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RECEIVED

September 21, 1984

SEP 24 1984

OIL CONSERVATION DIVISION

Mr. Richard L. Stamets
Acting Director
Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87501

"Hand Delivered"

Re: Anadarko Production Company
Injection Well Applications
in the Square Lake Field
Eddy County, New Mexico

file 8380

Dear Mr. Stamets:

On behalf of Anadarko Production Company, I
would appreciate you setting the enclosed applications
for the Examiner Hearing now set for October 17, 1984:

(a) Anadarko Production Company seeks the
expansion of its Federal "Q" Lease Waterflood
Project, Eddy County, New Mexico, previously
approved by Division Order R-4049 for the
addition of two injector wells for the
injection of water openhole into the Grayburg
and San Andres formations, to-wit:

Federal "R" No. 3 Well, 330' FNL and 330' FWL
Section 10, T17S, R30E, and

Federal "R" No. 8 Well, 1980' FNL and 660' FEL
Section 10, T17S, R30E.

* (b) Anadarko Production Company seeks the
expansion of its Burnham GSA Unit Waterflood
Project, Eddy County, New Mexico, previously
approved by Division Order R-4610 for the
addition of the following injector well for
injection of water openhole, into the Grayburg
and San Andres formations, to-wit:

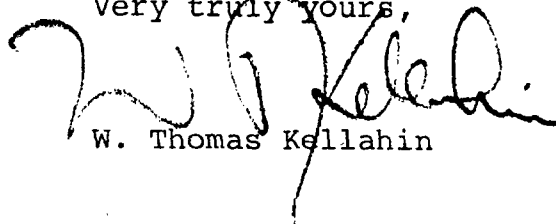
Burnham GSA TR 6 No. 1 Well, 1980' FSL
and 1980' FWL, Section 2, R17S, R30E.

KELLAHIN and KELLAHIN

Mr. Richard L. Stamets
September 21, 1984
Page 2

Please find enclosed the Division Order C-108
with attachments for the three wells.

Very truly yours,

A handwritten signature in dark ink, appearing to read 'W. Thomas Kellahin', is written over the typed name. The signature is fluid and cursive, with a large initial 'W' and a long, sweeping tail that extends to the right.

W. Thomas Kellahin

WTK:ca
Enc.

cc: Mr. Dan Kernaghan
Anadarko Production Company
P. O. Box 2497
Midland, Texas 79702

Mr. L. A. Clements - W/Enc.
Supervisor
Oil Conservation Division
P. O. Drawer DD
Artesia, New Mexico 88210

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
COMMISSION OF NEW MEXICO FOR
THE PURPOSE OF CONSIDERING:

CASE NO. 5032
Order No. R-4610

APPLICATION OF ANADARKO PRODUCTION
COMPANY FOR A WATERFLOOD PROJECT,
EDDY COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on July 25, 1973,
at Santa Fe, New Mexico, before Examiner Richard L. Stamets.

NOW, on this 24th day of August, 1973, the Commission, a
quorum being present, having considered the testimony, the record,
and the recommendations of the Examiner, and being fully advised
in the premises,

FINDS:

(1) That due public notice having been given as required by
law, the Commission has jurisdiction of this cause and the subject
matter thereof.

(2) That the applicant, Anadarko Production Company, seeks
authority to institute a waterflood project in the Burnham GSA
Unit Area, Square Lake Pool, by the injection of water into the
Grayburg-San Andres formation through six injection wells in
Section 2, Township 17 South, Range 30 East, NMPM, Eddy County,
New Mexico.

(3) That the wells in the project area are in an advanced
state of depletion and should properly be classified as "stripper"
wells.

(4) That the proposed waterflood project should result in
the recovery of otherwise unrecoverable oil, thereby preventing
waste.

(5) That the operator should take all steps necessary to
ensure that the injected water enters only the proposed injection
zones and is not permitted to escape to other formations or onto
the surface from injection, production, or plugged and abandoned
wells.

(6) That the applicant proposes to treat the water to be injected to minimize corrosion.

(7) That the subject application should be approved and the project should be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

IT IS THEREFORE ORDERED:

(1) That the applicant, Anadarko Production Company, is hereby authorized to institute a waterflood project in the Burnham GSA Unit Area, Square Lake Pool, by the injection of water into the Grayburg-San Andres formation through the following-described wells in Section 2, Township 17 South, Range 30 East, NMPM, Eddy County, New Mexico:

Tract 1	-	Well No. 1	-	Unit F
Tract 1	-	Well No. 3	-	Unit H
Tract 2	-	Well No. 2	-	Unit J
Tract 4	-	Well No. 1	-	Unit P
Tract 5	-	Well No. 1	-	Unit L
Tract 6	-	Well No. 2	-	Unit N

(2) That prior to initial injection of water into any of said injection wells, the operator shall obtain the approval of the supervisor of the Commission's Artesia district office as to the casing and cementing of said well.

(3) That injection of treated water into each of said wells shall be through tubing, set in a packer which shall be located as near as practicable to the uppermost perforation, or in the case of open-hole completions, as near as practicable to the casing-shoe; that the casing-tubing annulus of each injection well shall be loaded with an inert fluid and equipped with an approved pressure gauge or attention-attracting leak detection device.

(4) That the operator shall immediately notify the supervisor of the Commission's Artesia district office of the failure of the tubing or packer in any of said injection wells, the leakage of water or oil from around any producing well, or the leakage of water or oil from any plugged and abandoned well within the project area and shall take such timely steps as may be necessary or required to correct such failure or leakage.

(5) That the subject waterflood project is hereby designated the Anadarko Burnham GSA Unit Waterflood Project and shall be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

-3-

Case No. 5032

Order No. R-4610

(6) That monthly progress reports of the waterflood project herein authorized shall be submitted to the Commission in accordance with Rules 704 and 1120 of the Commission Rules and Regulations.

