATION: E-33-20-28
 COME DATE: 5-15-57
 I.P.: Pad
 P.A.: 6-24-57

SALSICH MALCO 1
 E 33-20-28

TD 200

lost tool
 drilled 5 SX on 64m
 1' filled hole w/ mud
 placed cement plug on top

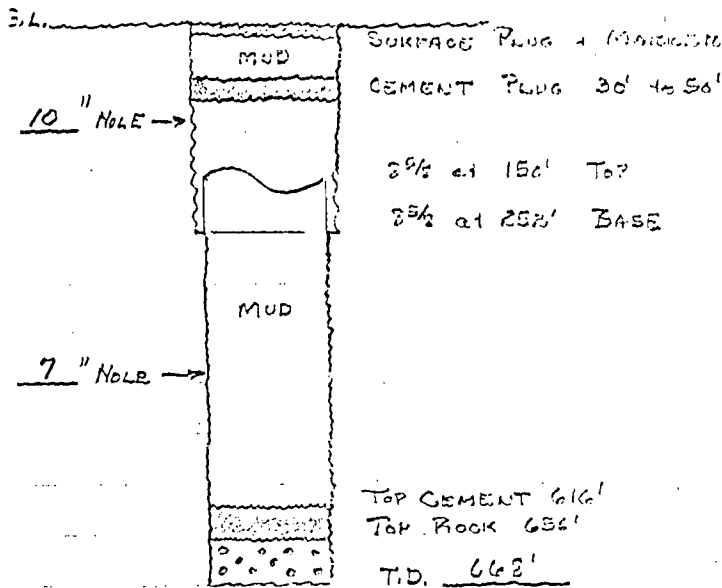




P.A: 5-23-52

10/18
 85/95
 100% play
 pulled back
 pulled to top
 pulled to top



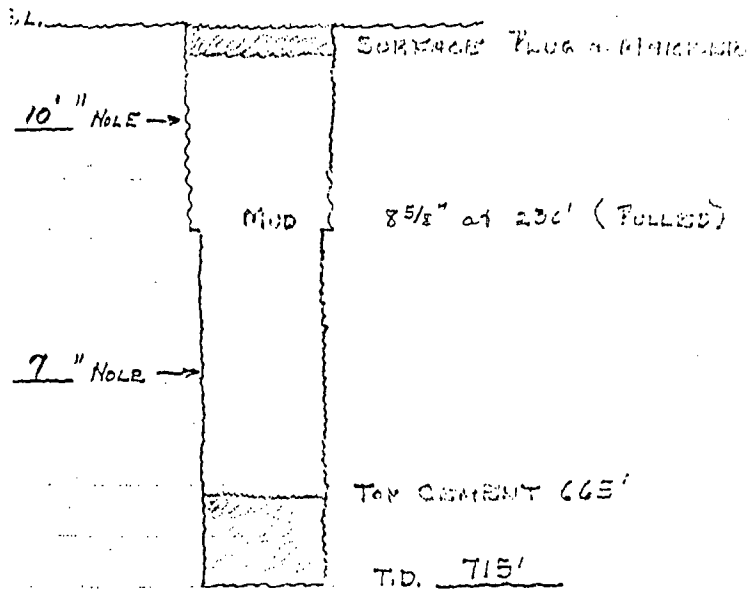


2 5/8 at 156'
2 5/8 at 258'
and 1 well log
for 152'

W.C. 10' to 25'
33' to 668'
10' rock @ 667' to 668'
10' plug on top of rock
10' plug @ 50'
mud bit
plugs

OPERATOR: ROBERT L. BONNEL
LEASE: COONE
WELL NO.: 1
LOCATION: A-4-21-27
COMP. DATE: 5-5-56
I.P.: D&A
P&A: 5-15-56





OPERATOR: MALCO RES. INC.

LEASE: KEYSTONE CORP.

