STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION
POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501

FORM C-108
Revised 7-1-81

APPLICATION FOR AUTHORIZATION TO INJECT

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

II. Operator: BTA OIL PRODUCERS
Address: 104 South Pecos Midland, Texas 79701
Contact party: DOROTHY HOUGHTON Phone: 915/682-3753

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: DOROTHY HOUGHTON Title Regulatory Supervisor

Signature: Dorothy Houghton Date: 6-4-86

* 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 district office.

INJECTION WELL DATA SHEET

OPERATOR	LEASE			
BTA OIL PRODUCERS	Buckeye, 8601 JV-P			
WELL NO.	FOOTAGE LOCATION	SECTION	TOWNSHIP	RANGE
1-SWD	2310' FNL & 990' FWL	29	17-S	36-E

Schematic

See Attached

Tabular Data

Surface Casing

Size 8-5/8" @ 437' " Cemented with 300 sx.

TOC Circ feet determined by _____

Hole size 11"

Intermediate Casing

Size _____" Cemented with _____ sx.

TOC _____ feet determined by _____

Hole size _____

Long string

Size 4-1/2" @ 5159' " Cemented with 1175 sx.

TOC Circ. to surface feet determined by _____

Hole size 7-7/8"

Total depth 5168'

Injection interval Perf @

5082 feet to 5120 feet

(perforated or ~~open-hole~~, indicate which)

Tubing size 2-3/8" OD lined with Fiberglass (material) set in a

Baker Loc-Set (brand and model) packer at 5000 feet

(or describe any other casing-tubing seal).

Other Data

1. Name of the injection formation San Andres

2. Name of Field or Pool (if applicable) Vacuum, Grayburg

3. Is this a new well drilled for injection? ☐ Yes ☒ No

If no, for what purpose was the well originally drilled? Production - Drld by Calatex as New Mexico State #1 - Spud: 11-26-83 P&A 2-22-84

4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sacks of cement or bridge plug(s) used) No- See Above Perf's

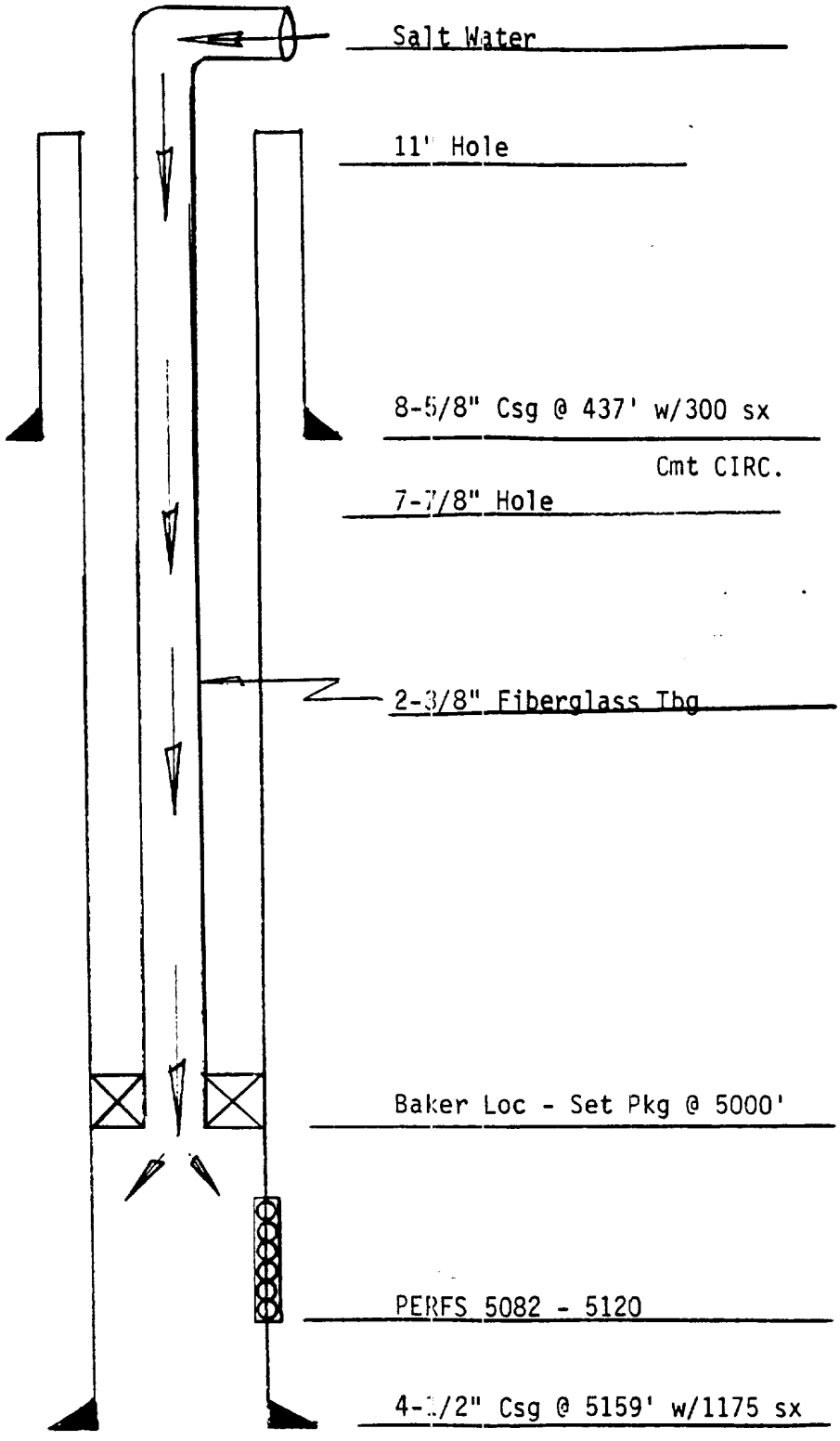
1. 10 sx plug from 4910' - 5019' 2. 20 sx plug from 3000' - 3200' 3. 20 sx plug from 1850' - 2050' 4. 10 sx @ Surface

5. Give the depth to and name of any overlying and/or underlying oil or gas zones (pools) in this area. Abo Detrital 8800'- 9200'

BTA OIL PRODUCERS

Buckeye, 8601 JV-P

Well No. 1, SWD



BTA OIL PRODUCERS
Buckeye, 8601 JV-P
Well No. 1-SWD
Form C-108 Attachment Data Sheet
-E-, Sec. 29, T-17-S, R-36-E
Lea County, New Mexico

V. The attached map identifies all wells and leases within two miles of our proposed injection well. See Exhibit -A-.

VI. Exhibit -B- is a tabulation on all wells of public record within the area of review (1/2 mile). Also attached are Exhibits -C- 1 through 6, a schemetic of each of the six plugged wells within the area of review.