(7) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

I. R. TRUJILLO, Chairman

ALEX J. ARMIJO, Member

A. L. PORTER, Jr., Member & Secretary

S E A L

dr/

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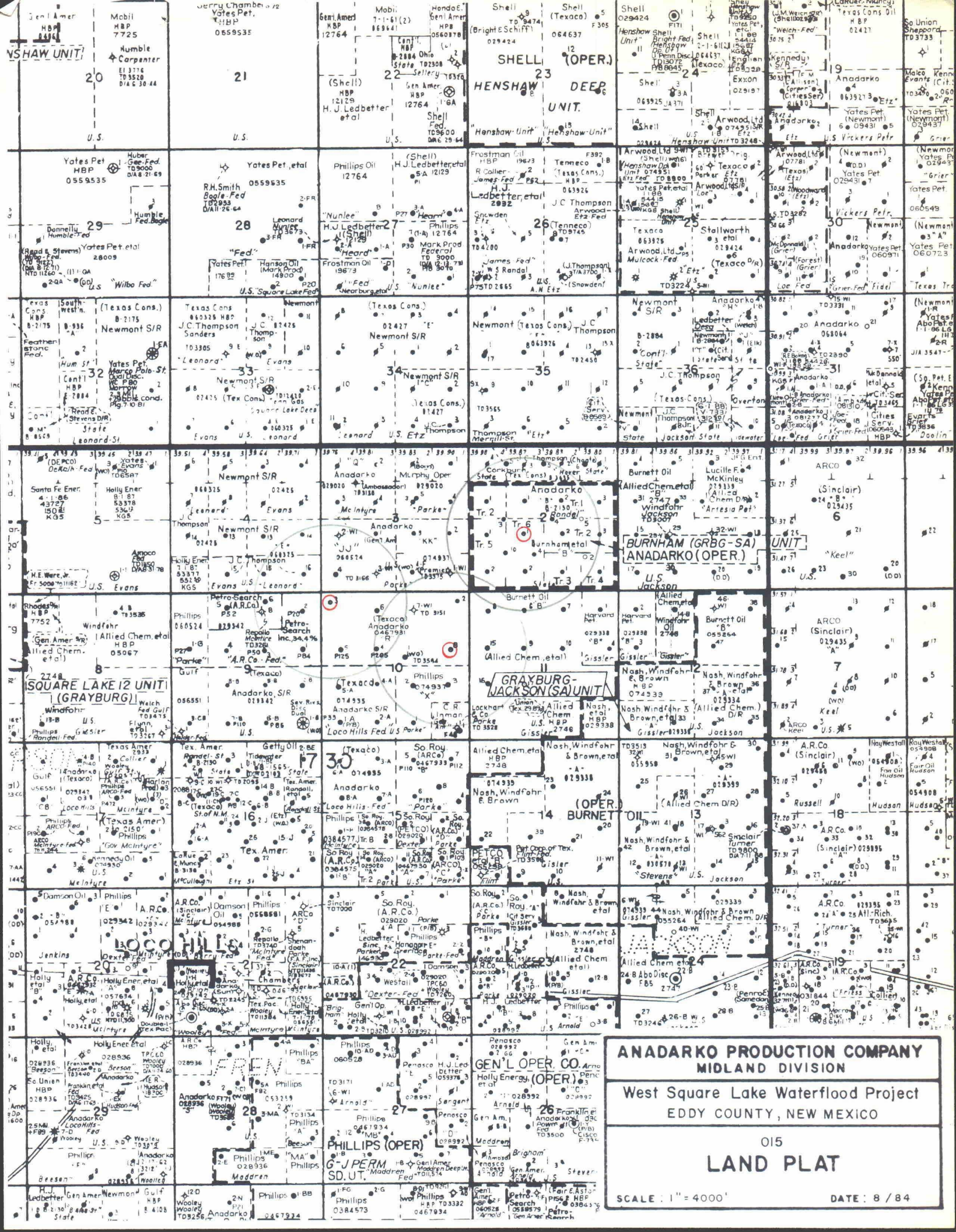
SEP 21 1984

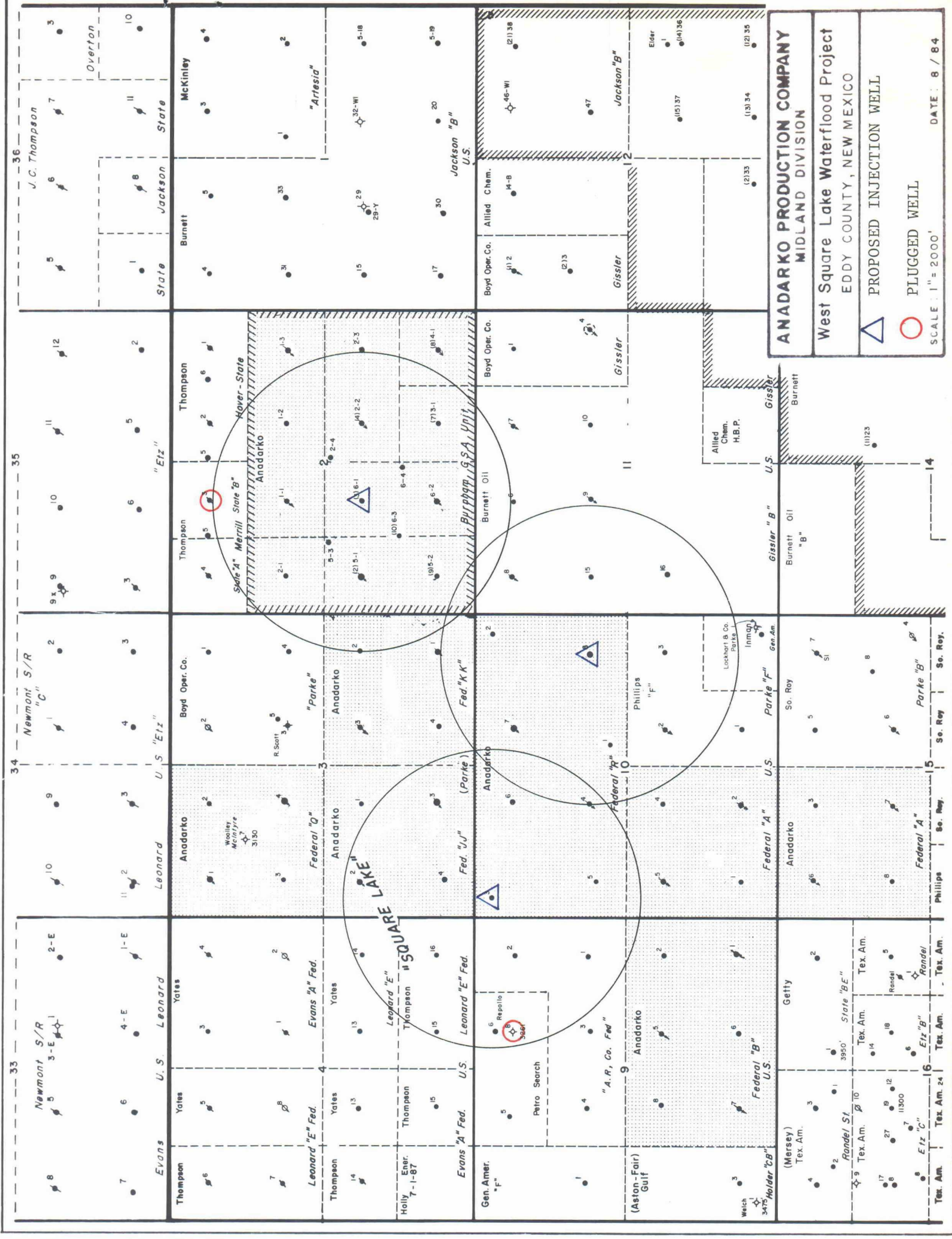
Case 5380

APPLICATION FOR AUTHORIZATION TO INJECT

OIL CONSERVATION DIVISION
yes no

- I. Purpose: ☒ Secondary Recovery ☐ Pressure Maintenance ☐ Disposal ☐ Storage
Application qualifies for administrative approval? ☐ yes ☐ no
- II. Operator: Anadarko Production Company
Address: P. O. Box 2497, Midland, Texas 79702
Contact party: D. G. Kernaghan Phone: 915/682-1666
- 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 R 4610 and R 4049.
- 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: D. G. Kernaghan Title Division Operations Manager
Signature: [Signature] Date: September 12, 1984
- * 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.





ANADARKO PRODUCTION COMPANY
MIDLAND DIVISION

West Square Lake Waterflood Project
EDDY COUNTY, NEW MEXICO

 PROPOSED INJECTION WELL
 PLUGGED WELL

SCALE: 1" = 2000'

DATE: 8 / 84

PROPOSED OPERATING DATA

Anadarko - Burnham GSA TR 6 No.1

Anadarko - Federal "R" No.3

Anadarko - Federal "R" No.8

Square Lake Field, Eddy County, New Mexico

Average Injection Volume	-	250 BWPD/well
Injection Pressure	-	Within limits determined by NMOCD to be safe.
Type of System	-	Closed
Water Source	-	Produced water plus fresh makeup water
Injection Zones	-	Grayburg sands - 2700-3000' Very fine to fine grained, sub-rounded, Sub-arkosic w/dolomitic cement. Lovington sand (San Andres), 3000'-3150' same as Grayburg w/poorer sorting and more clay.
Fresh Water Sources	-	Rustler, surface to 500'.
Water Analyses	-	Attached
Stimulation	-	Additional stimulation will consist of small to medium sized acid jobs.

Anadarko Production Company
OPERATOR

Burnham GB-SA Unit
LEASE

Tract 6 #1
WELL NO.