WELL No.: 1

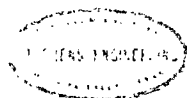
LOCATION: I-32-20-28

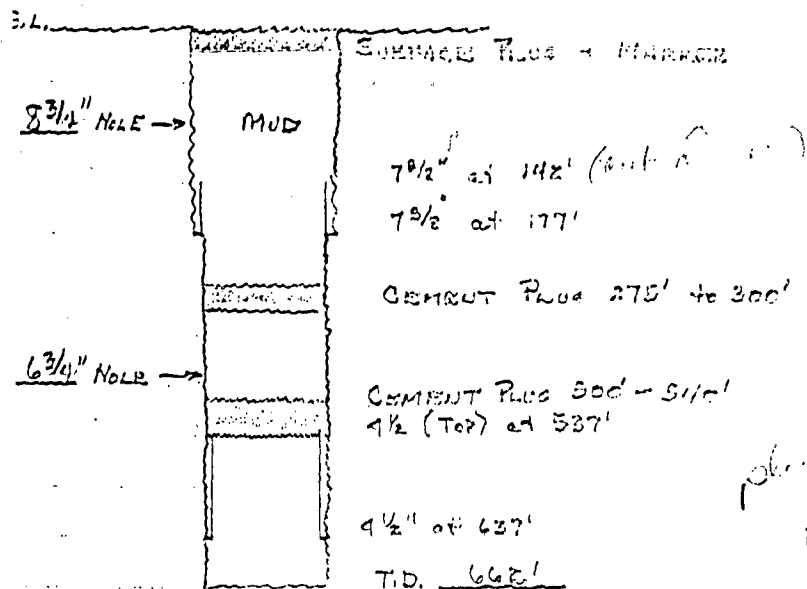
COMP. DATE: 7-18-56

I.P.: T.A.

P.A.: NOT KNOWN

TD 715
 wtr reported 60-65'
 8 5/8" (2) 244 w/ 105X
 cut & pulled from 236
 40' cut plug placed
 on bottom
 hole filled w/ mud
 marker cut @ surf





plug
 15' 70' 2' 537'
 55' 300'
 35' 511'
 mud between
 plugs

OPERATOR: BASIC MATERIALS, INC.

LEASE: MAYFIELD

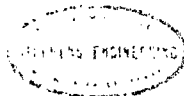
WELL No.: 3

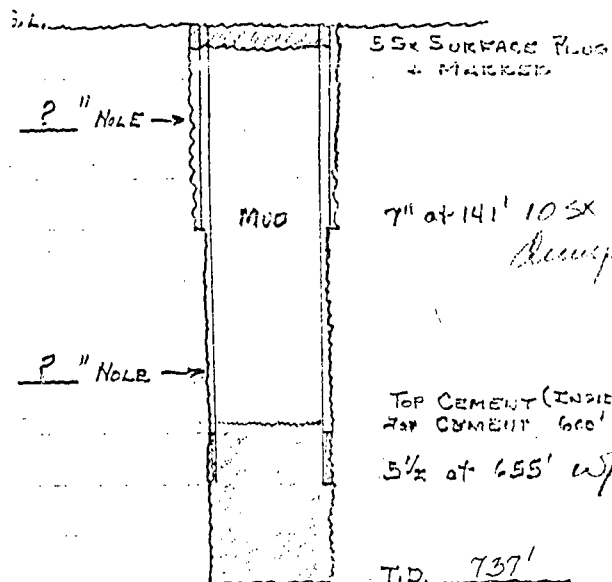
LOCATION: 0-33-20-7.8

COMP. DATE: 6-19-61

I.P.: T.A.

P.A.: 6-19-61





Notes: No Record of Pipe

RECOVERED
surf plug 2-15'
mud from 15' to
top of plug

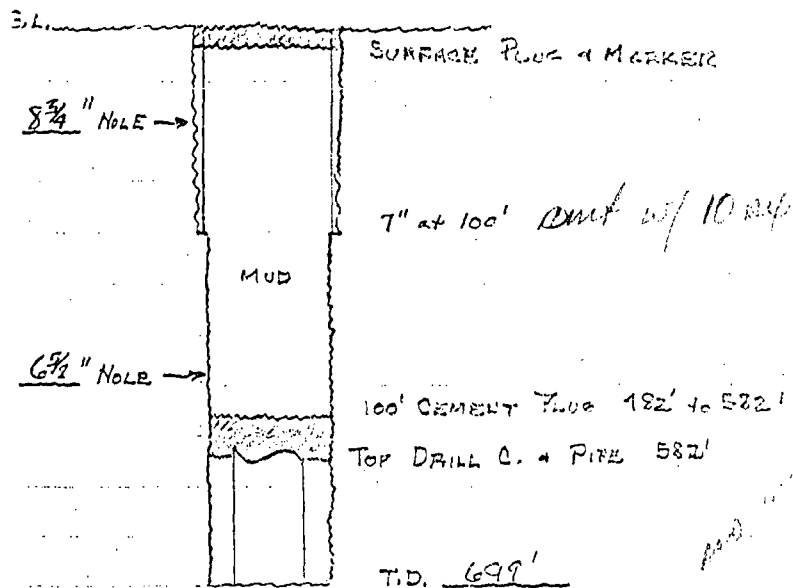
TOP CEMENT (INSIDE) 527 15 SX plug (2) 6' from hole,
TOP CEMENT 600' and 4' into 52
5 1/2' at 655' w/ 50 SX

T.D. 737'

OPERATOR: G.E. CONLEY
LEASE: CONLEY
WELL No.: 1
LOCATION: J-33-20-28
COMP. DATE: 8-8-56
I.P.: PaA
P.A.: 10-2-63

Wt. Sand
reported 52' = 60'