VII. 1. Estimated average maximum daily rate will be 1,000 barrels per day.
2. The system will be closed.
3. The proposed average maximum injection pressure will be 750 psi.
4. The source of produced water will be the Abo and San Andres formations.
5. Exhibit -D- 1 through 3 are water analyses of produced water from wells in the area.

VIII. Attached Exhibit -E- is a stratigraphic section of the "Permian San Andres" formation which we estimate to be a thickness of ±1,657' from the top of the San Andres to the base of the San Andres.

The source of drinking water in this area is the Ogallala Aquifer located from 50 feet to 250 feet.

IX. We propose to use 1,500 gal. of 15% HCl acid for a stimulation program.

X. Logs were previously furnished by Calatex Exploration on this well.

XI. We were not able to obtain chemical analysis of fresh water in this area.

XII. After examing available geologic and engineering data, I find no evidence of open faults in the "Permian San Andres" formation or any other hydrologic connection between the disposal zone and any underground source of drinking water.

Marvin Zoller

MARVIN ZOLLER
Chief Geologist
For BTA Oil Producers

XIII. We are having a legal notice published in the Lovington Daily Leader and will forward a copy of proof of publication as soon as available. A copy of our application has been furnished by certified mail to the surface leasee, State of New Mexico, Commission of Public Lands, and to each leasehold operator within one-half mile of the well location. See Exhibit -F-.