1980' FSL & 1980' FWL
FOOTAGE LOCATION

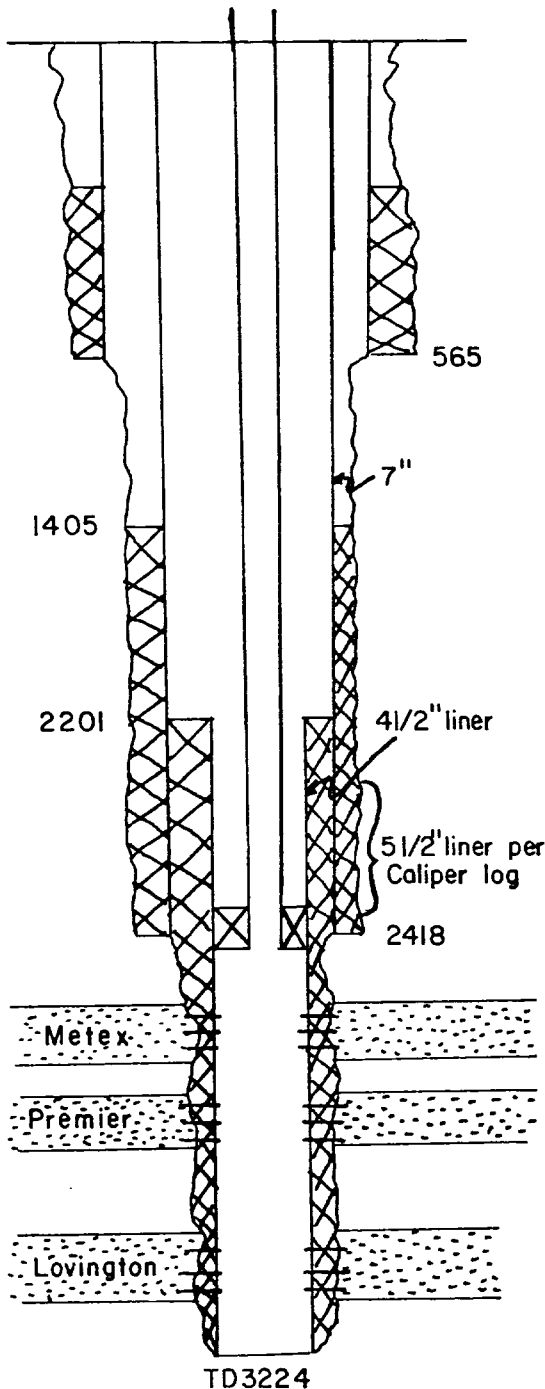
2
SECTION

17S
TOWNSHIP

30E
RANGE

Schematic

Tabular Data



Surface Casing

Size 8-5/8" Set At 565 Cemented with 50 sxs

TOC 270 feet determined by calculation

Hole Size 10"

Intermediate or Long String

Size 7" Set At 2418' Cemented with 100 sxs

TOC 1405 feet determined by Acoustic Log

Hole Size 8"

Liner *

Size 4-1/2" From 2201-3222 Cemented with 175 sxs

TOC 2201 feet determined by circulated to top of liner

Hole Size 5" max

Total Depth 3224

Injection Interval	Zone	Perfs or O.H.
2878-2962	Metex	Perfs
2985-3060	Premier	Perfs
3182-3190	Lovington	Perfs

Completion Date 4/22/44

Burnham Oil Company - State No.3

Original Operator and Well Name

*Also a 5-1/2" liner from 2395-2553 cemented with 35 sxs.
Hole size is 6-1/2" at maximum. 35 sxs should have circulated. Caliper Log shows liner from 2257-2390.

Tubing Size 2-3/8" lined with Salta Plastic set in a
(material)
SL arrow tension packer at about 2870 feet.

Other Data

- Name of the injection formation Grayburg-San Andres
- Name of field or Pool (if applicable) Square Lake
- Is this a new well drilled for injection? Yes ☒ No ☐
If no, for what purpose was the well originally drilled Production
- Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sack of cement or bridge plug(s) used) No
- Give the depth of and name of any overlying and/or underlying oil or gas zones (pools) in this area. NONE

Anadarko Production Company
OPERATOR

Federal R
LEASE

3
WELL NO.

330' FNL & 330' FWL
FOOTAGE LOCATION

10
SECTION

17S
TOWNSHIP

30E
RANGE

Schematic

Tabular Data

Surface Casing

Size 8-5/8" Set At 510 Cemented with 75 sxs

TOC _____ feet determined by _____

Hole Size _____

Intermediate or Long String

Size 5-1/2" Set At 2873 Cemented with 100 sxs

TOC 1250 feet determined by Calc (Mid salt section)

Hole Size 6-1/4 (max)

Liner

Size 4-1/2" From 2859-2985 Cemented with 40 sxs

TOC 2859 feet determined by Top Liner-cmt circ.

Hole Size 4-3/4"

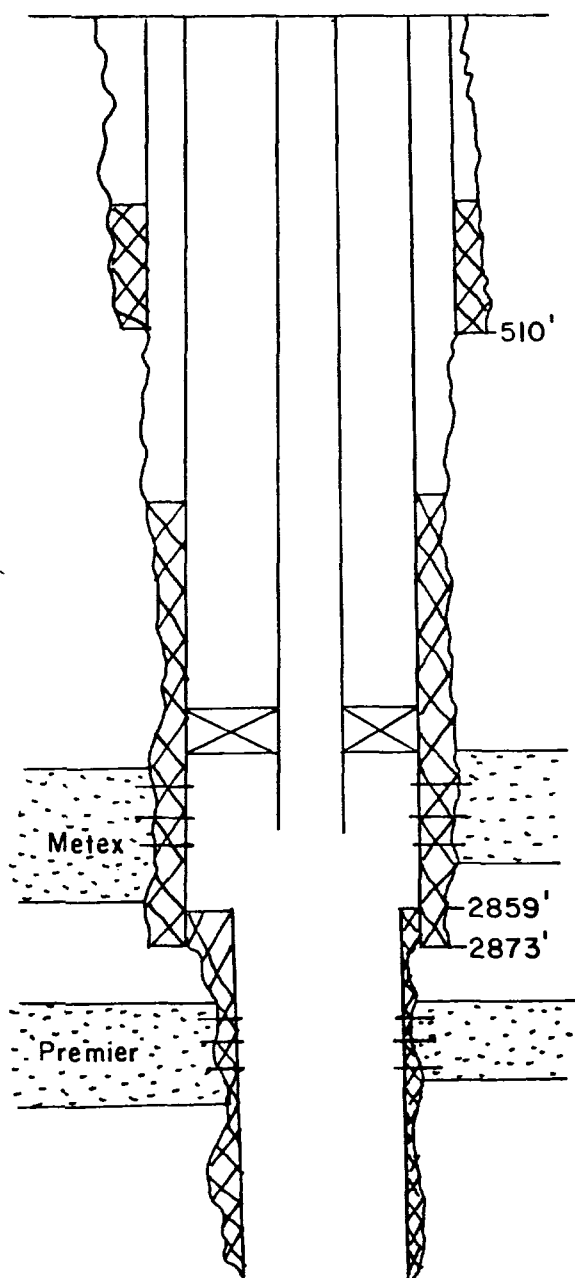
Total Depth 2985

Injection Interval	Zone	Perfs or O.H.
2916-36	Premier	Perfs
2782-90	Metex	Perfs
2814-52		

Completion Date 2/6/57

Rowland Wooley - Parke H #3

Original Operator and Well Name



TD2985

Tubing Size 2-3/8" lined with Salta Plastic set in a
(material)
4-1/2" SL arrow tension packer at about 2900 feet.