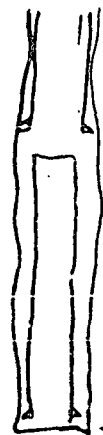




OPERATOR: G.E. CONLEY
 LEASE: MAYFIELD
 WELL NO.: 1
 LOCATION: O-33-20-28E
 COMP. DATE: 7-8-57
 I.P.: P+A
 P+A: 11-15-57

CONLEY
 MAYFIELD IX
 O 33-20S-28E

Log + 100' of 7"
 and 580' of 4" in hole
 10 at 600-688
 5 at 300-345
 3 at surf
 mud between plugs



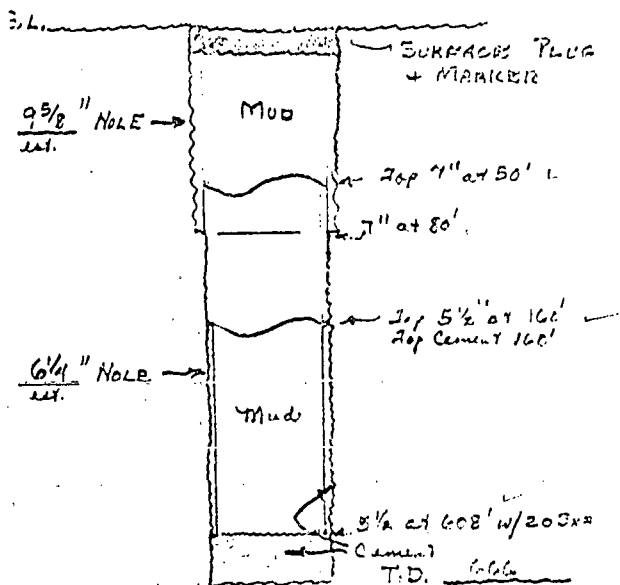
7" @ 100' w/ 30%
 120' top of 4"

4" at 700
 716 TD



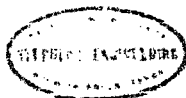
reported
 112' of direct collar
 pipe left in hole
 top of tools 582
 60' plug on top
 of tools
 surf plug

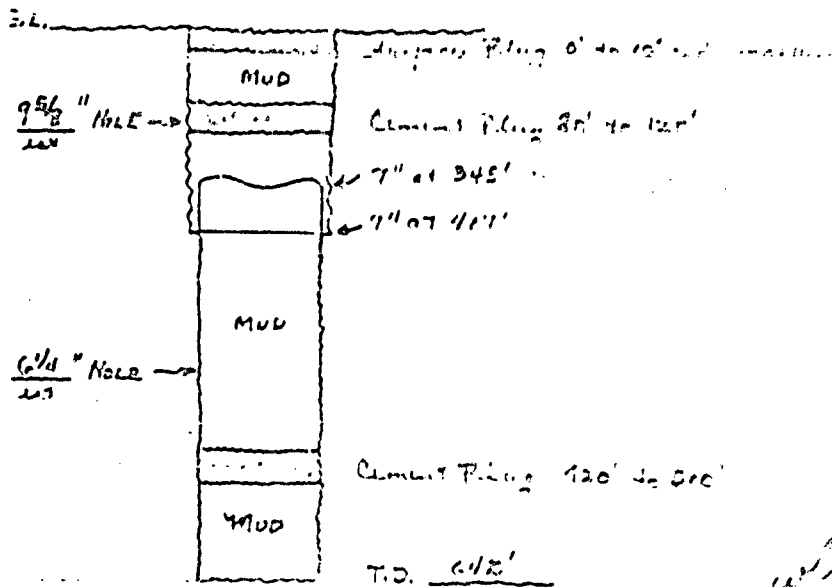
200
 380
 580



OPERATOR: G.D. RIGGS
 LEASE: HUGHES FEDERAL
 WELL NO.: 2
 LOCATION: M-33-20-22
 COME DATE: 7-4-56
 I.P.: P.A.
 T.A.: 8-9-56