Exhibit -A- BTA OIL PRODUCERS Buckeye, 8601 JV-P Well No. 1, SWD

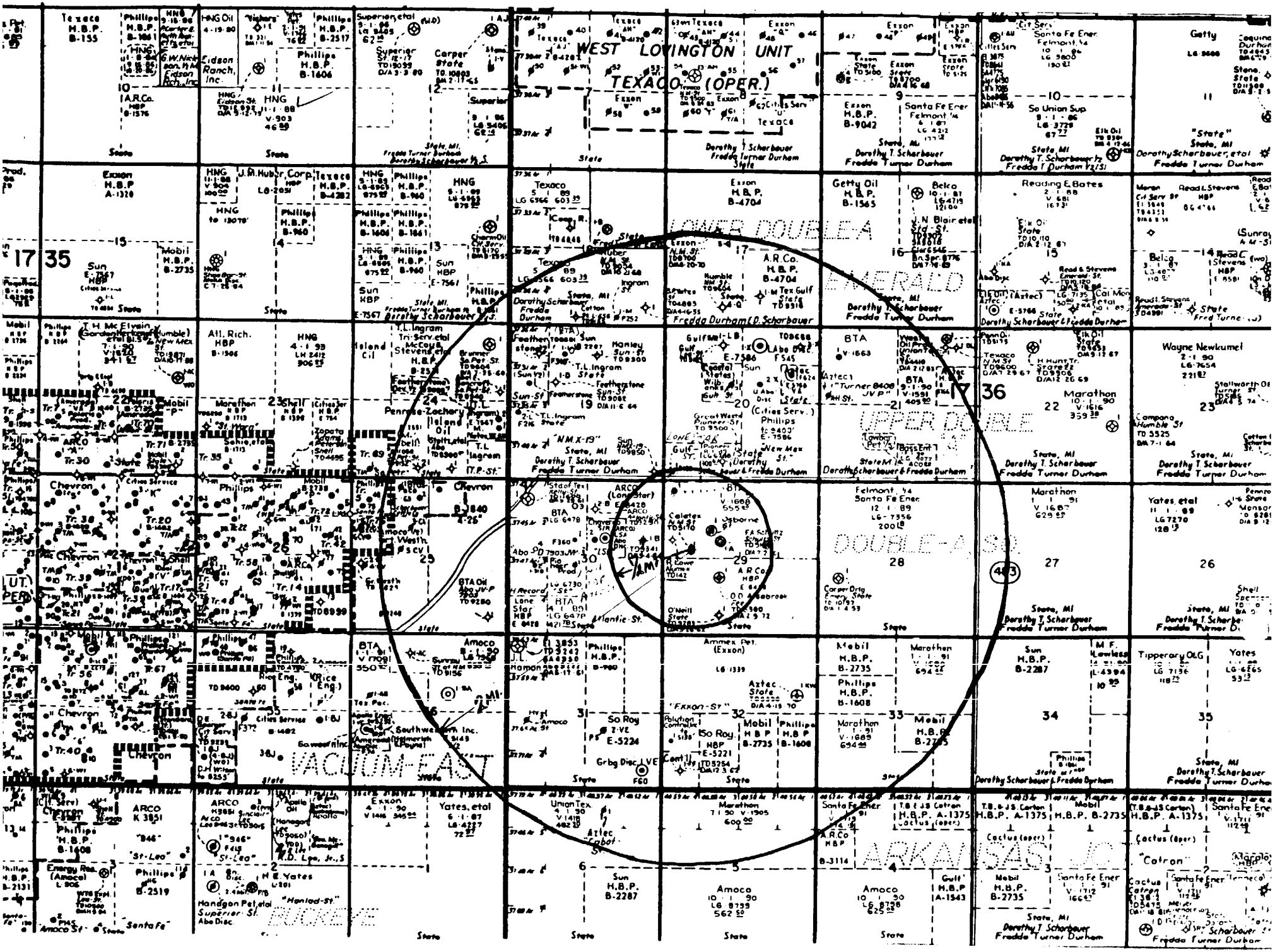


EXHIBIT -B-

BTA Oil Producers
Buckeye, 8601 JV-P
Well No. 1, SWD

Company Name Lease Name, Well #	Well Type	Construction	Spud Date Completion	Location	Depth	Record of Completion
Homer C. Osborne State #1 (Exhibit C-1)	Oil	8-5/8 @ 1995 4-1/2 @ 5067	4-29-80 2-16-81	Unt. Ltr. F, Sec. 29 T-17-S, R-36-E	5,152'	OH-5067-5152 IPP-15 BO + 6 BW; P&A 3-23-84
Frank A. Schultz Schultz State #1 (Exhibit C-2)	Dry	8-5/8 @ 380 4-1/2 @ 5160	5-30-76 7-9-76	Unt. Ltr. F, Sec. 29 T-17-S, R-36-E	5,160'	Perf 5082-5138 Swb. 19 BO P&A 7-9-76
O. D. Alsabrook Alsabrook #1 (Exhibit C-3)	Dry	4-1/2 @ 5297	11-26-71 2-9-72	Unt. Ltr. K, Sec. 29 T-17-S, R-36-E	5,300'	Perf. 5136-5203 Swb. 100% wtr. P&A 2-9-72
BTA Buckeye #1	Oil	13-3/8 @ 402 8-5/8 @ 4395 5-1/2 @ 9900	3-15-86	Unit. Ltr. D, Sec. 29 T-17-S, R-36-E	PB 5240 9,900'	Perf 5050-5163 IPP- (testing)
Joseph I. O'Neill State -K- #1 (Exhibit C-4)	Dry	13-3/8 @ 358 8-5/8 @ 3470	4-13-62 5-26-62	Unt. Ltr. N, Sec. 29 T-17-S, R-36-E	9,283'	2 DST's P&A 5-26-62
Lone Star Prod. Co. Atlantic State #1-B (Exhibit C-5)	Dry	10-3/4 @ 406 7-5/8 @ 3618	7-9-64 9-9-64	Unt. Ltr. H, Sec. 30 T-17-S, R-36-E	9,341'	Perf. 8705-9178 P&A 9-9-64
Lone Star Prod. Co. Gulf State #1 (Exhibit C-6)	Oil	10-3/4 @ 395 7-5/8 @ 3600 4-1/2 @ 9293	3-28-64 5-25-64	Unt. Ltr. M, Sec. 20 T-17-S, R-36-E	9,258' 9,322'	Perf. 9171-78; Flwd 123 BO; Perf. 8705-9083 P&A 7-25-68

EXHIBIT C-1

Homer C. Osborne
State #1
-F-, Sec. 29, T-17-S, R-36-E

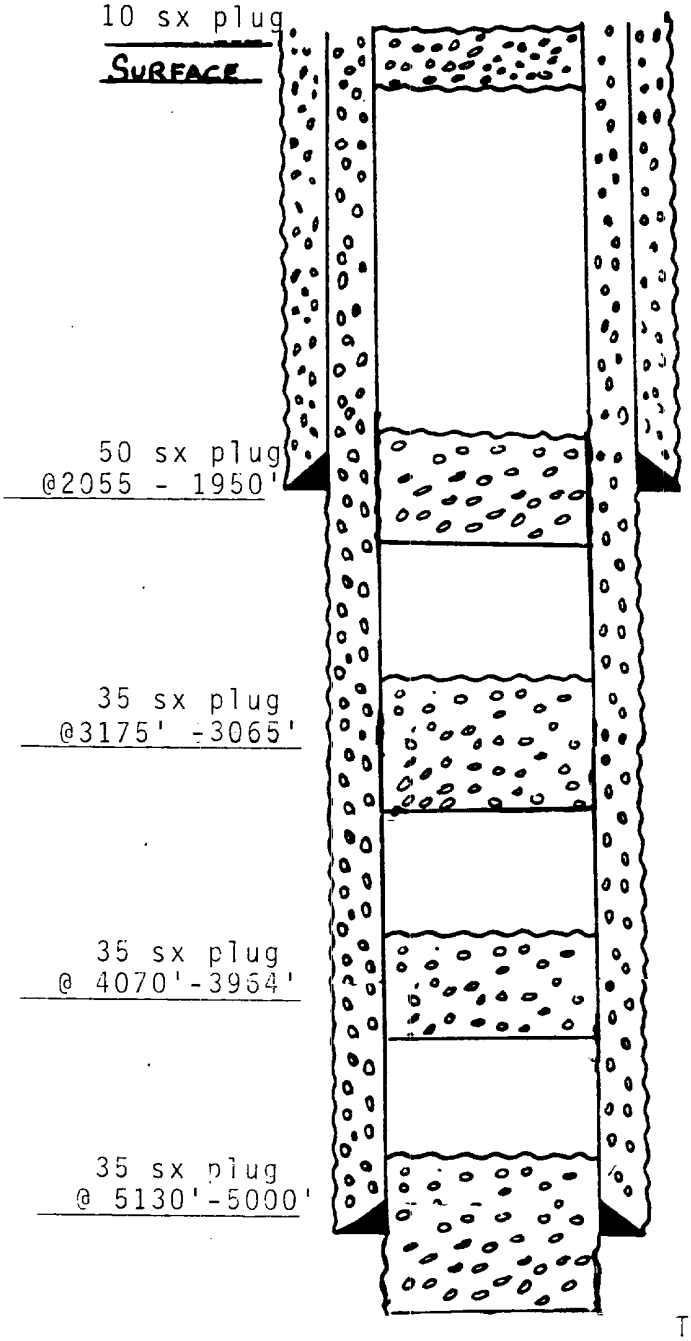
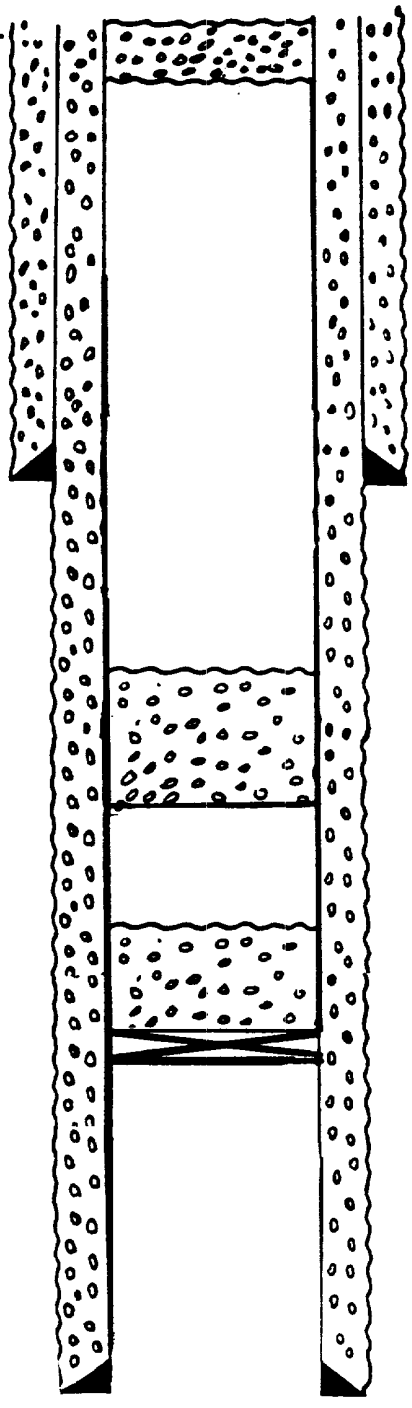