Other Data

- Name of the injection formation Grayburg-San Andres
- Name of field or Pool (if applicable) Square Lake
- Is this a new well drilled for injection? Yes X No
If no, for what purpose was the well originally drilled Production
- Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sack of cement or bridge plug(s) used) No
- Give the depth of and name of any overlying and/or underlying oil or gas zones (pools) in this area. None

Anadarko Production Company
OPERATOR

Federal R
LEASE

8
WELL NO.

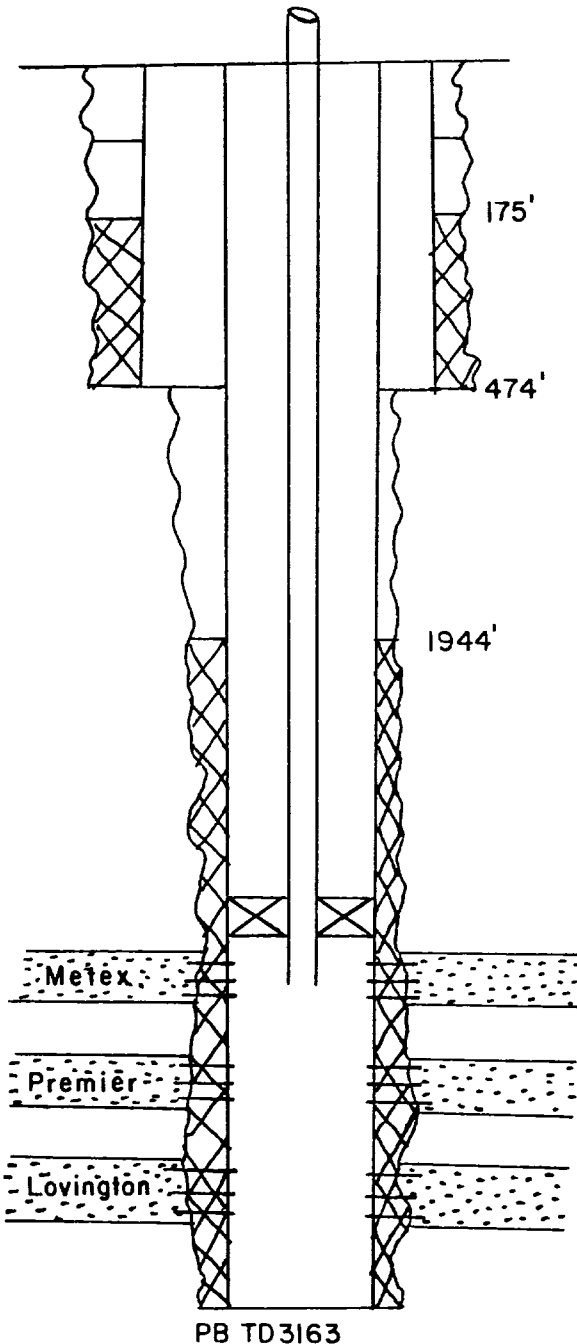
1980' FNL & 660' FEL
FOOTAGE LOCATION

10
SECTION

17S
TOWNSHIP

30E
RANGE

Schematic



Tabular Data

Surface Casing

Size 8-5/8" Set At 474 Cemented with 150 sxs

TOC 175' feet determined by calculation

Hole Size 12-1/4" (Lost circ. @ 190')

Intermediate or Long String

Size 4-1/2" Set At 3200 Cemented with 350 sxs

TOC 1944' feet determined by CBL

Hole Size 7-7/8"

Liner NONE

Size From Cemented with sxs

TOC feet determined by

Hole Size

Total Depth 3163 PBD

Injection Interval	Zone	Perfs or O.H.
2826-2900	Metex	Perfs
2965-89	Premier	Perfs
3093-3120	Lovington	Perfs

Completion Date 11/24/76

Anadarko
Original Operator and Well Name

Tubing Size 2-3/8" lined with Salta Plastic set in a
(material)

SL arrow tension packer at about 2800 feet.

Other Data

- Name of the injection formation Grayburg-San Andres
- Name of field or Pool (if applicable) Square Lake
- Is this a new well drilled for injection? Yes X No
If no, for what purpose was the well originally drilled Production
- Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail (sack of cement or bridge plug(s) used)
Perfs 2648-53; 60-65; 76-80; 86-91; 2714-20; 52-57; 68-77 Squeezed w/400 sxs
- Give the depth of and name of any overlying and/or underlying oil or gas zones (pools) in this area. None



BHC Acoustilog

COMPANY ANADARKO PRODUCTION COMPANY

WELL BURNHAM NO. 6-1

FIELD SQUARE LAKE

COUNTY EDDY STATE NEW MEXICO

LOCATION:
1980' FSL & 1980' FWL

Other Services
DUAL CALIPER

SEC 2 TWP 17-S RGE 30-E

GROUND LEVEL Elev. 3744
G. L. 0 Ft. Above Permanent Datum
G. L.

Elevations:
KB
DF
GL 3744

	9-23-72						
	ONE						
	3199						
	3196						
Interval	3194						
erval	SURFACE						
	7" @ 2400	5 1/2 @ 2257	2390 @				
	?	2257	2390				
	4 3/4"						
ole	WATER						
scosity							
Loss		cc	cc	cc	cc	cc	cc
ple							
emp.	@ °F	@ °F	@ °F	@ °F	@ °F	@ °F	@ °F
Temp.	@ °F	@ °F	@ °F	@ °F	@ °F	@ °F	@ °F
Temp.	@ °F	@ °F	@ °F	@ °F	@ °F	@ °F	@ °F
and Rmc	@ °F	@ °F	@ °F	@ °F	@ °F	@ °F	@ °F
	@ °F	@ °F	@ °F	@ °F	@ °F	@ °F	@ °F
. Deg. F.	°F	°F	°F	°F	°F	°F	°F
Location	6028 HOBBS						
	MC ATEE						
	MR. BRYANT						



Compensated Neutron MARKED

COMPANY ANADARKO

WELL FEDERAL "R" NO. 3

FIELD SQUARE LAKE

COUNTY EDDY STATE NEW MEXICO

LOCATION: 330' FN EW

Other Services
NONE

SEC 10 TWP 17-S RGE 30-E

GL

Elev. 3700

Elevations:

GL

0 Ft. Above Permanent Datum

KB

DF

KB

GL 3700

3/22/77

ONE

N/E N

2982

2978

2976

970

WATER

FIELD
PRINT

6124 Hobbs

JACKSON

Buckles-English

Core Hole Record

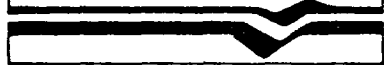
Casing Record

From	To	Size	Wgt.	From	To
		<u>5 1/2</u>		<u>Surf</u>	
		<u>4 1/2</u>			<u>2973</u>

FILE COPY

DO NOT REMOVE OR
ADD ANY MATERIAL TO
FOLDER

Dresser Atlas



Compensated

GAMMA

FILE NO.

COMPANY ANADARKO PRODUCTION

WELL FEDERAL "R" NO. 8

FIELD SQUARE LAKE

COUNTY EDDY STATE

LOCATION:

1980' FNL & 660' FEL

SEC 10 TWP 17-S RGE 30

Permanent Datum GROUND LEVEL Elev 3720

Log Measured from G. L. 0 Ft. Above Permanent

Drilling Measured from G. L.