Small Ant
B. J. J. vlt
Reported 70-78

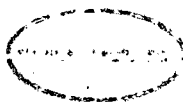


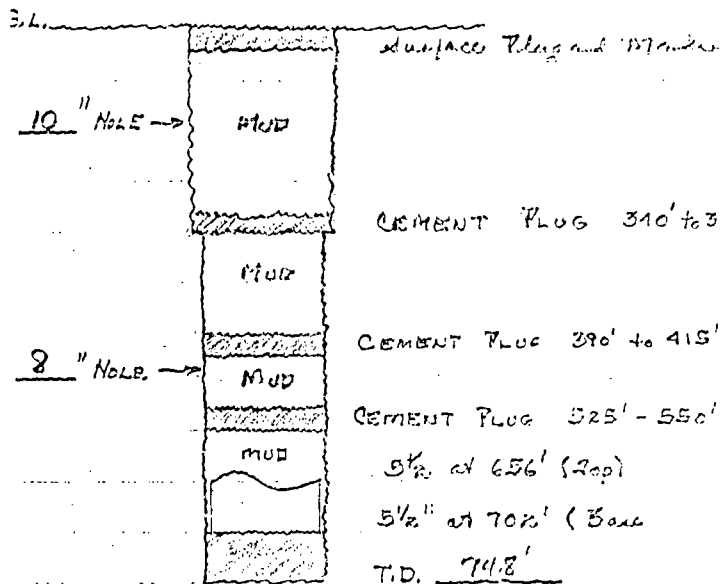


OPERATOR: B.S. LIGHT
 LEASE: WILKS - FRICTION
 WELL No.: 1
 LOCATION: B-3-21-27
 COMPLETION DATE: 12-17-62
 I.P.: D-A
 P.A.: 12-20-62

Handwritten notes:

15' all plug
 15' all plug
 5' all plug
 120' to 500'
 500' to 642'





OPERATOR: G. D. FICKE

LEASE: MAYFIELD

WELL No.: 1

LOCATION: G-33-20-28

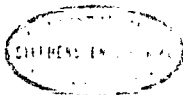
COMP. DATE: 5-22-56

I.P.: P.A.

P.A.: 5-30-56

*Small amount of
gas water
reported 158-170
387-390*

*no plugging
reported in
area file
OK*



TELEPHONE - 817-723-2106



POST OFFICE BOX - 2249

WICHITA FALLS, TEXAS
76307

August 14, 1978

Barber Oil Company, Inc.
P. O. Box 1658
Carlsbad, New Mexico 88220

Attn: Mr. Robert S. Light

Re: Pressure Limitation
Saladar Unit
Eddy County, New Mexico

Dear Mr. Light:

Reference is made to Mr. George H. Hunker, Jr.'s letter of August 3, 1978 which contained additional information required in the New Mexico Oil Conservation Division Cases 6238 and 6226. Also contained with Mr. Hunker's letter was a memorandum from the Oil Conservation Commission dated August 24, 1977 and referred to as Memo No. 3-77.

As engineer on this project, I must object to the Oil Conservation Commission ruling in their memorandum which in effect places a pressure limitation on the injection program planned for use in the Saladar Unit. In the memorandum it is indicated that "no surface injection pressure greater than 0.2 psi per foot of depth to the top of the injection zone will be permitted unless there is strong evidence that the strata confining injection fluid has a fractured gradient which would support a higher pressure." In effect, this limitation places an approximate 130 psi surface pressure limitation on the Saladar Unit project since the top of the injection zone is at a depth of 660'. Information available in the area not only support the use of additional pressure, but also virtually guarantees that without additional pressure a successful flooding of the Saladar Unit cannot be accomplished.

For the past 25 years, Stephens Engineering has supplied Neil H. Wills and/or Barber Oil Company with consulting engineering

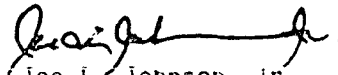
in one of the first water flood programs initiated in New Mexico. This program was initiated in 1953 in the Russell Pool located approximately two miles northeast of the Saladar Unit. Initially, pressures were held to a minimum of approximately 400 psi in this 800' depth project. Later, it became apparent that greater pressures and therefore greater injection rates could be sustained without creating channeling conditions, therefore the pressure was gradually raised to a 700 psi surface pressure reading. Even with this .875 psi per foot of depth gradient, the Barber Oil Company, Russell Pool project has dated approximately 25 years and has several additional years of commercial production still available. Based on this information, it is apparent that if the Oil Conservation Commission continues to restrict injection in the vicinity of the Saladar Unit to the 0.2 psi per foot of depth, it will require a tremendous number of years to completely water flood the zone planned for flooding, if a successful project could be sustained and held in a commercial range at all.

Based on the past performance of the Russell Pool, which is flooding a similar zone as is planned to be flooded in the Saladar Unit, it is strongly recommended that Barber Oil Company request an exemption to the 0.2 psi per foot of depth ruling and request that the Oil Conservation Commission allow use of a 0.875 psi per foot of depth restriction instead. Again, it must be emphasized that with a lower than planned pressure, not only will a large amount of time be necessary to successfully flood and obtain the oil available from the Saladar Unit, but a large question exists as to the commercial ability of installing the project until such a pressure limitation is removed.

Should you desire any additional information concerning the necessity for a greater injection pressure, please do not hesitate to contact us.

Yours very truly,

STEPHENS ENGINEERING


Joe L. Johnson, Jr.

JLJjr/bw