Exhibit C-2

Frank A. Schultz

Schultz State #1

-F-, Sec. 29, T-17-S, R-36-E



3 sx plug

SURFACE

8-5/8" @ 380 w/250 sx

8 sx plug
1964' - 2064'

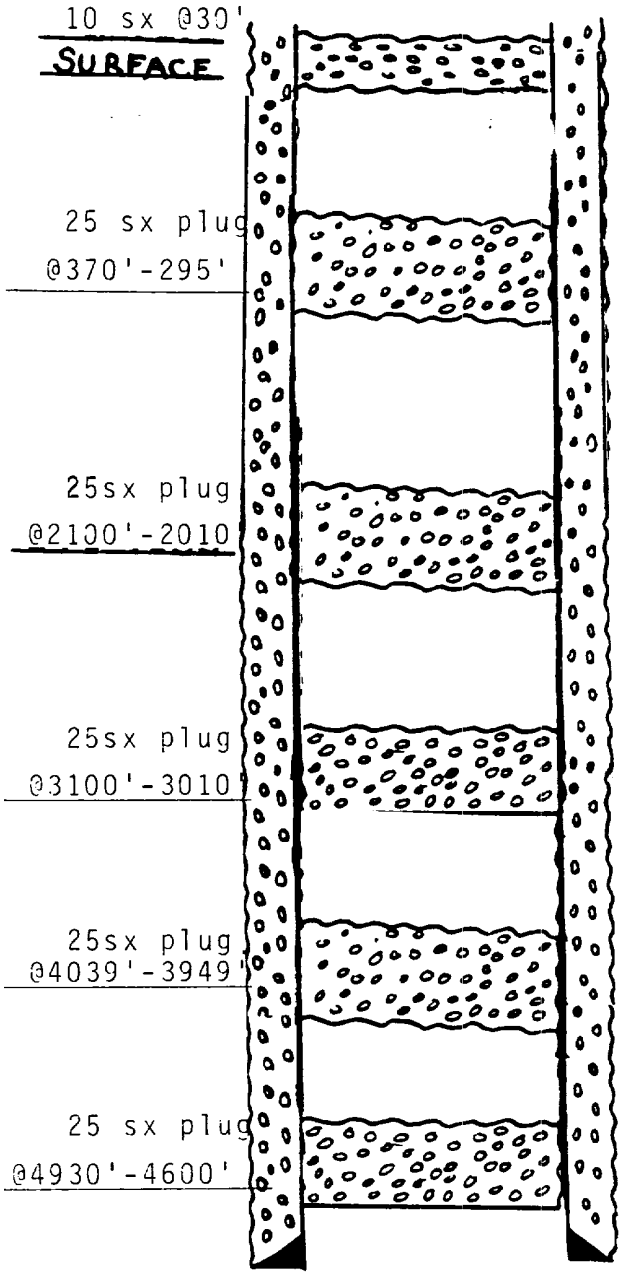
35 sx plug
3379' - 3344'
CIBP @ 3370'

4-1/2" @ 5160' w/300 sx

TD 5160'

EXHIBIT C-3

O. D. ALSABROOK
Alsabrook #1
-K-, Sec. 29, 6-17-S, R-36-E



Left 1273' of 4-1/2" csg in hole.

Cut 4-1/2" csg @ 4024'

4-1/2" @ 5297'w/200 sx.

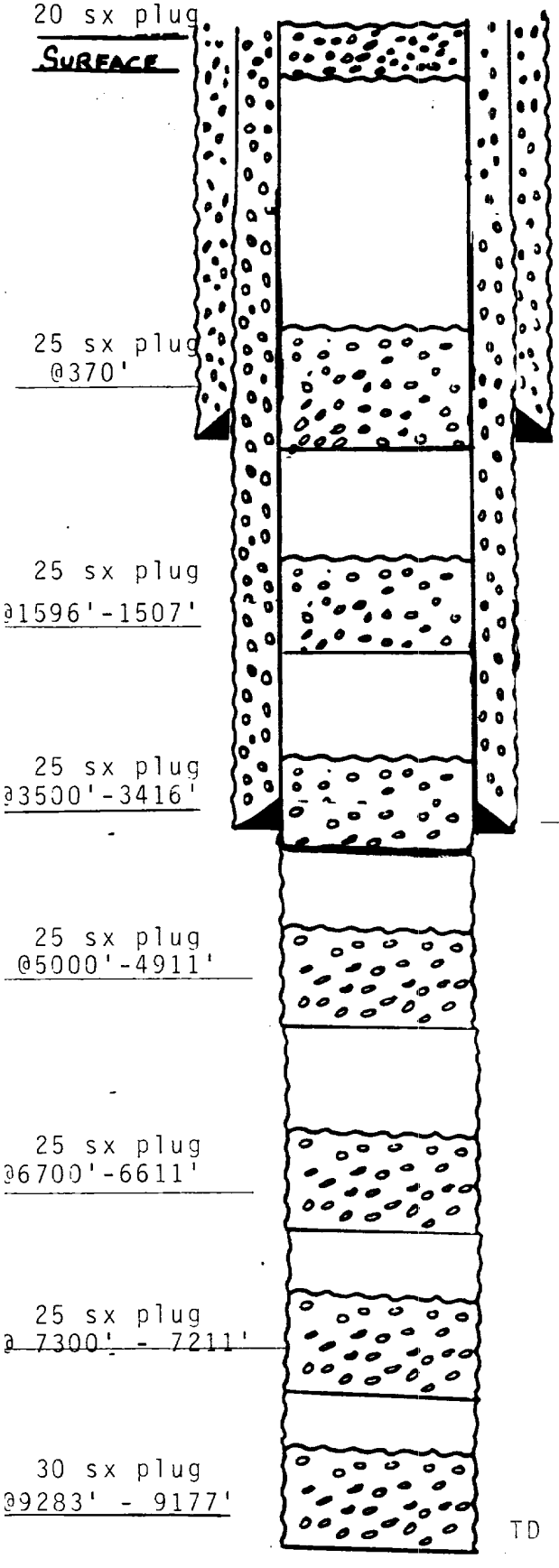
TD 5300'