Date	9-18-76
Run No.	ONE
Type Log	CN/GR
Depth-Driller	3200 KB
Depth-Logger	3163
Bottom Logged Interval	3161
Top Logged Interval	1160
Type Fluid in Hole	WATER
Salinity Ppm Cl.	-
Density Lb./Gal.	-
Level	-
Max. Rec. Temp. Deg. F	86
Opr. Rig Time	3 HOURS
Equip. No. and Location	6124 HOBBS
Recorded By	MEADOWS
Witnessed By	ENGLISH

Run	Bore Hole Record				Casing		
No.	Bit	From	To	Size	Wgt.		
1	12 1/4	SURF.	480	8 5/8"	24	S	
1	7 7/8	480	3200	4 1/2"	10.5	S	

OPERATOR, LEASE AND WELL	LOCATION	COMPLETION DATE	TOTAL DEPTH	STATUS	CASING AND CEMENT DATA	COMPLETION DATA
Anadarko Burnham GB-SA Unit Tract 1 No.1	1980' FN&WL F-2-17S-30E	1/1/43	3211	Active WIW	8-5/8" @ 592' w/50 sx 7" @ 2436' w/150 sx 5-1/2" liner 2400-3045' 4-1/2" liner 2375-3196'	Perfs 2932-40; 3026-34; 3184-92 Fraced w/75,000 gal & 60,000# SD when liner was run
Anadarko Burnham GB-SA Unit Tract 1 No.2	1980' FN&EL G-2-17S-30E	6/30/43	3198	Producing	8-5/8" @ 566' w/50 sx 7" @ 2445' w/100 sx 4-1/2" liner 2352-3198' w/350 sx	Perfs 2804-08; 80-88; 2912-22, 36-40, 46-52, 3014-24, 3170-78 Shot initially, later fraced w/ 25000 gal & 30,000# SD
Anadarko Burnham GB-SA Unit Tract 2 No.1	1980'FN & 660'FWL E-2-17S-30E	8/22/43	3060	Producing	8-5/8" @ 550' w/50 sx 7" @ 2415' w/100 sx 4-1/2" liner 2364-3059' w/200 sx 4-1/2" @ 2360' cmt circ in 7"	Perfs 2912-22, 46-50, 3008-18
Anadarko Burnham GB-SA Unit Tract 2 No.2	1980' FS&EL J-2-17S-30E	2/28/44	3092	Active WIW	8-5/8" @ 585' w/50 sx 7" @ 2438' w/100 sx 5-1/2" liner 2167-2467' w/75 sx 4" liner 2404-3092' w/125 sx	Perfs 2832-38, 86-90, 2922-30, 40-44, 58-62, 3026-40 Treated w/1500 gal 15% HCL
Anadarko Burnham GB-SA Unit Tract 2 No.3	1980'FS & 660'FEL I-2-17S-30E	10/14/44	3230	Producing	8-5/8" @ 582' w/50 sx 7" @ 2422' w/50 sx 4-1/2" liner 2379-3227' w/230 sx	Perfs 2910-14, 44-48, 50-54, 64-68, 3046-50, 54-56, 62-66 3076-80, 3198-3210 Fraced w/ 80,000 gal & 65,000# SD
Anadarko Burnham GB-SA Unit Tract 2 No.4	2630' FS&EL J-2-17S-30E	5/31/84	3245	Producing	8-5/8" @ 490' w/500 sx 5-1/2" @ 3250' w/2700 sx	Perfs 2930,32,34,36,47,63,90, 3028,30,32,54,56, 3182-92 Fraced w/35,000 gal & 38,000# SD
Anadarko Burnham GB-SA Unit Tract 3 No.1	660'FS & 1980'FEL O-2-17S-30E	3/16/45	3212	Producing	8-5/8" @ 560' w/50 sx 7" @ 2435' w/50 sx 5-1/2" @ 3126' w/100 sx	Perfs 2924-44, 3026-46, OH 3126- 3206 Shot initially, Fraced w/15,000 gal & 15,000# SD, Fraced again w/50,000 gal & 40,000# SD
Anadarko Burnham GB-SA Unit Tract 5 No.1	660'FW & 1980'FSL L-2-17S-30E	11/1/43	3220	Active WIW	8-5/8" @ 560' w/50 sx 7" @ 2415' w/100 sx 4" liner 2680-3260 w/400 sx	Perfs 2822-28, 2907-12, 26-30, 42-45, 3004-14, 55-70 Treated w/2,000 gal 15% HCL

OPERATOR, LEASE AND WELL	LOCATION	COMPLETION DATA	TOTAL DEPTH	STATUS	CASING AND CEMENT DATA	COMPLETION DATA
Anadarko Burnham GB-SA Unit Tract 5 No.2	660' FS&EL M-2-17S-30E	10/23/45	3200	Producing	8-5/8" @ 560' 7" @ 2406' w/100 sx 4-1/2" liner 2338-3200 w/300 sx	Perfs 2928-34, 46-50, 62-66, 3006-14, 3178-88 Shot initially Fraced w/60,000 gal & 31,000# SD
Anadarko Burnham GB-SA Unit Tract 5 No.3	2630'FS & 1200'FWL L-2-17S-30E	6/4/84	3265	Producing	8-5/8" @ 476' w/500 sx 5-1/2" @ 3272' w/1,000 sx	Perfs 2904-08, 41, 43-45, 70-73, 78,80, 3000-02, 37-42, 3189-3200 Fraced w/41,000 gal & 41,500# SD
Anadarko Burnham GB-SA Unit Tract 6 No.1	1980' FS&WL K-2-17S-30E	4/22/44	3224	Producing	8-5/8" @ 565' w/50 sx 7" @ 2418' w/100 sx 5-1/2" liner 2395-2553 w/35 sx 4-1/2" liner 2201-3222 w/175 sx	Perfs 2924-32, 3026-34, 3182-90 Originally shot later fraced w/ 75,000 gal & 60,000# SD
Anadarko Burnham GB-SA Unit Tract 6 No.2	660'FS & 1980'FWL N-2-17S-30E	12/18/44	3197	Active WIW	8-5/8" @ 560' w/50 sx 7" @ 2450' w/50 sx 4-1/2" liner 2334-3187' w/400 sx	Perfs 2930-40, 54-58, 70-74, 3032-42, 3189-92 Treated w/ 1250 gal 15% HCL
Anadarko Burnham GB-SA Unit Tract 6 No.3	1345' FS&WL K-2-17S-30E	10/3/54	3211	Producing	8-5/8" @ 500' w/25 sx 7" @ 2400' w/40 sx-Prob pulled from 2280 5-1/2" @ 3150' w/100 sx	Perfs 2935-43, 53-57, 66-76, 3036-51; OH 3150-3211 Fraced w/47,000 gal & 34,000# SD
Anadarko Burnham GB-SA Unit Tract 6 No.4	1310'FS & 2630'FWL N-2-17S-30E	5/28/84	3250	Producing	8-5/8" @ 482' w/500 sx 5-1/2" @ 3250' w/950 sx	Perfs 2928-34, 47,62,66,69, 3034- 38, 3176-78, 83-86 Fraced w/ 37,000 gal & 40,000# SD
Anadarko Federal KK No.2	1980'FS & 660'FEL I-3-17S-30E	10/30/43	3050	Producing	10" @ 565' w/50 sx 7" @ 2860' w/75 sx 5-1/2" liner 2781-3049' w/100 sx	Perfs 2910-24, 3012-20 Fraced w/50,000 gal & 40,000# SD
Burnett Oil Co. Gissler B No.6	660'FN & 1980'FWL C-11-17S-30E	7/31/45	3048	Producing	8-5/8" @ 522' 7" @ 2380' 5-1/2" @ 2840'	No perfs given, OH 2840-3048 Shot 2934-3048
J. Cleo Thompson Merrill State No.3	660'FN & 1980'FWL C-2-17S-30E	8/23/42	3060	P&A	8-5/8" @ 580' w/100 sx 7" @ 2390' w/50 sx 369' pulled	P&A 1948 by Texmass Petroleum