E X . I B I T C-4

JOSEPH I. O'NEILL, JR.

State -K- #1

-N-, Sec. 29, T-17-S, R-36-E



13-3/8" @ 358 w/400 sx

Pulled 1587' of 8-5/8" csg - Left 1901' in hole.

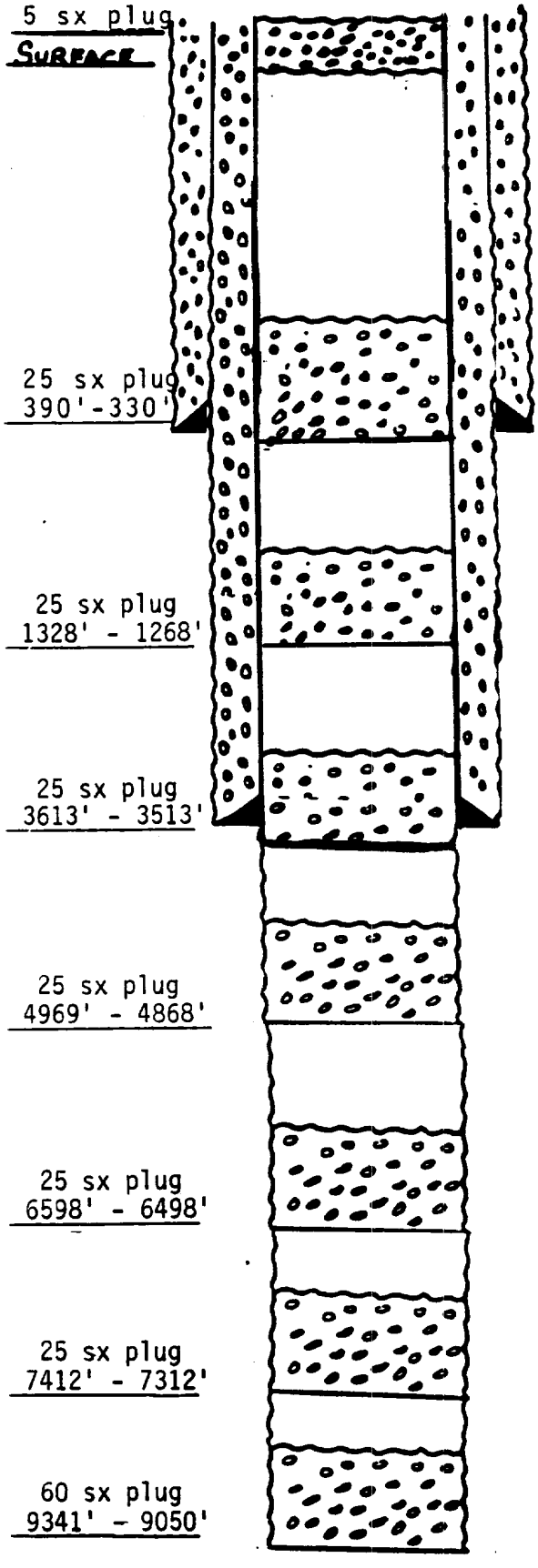
8-5/8" @ 3470' w/300 sx

Exhibit -C- 5

Lone Star Producing Company

Atlantic State -B- #1

-H-, Sec. 30, T-17-S, R-36-E



10-3/4" @ 406' w/350 sx

Cut 7-5/8" csg @ 1600' Pulled 50 jts

7-5/8" @ 3618' w/600sx

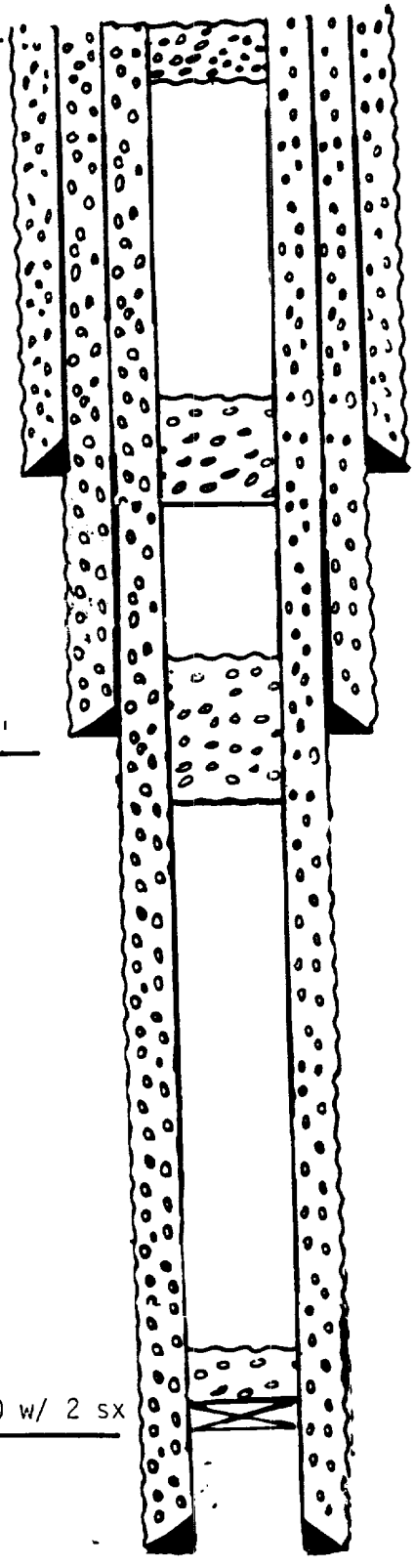
TD 9341'

Exhibit C-6

Lone Star Prod. Company

Gulf State #1

-M-, Sec. 20, T-17-S, R-36-E



15 sx plug
SURFACE

40 sx plug
@ 425' - 365'

35 sx plug
@ 3650' - 3550'

PBP @ 8650 w/ 2 sx

10-3/4" @ 395 w/325 sx
(Left in well.)