OPERATOR, LEASE AND WELL	LOCATION	COMPLETION DATE	TOTAL DEPTH	STATUS	CASING AND CEMENT DATA	COMPLETION DATA
Anadarko Federal JJ No.2	1980'FS & 660'FWL L-3-17S-30E	11/16/70	3111	Active WIW	8-5/8" @ 400' w/200 sx 4-1/2" @ 3100' w/250 sx	Perfs 2846-50, 72-78, 2940-46, 3074-84 Treated w/1000 gal mud acid
Anadarko Federal JJ No.3	660'FS & 1980'FWL N-3-17S-30E	2/7/73	3166	Active WIW	8-5/8" @ 459' w/250 sx 4-1/2" @ 3163' w/450 sx	Perfs 2820-26, 56-68, 76-82, 92-96, 2958-68 Treated w/ 1500 gal 15% HCL
Anadarko Federal JJ No.4	660'FS & 560'FWL M-3-17S-30E	10/12/77	3140	Producing	8-5/8" @ 509' w/300 sx 4-1/2" @ 3139' w/400 sx	Perfs 2796-2806, 2830-38, 52-60, 64-72, 2930-38, 2944-52 Fraced w/46,500 gal & 46,500# SD
Anadarko Federal R No.3	330' FN&WL D-3-17S-30E	2/6/57	2985	Producing	8-5/8" @ 510' w/75 sx 5-1/2" @ 2873' w/100 sx 4-1/2" liner 2859-2985' w/40 sx	Perfs 2782-90, 2814-52, 2916-36 Fraced w/93,000 gal acid & water & 88,000# SD
Anadarko Federal R No.5	2140'FN & 620'FWL E-3-17S-30E	6/9/72	2954	Producing	8-5/8" @ 494' w/150 sx 5-1/2" @ 2959' w/450 sx	Perfs 2761-66, 2802-10, 21-26, 35-40, 2904-09, 14-18 Fraced w/140,000 gal & 140,000# SD
Anadarko Federal R No.6	660'FN & 1980'FWL C-3-17S-30E	3/15/77	3195	Producing	8-5/8" @ 509' w/200 sx 4-1/2" @ 3188' w/450 sx	Perfs 2778-88, 2830-36, 64-77, 86-91, 2902-08, 70-78, 84-88 Fraced w/70,000 gal & 84,000# SD
Petro Search Arco Fed. No.1	1980'FN & 660'FEL H-9-17S-30E	10/24/73	3505	Producing	8-5/8" @ 463' w/100 sx 4-1/2" @ 3495' w/350 sx	Perfs 3024-32 Fraced w/32,000 gal & 22,000# SD
Petro Search Arco Fed. No.2	660' FN&EL A-9-17S-30E	3/8/74	3100	Producing	8-5/8" @ 473' w/100 sx 4-1/2" @ 2973' w/500 sx	Perfs 2789-2896 Fraced w/ 70,000 gal & 78,000# SD
Petro Search Arco Fed. No.6	330'FN & 1980'FEL B-9-17S-30E	1/24/75	3100	Producing	8-5/8" @ 492' w/100 sx 4-1/2" @ 3099' w/500 sx	Perfs 2717-25, 98-2810, 32-38, 2902-10, 3032-36, 38-43 Fraced w/130,000 gal & 136,000# SD
Repollo Oil Co. McIntyre No.8-D	660'FN & 1980'FEL B-9-17S-30E	9/17/46	3261	P&A	10-3/4" @ 602' w/100 sx-pulled 495' 7" @ 2764' w/125 sx-pulled 1835'	Plugged and abandoned 9/12/46. Plugs @ 2768, 1835, 602, 495 & surface
Yates Leonard E No.14	1980'FS & 660'FEL I-4-17S-30E	4/22/46	3121	Producing	10-3/4" @ 490' w/50 sx 7" @ 2790' w/100 sx	OH 2790-3121

23-2-78

OPERATOR, LEASE AND WELL	LOCATION	COMPLETION DATE	TOTAL DEPTH	STATUS	CASING AND CEMENT DATA	COMPLETION DATA
Yates Leonard E No.15	660'FS & 1980'FEL O-4-17S-30E	5/15/46	3076	Producing	10" @ 495' w/50 sx 5-1/2" @ 2750' w/100 sx	OH 2750-3076
Yates Leonard E No.16	660' FS&EL P-4-17S-30E	5/16/46	3125	Producing	8-5/8" @ 490' w/50 sx 5-1/2" @ 2750' w/100 sx	OH 2750-3125

OPERATOR, LEASE AND WELL	LOCATION	COMPLETION DATE	TOTAL DEPTH	STATUS	CASING AND CEMENT DATA	COMPLETION DATA
Anadarko Federal KK No.1	660' FS&EL P-3-17S-30E	11/15/70	3200	Active WIW	8-5/8" @ 407' w/200 sx 4-1/2" @ 3185' w/250 sx	Perfs 2910-20, 30-36, 44-50, 3010-16, 3154-66 Treated w/1,000 gal 15% HCL
Anadarko Federal R No.1	2310' FN&EL G-10-17S-30E	6/24/48 Reentered 6/5/72	3584	Producing	8-5/8" @ 496' w/50 sx-404 ft.pulled 7" @ 490' w/150 sx 4-1/2" @ 3317' w/450 sx	Re-entered P&A well, drilled to 3584 & set csg Perfs 2716-20, 32-36, 41-48, 86-91, 2824-32, 44-47, 56-62, 2980-90, 3050-56, 74-78, 84-88, 3206-14 Fraced w/186,000 gal acid & water & 155,000# SD
Anadarko Federal R No.2	330' FN&EL A-10-17S-30E	1/16/56	3246 PB 3075	Producing	8-5/8" @ 527' w/75 sx 7" liner 2238-2336' w/450 sx 5-1/2" @ 3044' w/50 sx	Perfs 2890-2900 Fraced w/400 barrels oil & 10,000# SD OH 3044-3248
Anadarko Federal R No.4	1980' FN&WL F-10-17S-30E	6/8/72	2960	Active WIW	8-5/8" @ 494' w/150 sx 5-1/2" @ 2959' w/450 sx	Perfs 2825-28, 30-36, 46-50, 59-63, 2927-31 Fraced w/ 140,000 gal & 140,000# SD Perfs 2715-18, 32-36, 43-46, 90-94, 2884-88 Treated new perfs w/600 gal 15% HCL
Anadarko Federal R No.7	660'FN & 1980'FEL B-10-17S-30E	2/10/73	3151	Active WIW	8-5/8" @ 476' w/250 sx 4-1/2" @ 3150' w/450 sx	Perfs 2780-84, 88-92, 2836-42, 74-84, 94-98, 2908-12, 26-32 Treated w/1,500 gal 15% HCL
Anadarko Federal R No.8	1980'FN & 660'FEL H-10-17S-30E	11/3/76	3200	Producing	8-5/8" @ 474' w/150 sx 4-1/2" @ 3200' w/350 sx	Perfs 2826-2900, 2965-89, 3090-3120 Fraced w/110,000 gal & 88,500# SD
Burnett Oil Co. Gissler B No.8	660' FN&WL D-11-17S-30E	9/20/46	3266 PB 3057	Active WIW	8-5/8" @ 531' w/50 sx 5-1/2" @ 2800' w/100 sx	OH 2800-3057
Burnett Oil Co. Gissler B No.9	1980' FN&WL F-11-17S-30E	12/15/47	3082	Active WIW	8-5/8" @ 528' 5-1/2" @ 2850'	OH 2850-3082