7-5/8" @ 3600' w/1112 sx
(7-5/8" 2500' - Left in well.)

Cut 4-1/2" @ 5050'
Left:
4243' of 4-1/2" csg in well

4-1/2" @ 9293 w/200 sx

TD 9322'

Exhibit D-1

P. O. BOX 1468
MONAHANS, TEXAS 79756
PH 943-3234 OR 563-1040

Martin Water Laboratories, Inc.

709 W. INDIANA
MIDLAND, TEXAS 79701
PHONE 683-4521

RESULT OF WATER ANALYSES

LABORATORY NO. 1085221

TO: Mr. Steve Salmon
104 South Pecos, Midland, Texas

SAMPLE RECEIVED 10-15-85

RESULTS REPORTED 10-18-85

COMPANY BTA Oil Producers LEASE 8408 JV-P Turner #1

FIELD OR POOL ~~Wildcat~~ Lower Double -A- (Abo)

SECTION 21 ~~BLOCK~~ T-17-S ~~SURVEY~~ R-36-E COUNTY Lea STATE NM

SOURCE OF SAMPLE AND DATE TAKEN:

NO. 1 Pit sample. 10-13-85

NO. 2 Recovered water - middle. 10-13-85

NO. 3 Recovered water - bottom. 10-13-85

NO. 4 Recovered water - sampler. 10-13-85

REMARKS: DST #1 - Lower Abo - 9,220' - 9,240'

CHEMICAL AND PHYSICAL PROPERTIES

	NO. 1	NO. 2	NO. 3	NO. 4
Specific Gravity at 60° F.	1.0734	1.0736	1.0745	1.0739
pH When Sampled				
pH When Received	8.83	8.17	7.86	7.84
Bicarbonate as HCO_3	183	415	451	439
Supersaturation as $CaCO_3$				
Undersaturation as $CaCO_3$				
Total Hardness as $CaCO_3$	5,250	5,350	6,400	6,350
Calcium as Ca	1,780	1,760	2,060	2,020
Magnesium as Mg	194	231	304	316
Sodium and/or Potassium	36,996	36,101	36,008	35,929
Sulfate as SO_4	6,114	6,063	5,962	5,760
Chloride as Cl	56,105	54,685	55,395	55,395
Iron as Fe	2.5	2.5	9.3	12.7
Barium as Ba				
Turbidity, Electric				
Color as Pt				
Total Solids, Calculated	101,408	99,303	100,180	99,859
Temperature °F.				
Carbon Dioxide, Calculated				
Dissolved Oxygen, Winkler				
Hydrogen Sulfide	0.0	0.0	0.0	0.0
Resistivity, ohms/m at 77° F.	0.095	0.097	0.096	0.096
Suspended Oil				
Filtrable Solids as mg/l				
Volume Filtered, ml				
Carbonate, as CO_3	36	48	0	0

Results Reported As Milligrams Per Liter

Additional Determinations And Remarks Sample from "top" - No water.

The above recovered waters appear to be pit water with no evidence of any influence from Abo formation water.

Form No. 3

By _____

cc: Permian Testers, Inc @ Odessa

Waylan C. Martin, M. A.

Exhibit D-2

P. O. BOX 1468
MONAHANS, TEXAS 79756
PH 943-3234 OR 563-1040

Martin Water Laboratories, Inc.

709 W. INDIANA
MIDLAND, TEXAS 79701
PHONE 683-4521

RESULT OF WATER ANALYSES

LABORATORY NO. 386346

TO: Mr. Steve Salmon — SAMPLE RECEIVED 3-31-86

104 South Pecos, Midland, Texas 79701 — RESULTS REPORTED 4-3-86

COMPANY BTA Oil Producers — LEASE Turner #2

FIELD OR POOL ~~South Lovington~~ Lower Double-A (Abo)

SECTION 21 BLOCK T-17-S SURVEY R-36-E — COUNTY Lea — STATE NM

SOURCE OF SAMPLE AND DATE TAKEN:

NO. 1 Pit sample, 3-29-86

NO. 2 Recovered water - top, 3-29-86

NO. 3 Recovered water-bottom, 3-29-86

NO. 4

REMARKS: DST #1 - Abo #2 (Lower) - 9,260' - 9,360'

CHEMICAL AND PHYSICAL PROPERTIES	NO. 1	NO. 2	NO. 3	NO. 4
Specific Gravity at 60° F.	1.0099	1.0091	1.0202	
pH When Sampled				
pH When Received	7.98	7.64	6.82	
Bicarbonate as HCO_3	1,976	1,147	1,147	
Supersaturation as $CaCO_3$				
Undersaturation as $CaCO_3$				
Total Hardness as $CaCO_3$	2,900	2,000	7,200	
Calcium as Ca	1,060	700	2,200	
Magnesium as Mg	61	61	413	
Sodium and/or Potassium	1,530	1,882	6,211	
Sulfate as SO_4	2,551	2,304	2,441	
Chloride as Cl	1,385	1,953	12,215	
Iron as Fe	12.7	2.-	0.04	
Barium as Ba				
Turbidity, Electric				
Color as Pt				
Total Solids, Calculated	8,563	8,046	24,628	
Temperature °F.				
Carbon Dioxide, Calculated				
Dissolved Oxygen, Winkler				
Hydrogen Sulfide	0.0	0.0	0.0	
Resistivity, ohms/m at 77° F.	0.940	0.900	0.320	
Suspended Oil				
Filtrable Solids as mg/l				
Volume Filtered, ml				

Results Reported As Milligrams Per Liter

Additional Determinations And Remarks: When we compare the above with our records in the area, we find the possibility that the bottom sample could involve as much as one-half Abo water. However, this is assuming that there is no other source of higher salts from waters that might have been lost in this interval. Also, we would expect the Abo to carry a substantial amount of hydrogen sulfide, therefore placing additional doubt on the probability of a significant amount of Abo being involved in the bottom sample.

Form No. 3

By _____

cc: Permian Testers, INc. @ Odessa

Waylan C. Martin, M. A.

Exhibit D-3

Martin Water Laboratories, Inc.

P. O. BOX 1468
MONAHANS, TEXAS 79756
PH 943-3234 OR 563-1040

709 W INDIANA
MIDLAND, TEXAS 79701
PHONE 683-4521

RESULT OF WATER ANALYSES

LABORATORY NO. 386276

TO: Mr. Steve Salmon
104 South Pecos, Midland, Texas

SAMPLE RECEIVED 3-25-86
RESULTS REPORTED 3-27-86

COMPANY BTA Oil Producers LEASE 8601-JVP Buckeye #1
FIELD OR POOL Vacuum, Grayburg-SA Unit Letter -D-
SECTION 29 ~~BLOCK~~ T-17-S ~~SURVEY~~ R-36-E COUNTY Lea STATE NM
SOURCE OF SAMPLE AND DATE TAKEN:

NO. 1 Pit sample. 3-24-86
NO. 2 Recovered water - middle. 3-24-86
NO. 3 Recovered water- bottom. 3-24-86
NO. 4 Recovered water - sampler. 3-24-86

REMARKS: DST #1 - San Andres - 5,050' - 5,090'

CHEMICAL AND PHYSICAL PROPERTIES	NO. 1	NO. 2	NO. 3	NO. 4
Specific Gravity at 60° F.	1.0088	1.0072	1.0091	1.0105
pH When Sampled				
pH When Received	10.34	6.98	6.77	6.96
Bicarbonate as HCO_3	49	927	1,159	927
Supersaturation as $CaCO_3$				
ersaturation as $CaCO_3$				
T ardness as $CaCO_3$	1,115	1,830	2,350	2,550
Calc as Ca	440	656	850	870
Magnesium as Mg	4	46	55	91
Sodium and/or Potassium	2,313	1,099	2,193	3,139
Sulfate as SO_4	1,027	1,280	1,453	1,493
Chloride as Cl	3,444	1,509	3,302	5,007
Iron as Fe	3.4	1	1.7	1.7
Barium as Ba				
Turbidity, Electric				
Color as Pt				
Total Solids, Calculated	7,385	5,518	9,013	11,527
Temperature °F.				
Carbon Dioxide, Calculated				
Dissolved Oxygen, Winkler				
Hydrogen Sulfide	0.6	1,125	1,950	1,050
Resistivity, ohms/m at 77° F.	0.580	1.13	0.750	0.570
Suspended Oil				
Filtrable Solids as mg/l				
Volume Filtered, ml				
Carbonate, as CO_3	108	0	0	0

Results Reported As Milligrams Per Liter

Additional Determinations And Remarks Sample from "top" - no water.

~~In comparing the above with our records in the immediate area, we find some concern in identifying the origin of the waters recovered in that there is only a relatively mild difference between the pit water and our San Andres water. Also, pit water can readily pick up hydrogen sulfide; therefore, we cannot rely on the high sulfide content. However, we do find some weak indicators herein that indicate the probability that the last water recovered is predominantly San Andres.~~

Form No. 3

By _____

cc: Permian Testers, Inc. @ Odessa

Waylan C. Martin, M. A.