OPERATOR, LEASE AND WELL	LOCATION	COMPLETION DATE	TOTAL DEPTH	STATUS	CASING AND CEMENT DATA	COMPLETION DATA
Burnett Oil Co. Gissler B No.15	1980'FN & 660'FWL E-11-17S-30E	10/14/77	3190	Producing	8-5/8" @ 431' w/275 sx 4-1/2" @ 3190' w/500 sx	Perfs 2919-21,29,31,79,81,91, 94,98, 3002,4,6,10,13,16,3022, 24, 3128,32,36,40,48,52,56,60 Fraced w/57,000 gal & 59,000# SD
Burnett Oil Co. Gissler B No.16	1980'FN & 660'FWL L-11-17S-30E	6/22/82	3206	Producing	8-5/8" @ 333' w/250 sx 5-1/2" @ 3205' w/800 sx	Perfs 3011-13, 25-27, 29-32, 38-45, 93-3100, 3110-13, 3116-22 Fraced w/29,500 gal & 53,000# SD
Phillips Parke F No.2	1980' FS&EL J-10-17S-30E	4/18/72	3414	Active WIW	8-5/8" @ 421' w/100 sx 4-1/2" @ 3414' w/450 sx	Perfs 2718-22, 41-44, 2832-38, 2930-34, 3082-89, 3218-20, 3296- 3300 Fraced w/115,000 gal & 115,000# SD
Phillips Parke F No.3	1980'FS & 660'FEL I-10-17S-30E	6/10/72	3400 PB 3193	Producing	8-5/8" @ 428' w/100 sx 4-1/2" @ 3199' w/450 sx	Perfs 2737-40, 54-60, 2858-62, 80-84, 2952-57, 3010-14, 3104- 3112 Fraced w/120,000 gal & 120,000# SD

PLUGGED WELL IN AREA OF REVIEW

Repollo Oil Company
OPERATOR

W. D. McIntyre
LEASE

8-D
WELL NO.

660' FNL & 1980' FEL
FOOTAGE LOCATION

9
SECTION

17S
TOWNSHIP

30E
RANGE

Schematic

Completion Date 9/17/46

Plugging Date 9/17/46

Deepest Depth Drilled 3261

Surface Casing

Size 10-3/4" Set At 602 with 100 sxs

Left in Hole 107' (495'-602')

Size Hole Unknown

Intermediate Casing

Size 8-5/8" Set At with No sxs

Left in Hole None

Size Hole

Production Casing

Size 7" Set At 2764 with 125 sxs

Left in Hole 929' (1835-2764)

Size Hole 8" Est.

Liner None

Size From

Cemented with

Size Hole

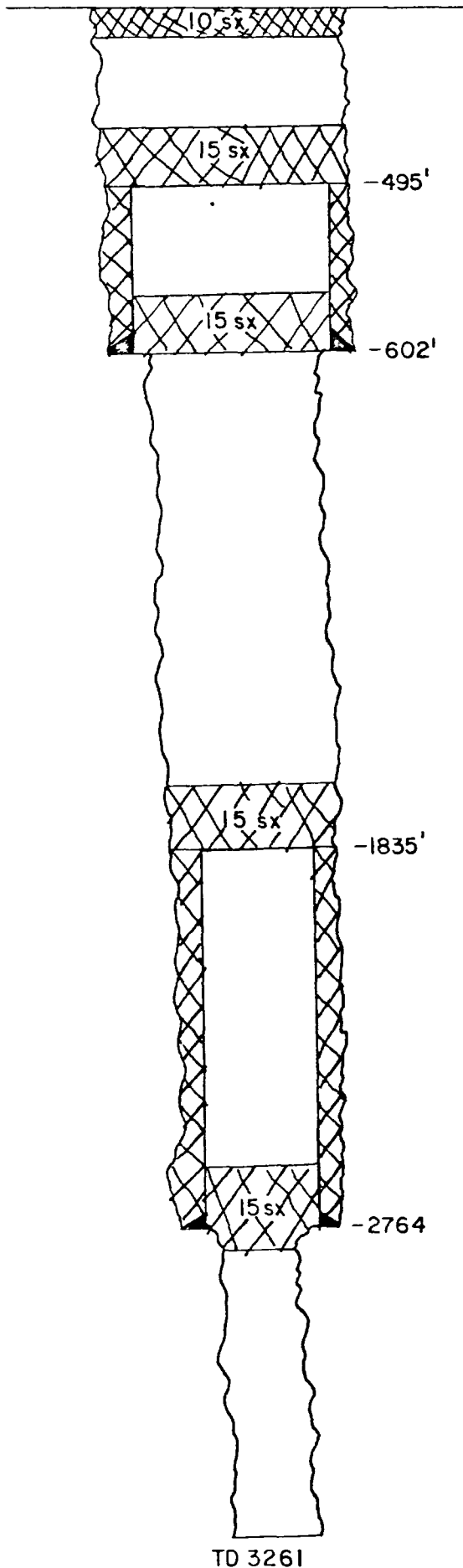
Left in Hole

Cement Plugs

Depth	Amount	At
2768	15 sxs	7" Shoe
1835	15 sxs	Top 7" Stub
602	15 sxs	Bottom 10-3/4"
495	15 sxs	Top 10-3/4" Stu
Surface	10 sxs	Surface

Producing Zones

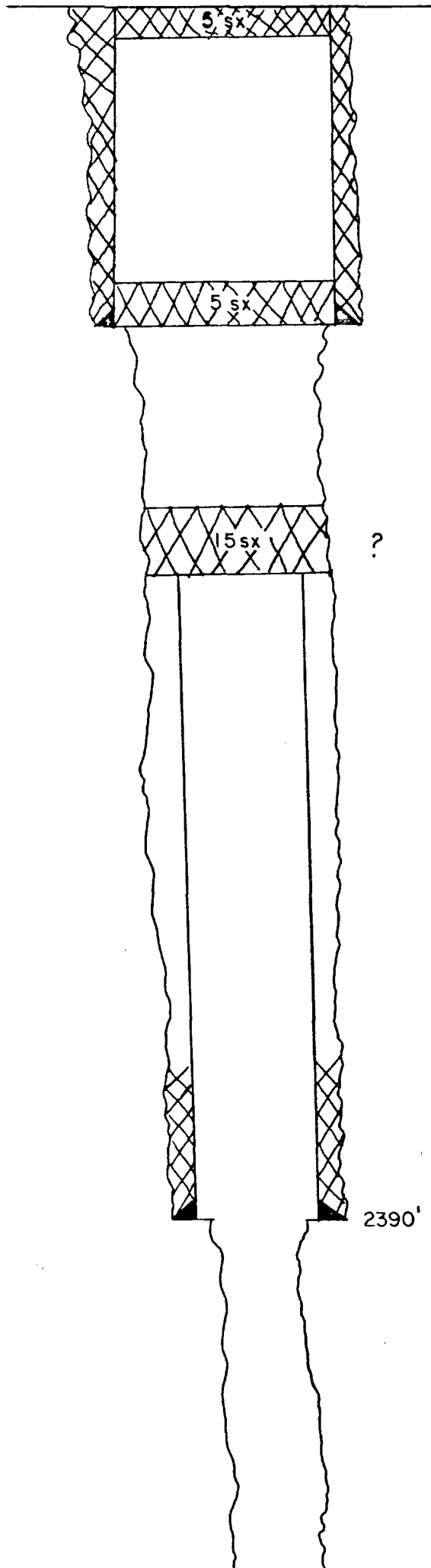
Depth	Name
NONE	



PLUGGED WELL IN AREA OF REVIEW

<u>Texmass Petroleum</u>	<u>Merrill State</u>	<u>3</u>
OPERATOR	LEASE	WELL NO.
<u>660' FNL & 1980' FWL</u>	<u>2</u>	<u>17S</u>
FOOTAGE LOCATION	SECTION	TOWNSHIP
		<u>30E</u>
		RANGE