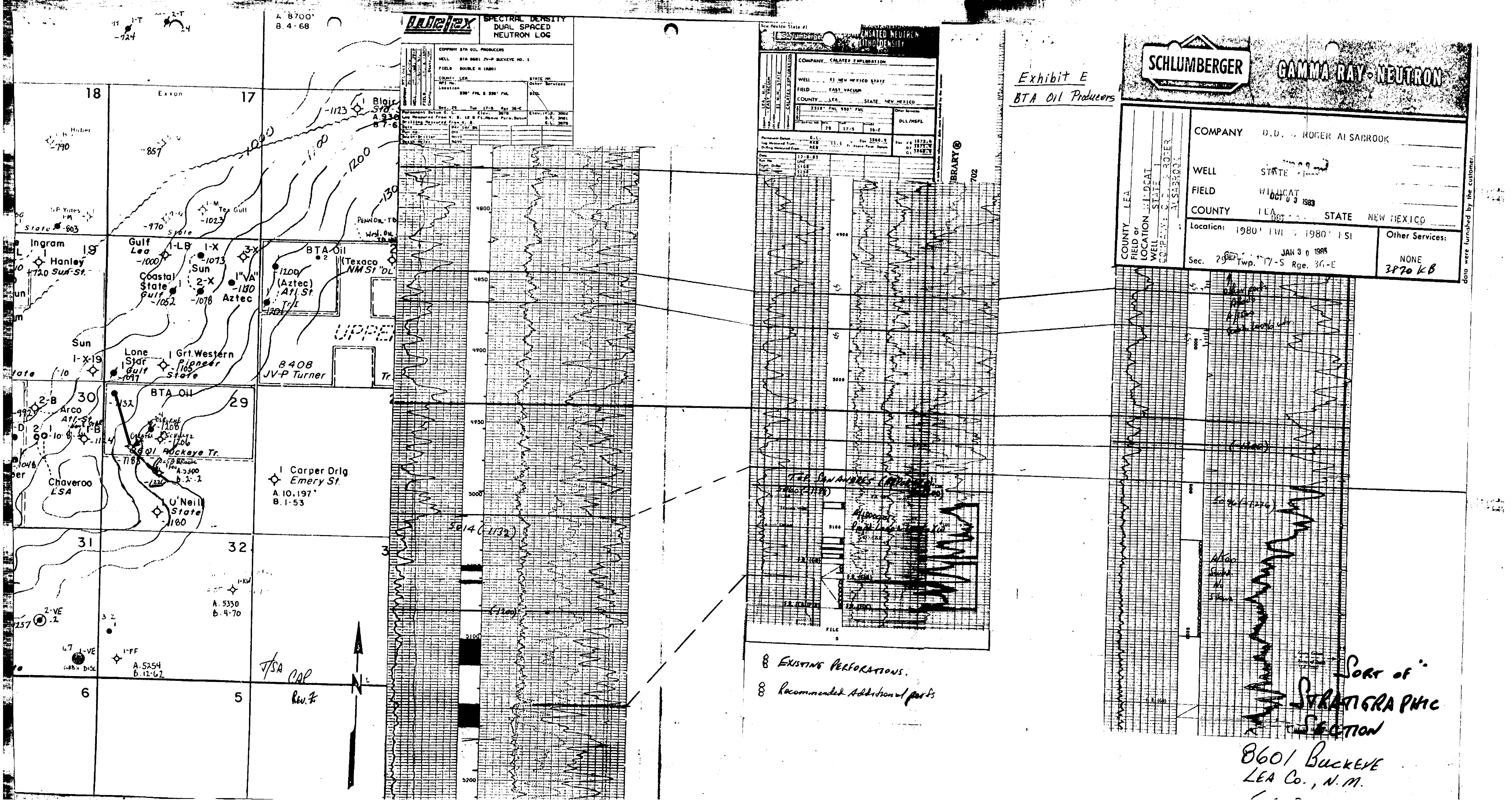


Exhibit E
BTA Oil Producers
SPECTRAL DENSITY DUAL SPACED NEUTRON LOG
COMPANY BTA OIL PRODUCERS
WELL BTA 8601 JV-P BUCKEYE NO. 1
FIELD DOUBLE A (ABO)
COUNTY LEA
STATE NM
COMPENSATED NEUTRON LITHODENSITY
COMPANY CALATEX EXPLORATION
WELL #1 NEW MEXICO STATE
FIELD EAST VACUUM
COUNTY LEA
STATE NEW MEXICO
SCHLUMBERGER
GAMMA RAY-NEUTRON
COMPANY
WELL
FIELD WILDCAT
COUNTY
STATE NEW MEXICO
Location: 1980' FWL & 1980' FSL
Sec. 29 Twp. 17-S Rge. 36-E
Other Services: NONE
3870 KB
4800
4850
4900
4950
5000
5014 (-1132)
(-1200)
5100
5200
Top San Andres
Existing Perforations.
Recommended Additional perfs
Sort of Stratigraphic Section
8601 Buckeye
Lea Co., N.M.
18
17
19
29
30
31
32
5
6
Exxon
Gulf
Lea
Coastal State
Gulf
Sun
Aztec
BTA Oil
(Texaco
NM St "DL"
(Aztec)
Atl. St.
UPPER
8408
JV-P Turner
Lone Star
Gulf
Grt. Western
Pioneer
State
Arco
Atl. St.
8601 Buckeye Tr.
Chaveroo
LSA
O'Neill
State
Carper Drlg
Emery St.
A. 10,197'
B. 1-53
A. 5330
B. 4-70
A. 5254
B. 12-62
A. 8700'
B. 4-68
Ingram
Hanley
Sun-St.
Tex Gulf
State
N

EXHIBIT -F-

List of Offset Operators
and Surface Owners

BTA Oil Producers
Buckeye, 8601 JV-P
Lea County, New Mexico

Chevron U.S.A., Inc.
P. O. Box 1150
Midland, Texas 79702

Pioneer Production Corp.
P. O. Box 2542
Amarillo, Texas 79189

Arco Oil and Gas Company
P. O. Box 1610
Midland, Texas 79702

Sun Exploration and Production Co.
P. O. Box 1861
Midland, Texas 79702

Surface Owner:
Giles M. Lee
West Star Route, Box 478
Lovington, New Mexico 88260

I hereby certify the above were mailed copies of our application on June 4, 1986.

Dorothy Houghton
DOROTHY HOUGHTON

P 477 957 335

RECEIPT FOR CERTIFIED MAIL

srs

Chevron U.S.A., Inc.
P. O. Box 1150
Midland, TX 79702

PS Form 3800, June 1985

* U.S.G.P.O. 1985-480-794

P 477 957 333

RECEIPT FOR CERTIFIED MAIL

srs

Sun Exploration & Prod Co
P. O. Box 1861
Midland, TX 79702

PS Form 3800, June 1985

* U.S.G.P.O. 1985-480-794

P 477 957 338

RECEIPT FOR CERTIFIED MAIL

srs

Giles M. Lee
West Star Route, Box 478
Lovington, NM 88260

PS Form 3800, June 19

* U.S.G.P.O. 1985-480-794

P 477 957 336

srs

Pioneer Production Corp.
P. O. Box 2542
Amarillo, TX 79189

PS Form 3800, June

Fold at line over top of envelope to the right of the return address

CERTIFIED

P 477 957 335

MAIL

P 477 957 333

P 477 957 338

P 477 957 336

MAIL

P 477 957 337

ECEIPT FOR CERTIFIED MAIL

Arco Oil & Gas Co.
. O. Box 1610
idland, TX 79702

CERTIFIED

P 477 957 337

MAIL

BTA OIL PRODUCERS
104 SOUTH PECOS
MIDLAND, TEXAS 79701-9988
AC 915-682-3753

PARTNERS
CARLTON BEAL
CARLTON BEAL, JR.
BARRY BEAL
SPENCER BEAL
KELLY BEAL

June 4, 1986

Re: BTA - Application for Salt Water Disposal
Buckeye, 8601 JV-P, Well No. 1-SWD
New Mexico State Lease No. V-1688
Section 29, T-17-S, R-36-E
Lea County, New Mexico

STATE OF NEW MEXICO
COMMISSIONER OF PUBLIC LANDS
P. O. Box 1148
Santa Fe, New Mexico 87501-1148

Gentlemen:

Attached please find a complete copy of our application for Salt Water Disposal.

Please advise if you have any questions concerning this application.

Sincerely,

Dorothy Houghton

DOROTHY HOUGHTON
For BTA Oil Producers

DH:ss

Attachments