Schematic



Completion Date 8/23/42

Plugging Date 9/20/48

Deepest Depth Drilled 3060

Surface Casing

Size 8-5/8" Set At 580 with 100 sxs

Left in Hole All

Size Hole Unknown

Intermediate Casing NONE

Size Set At with sxs

Left in Hole

Size Hole

Production Casing

Size 7" Set At 2390 with 50 sxs

Left in Hole 2021' (369-2390)

Size Hole Unknown

Liner NONE

Size From

Cemented with

Size Hole

Left in Hole

Cement Plugs

Depth	Amount	At
369?	15 sxs	Top 7" Stub
580	5 sxs	Bottom 8-5/8"
Surface	5 sxs	

The plugging report shows conflicting information. I believe that the top of the remaining 7" casing is below the base of the surface casing

Producing Zones

Depth	Name
2900-05	
2932-35	
2989-93	GB-SA
3026-33	

RESULT OF WATER ANALYSES

TO: Anadarko Production Company LABORATORY NO. 784482
P.O. Drawer 130, Artesia, NM 88210 SAMPLE RECEIVED 7-27-84
RESULTS REPORTED 8-7-84

COMPANY Anadarko Production Company LEASE As listed

FIELD OR POOL _____

SECTION _____ BLOCK _____ SURVEY _____ COUNTY _____ STATE _____

SOURCE OF SAMPLE AND DATE TAKEN:

- NO. 1 Windmill water - taken @ Unit Letter "B". 24-7165-6300A, N. M.
NO. 2 Raw water - taken from West Square Lake Plant.
NO. 3 Produced water - taken from West Square Lake Plant.
NO. 4 Produced water - taken from Burnham lease.

REMARKS:

CHEMICAL AND PHYSICAL PROPERTIES				
	NO. 1	NO. 2	NO. 3	NO. 4
Specific Gravity at 60° F.	1.0033	1.0017	1.0469	1.0403
pH When Sampled				
pH When Received	8.13	7.50	7.74	7.72
Bicarbonate as HCO ₃	124	229	872	775
Supersaturation as CaCO ₃				
Undersaturation as CaCO ₃				
Total Hardness as CaCO ₃	1,680	224	9,800	10,500
Calcium as Ca	496	70	2,520	2,800
Magnesium as Mg	107	12	851	851
Sodium and/or Potassium	225	57	21,328	16,947
Sulfate as SO ₄	1,809	41	3,249	3,508
Chloride as Cl	119	84	36,930	30,538
Iron as Fe	0.12	0.12	0.37	0.12
Barium as Ba				
Turbidity, Electric				
Color as Pt				
Total Solids, Calculated	2,892	493	65,750	55,419
Temperature °F.				
Carbon Dioxide, Calculated				
Dissolved Oxygen, Winkler				
Hydrogen Sulfide	0.0	0.0	75.0	120
Resistivity, ohms/m at 77° F.	2.55	16.00	0.130	0.150
Suspended Oil				
Filtrable Solids as mg/l				
Volume Filtered, ml				
Carbonate, as CO ₃	11	0	0	0

Results Reported As Milligrams Per Liter

Additional Determinations And Remarks

RESULT OF WATER ANALYSES

TO: Anadarko Production Company LABORATORY NO. 784482 (Page 2)
P.O. Drawer 130, Artesia, NM 88210 SAMPLE RECEIVED 7-27-84
RESULTS REPORTED 8-7-84

COMPANY Anadarko Production Company LEASE As listed

FIELD OR POOL _____

SECTION _____ BLOCK _____ SURVEY _____ COUNTY _____ STATE _____

SOURCE OF SAMPLE AND DATE TAKEN:

NO. 1 Produced water - taken from Federal "R" lease.

NO. 2 _____

NO. 3 _____

NO. 4 _____

REMARKS: _____

CHEMICAL AND PHYSICAL PROPERTIES				
	NO. 1	NO. 2	NO. 3	NO. 4
Specific Gravity at 60° F.	1.0444			
pH When Sampled				
pH When Received	7.53			
Bicarbonate as HCO ₃	946			
Supersaturation as CaCO ₃				
Undersaturation as CaCO ₃				
Total Hardness as CaCO ₃	11,100			
Calcium as Ca	3,000			
Magnesium as Mg	875			
Sodium and/or Potassium	19,137			
Sulfate as SO ₄	3,231			
Chloride as Cl	34,444			
Iron as Fe	0.57			
Barium as Ba				
Turbidity, Electric				
Color as Pt				
Total Solids, Calculated	61,632			
Temperature °F.				
Carbon Dioxide, Calculated				
Dissolved Oxygen, Winkler				
Hydrogen Sulfide	180			
Resistivity, ohms/m at 77° F.	0.138			
Suspended Oil				
Filtrable Solids as mg/l				
Volume Filtered, ml				
Carbonate, as CO ₃	0			

Results Reported As Milligrams Per Liter

Additional Determinations And Remarks The undersigned certifies the above to be true and correct to the best of his knowledge and belief.

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

Martin Water Laboratories, Inc.
WATER CONSULTANTS SINCE 1953
BACTERIAL AND CHEMICAL ANALYSES

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

August 7, 1984

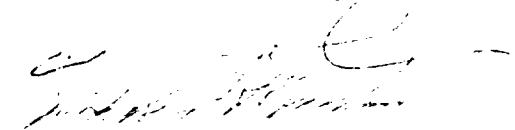
Anadarko Production Company
P.O. Drawer 130
Artesia, NM 88210

Subject: Recommendations relative to analysis #784482 (8-7-84)

Gentlemen:

We are not confident of the objective herein, but we do note that the windmill water has substantially more salts than the West Square Lake plant fresh water. However, the high salt content in the windmill water is almost entirely sulfate that is dominated by calcium sulfate (gypsum). Most of the other salts are sulfates of magnesium and sodium and/or potassium. Therefore, it is obvious that the excessive salts in the windmill water are not originating from any of the produced waters represented herein. Contact us for any additional discussion of this matter.

Yours very truly,



Waylan C. Martin, M.A.

WCM/sn

cc: Mr. Dan Kernaghan, Midland



September 13, 1984

Re: Expansion of Anadarko's
Burnham GSA Unit and
Federal "R" Waterflood Projects
Square Lake Field
Eddy County, New Mexico

Gentlemen:

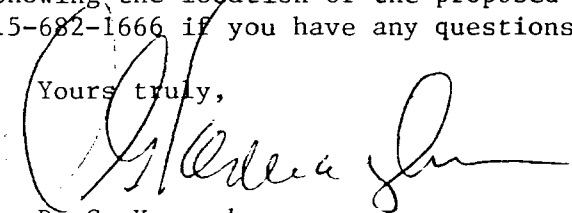
Anadarko Production Company is making application to inject water in the following wells:

Burnham GSA Unit TR.6 No.1	Unit K, Sec.2, T17S, R30E
Federal R No.3	Unit D, Sec.10, T17S, R30E
Federal R No.8	Unit H, Sec.10, T17S, R30E

These wells are in currently active waterflood projects.

A copy of our application and a plat showing the location of the proposed wells is attached. Please contact me at 915-682-1666 if you have any questions.

Yours truly,



D. G. Kernaghan

DCK:gks

J. Cleo Thompson
4500 Republic National Bank Tower
Dallas, Texas 75201

Burnett Oil Company
1500 Interfirst Tower
801 Cherry Street
Ft. Worth, Texas 76102

Boyd Operating Company
Security National Bank
Roswell, New Mexico 88201

Phillips Petroleum
4001 Penbrook
Odessa, Texas 79762

Curtis Inman
Box 2137
Midland, Texas 79702

Petro Search
1010 Lamar, Ste. 1700
Houston, Texas 77002

Yates Petroleum
7700 San Felipe, Ste. 350
Houston, Texas 77063

Minerals Management Service
P. O. Drawer U
304 American Home Security Life Building
Artesia, New Mexico 88210