

CASE 5518: ANADARKO PRODUCTION CO.  
FOR TWO WATERFLOOD PROJECTS AND AN  
ADMINISTRATIVE PROCEDURE, EDDY COUNTY

CASE NO.

5518

APPLICATION,  
TRANSCRIPTS,  
SMALL EXHIBITS,  
ETC.

BEFORE THE  
NEW MEXICO OIL CONSERVATION COMMISSION  
Santa Fe, New Mexico  
July 2, 1975

EXAMINER HEARING

IN THE MATTER OF:

Application of Anadarko Production  
Company for two waterflood projects  
and an administrative procedure,  
Eddy County, New Mexico.

CASE NO. 5518

BEFORE: Richard L. Stamets, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the New Mexico Oil  
Conservation Commission:

Thomas Derryberry, Esq.  
Legal Counsel for the  
Commission  
State Land Office Building  
Santa Fe, New Mexico

For the Applicant:

W. Thomas Kellahin, Esq.  
KELLAHIN & FOX  
500 Don Gaspar  
Santa Fe, New Mexico

THE NYE REPORTING SERVICE  
STATE-WIDE DEPOSITION NOTARIES  
225 JOHNSON STREET  
SANTA FE, NEW MEXICO 87501  
TEL. (505) 982-0396

I N D E XPAGEDANIEL G. KERNAGHAN

Direct Examination by Mr. Kellahin  
Cross Examination by Mr. Stamets

3  
9

E X H I B I T S

Applicant's Exhibits Nos. 1 through 6

9

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MR. STAMETS: Case 5518.

MR. DERRYBERRY: Case 5518. Application of Anadarko Production Company for two waterflood projects and an administrative procedure, Eddy County, New Mexico.

MR. KELLAHIN: Tom Kellahin of Kellahin and Fox, appearing on behalf of the Applicant. I have one witness to be sworn.

(Witness sworn.)

DANIEL G. KERNAGHAN

called as a witness, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Please state your name, by whom you are employed and in what capacity?

A My name is Dan Kernaghan. I am employed by Anadarko Production Company as Division Evaluation Engineer.

Q Mr. Kernaghan, have you made a study of and are you familiar with the facts surrounding this Application?

A Yes, I am.

Q Have you previously testified before the Commission and had your qualifications accepted and made a matter of record?

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A Yes, I have.

MR. KELLAHIN: We tender the witness as an expert.

MR. STAMETS: He is considered qualified.

BY MR. KELLAHIN:

Q Would you please refer to what has been marked as Exhibit No. 1, identify it and state what Anadarko seeks?

A Exhibit No. 1 is an area around our Grier Flood and includes a portion of Township 16 South, 31 East and 16 South, 30 East. It shows the various projects that we now have and the two injection wells that we are requesting that are circled in blue.

Q Please refer to Exhibit 2 and identify it?

A Exhibit No. 2 is also a plat of this area. It just shows a little more detail as to the injection wells in the area. Likewise, our projects here are circled in brown. This was covered by Order R-2977, and the green and pink were covered by Order 3677. The green one is our Square Lake Grier No. 1 Project, and the pink one is our Grier Waterflood Project. The yellow acreage is the acreage covered by the new project that we are requesting here, the extension of those we are requesting.

Q Locate again, would you for me, please, the wells

you intend to convert to water injection?

A The Paxter Federal A No. 1 which is location "O" of Section 20, and Anadarko's Federal A No. 3 which is location "M" of Section 21, both in 16, 31.

Q Please refer to Exhibit No. 3 and identify it?

A Exhibit No. 3 is the schematic diagram of our proposed injection-well completion, the Baxter Federal A No. 1 and our Federal A No. 3.

Q Please refer to Exhibit No. 4 and identify it?

A Exhibit 4 is a copy of the pay section from the available logs on the two injection wells.

Q Now, with reference to this Kennedy Federal No. 1 Well, was that the subject of a previous Order of the Commission authorizing the injection?

A Yes, it was. Commission Order R-2920 back in 1965 authorized the project for Kennedy Oil Company which included this well. They required that this well be converted to injection within 90 days after response was seen. The well was never converted, and about two years ago we purchased it. It was non-producing at the time. We purchased it with the intention of making it an injection well at a later date.

Q That is why it is included as part of the subject

matter of this Application?

A That's right. We couldn't determine if the conditions had been met or not.

Q Please continue and refer to what has been marked as Exhibit No. 5?

A Exhibit No. 5 is a plot of the annual and monthly production from the three wells covering this project. It shows that the wells are very substantially declining in production. In fact, the only one that is now producing is the Baxter A Federal No. 2, which is the well that we will leave as producing.

Q In your opinion, these wells have reached the stripper stage where now is an appropriate time in which to convert them to water injection?

A Yes, they have and it is. This area has been under waterflood for quite some time.

Q Please refer to Exhibit 6 and identify it?

A Exhibit 6 is the tabulated information that is presented graphically in the previous exhibit. It shows the monthly production from these wells back several years back and the annual production before that. The top sheet lists only the Baxter A Federal Lease. All of that production is from the No. 2 Well.

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Q What would be the source of your injection water?

A Our injection water is obtained from our Wood. It is fresh water from the Ogalala Formation. We would merely extend the pressure line and use the present plant that we already have in operation.

Q They are supplying you injection water under your existing waterflood project?

A This is correct.

Q And this would be an extension of that contract to provide water for the new areas?

A Yes. As far as I know, it wouldn't even take an extension on the contract.

Q What volumes of pressures do you anticipate for injection?

A We anticipate injecting 150 to 200 barrels a day at a surface pressure of 2600 pounds.

Q What was the pressure?

A 2600 pounds.

Q Are those volumes of pressures consistent with the existing waterflood projects?

A Yes, they are.

Q Why have you sought to combine the three water-flooded areas into one project?

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A To leave us with more flexibility in administering and reporting these projects. We don't anticipate much further expansion of them, but in the event we do wish to change things around in the future, we would like this flexibility.

Q It will simplify your operating, reporting and control of the waterflood project?

A Yes.

Q Do you also seek permission within the Order to allow you administrative procedures whereby you may convert other producing or non-producing wells to injection or from injection to production without setting this for hearing?

A Yes, we do.

Q And without requirement that such wells shall have shown a response to water injection?

A Yes, we do.

Q Do you have anything else you would like to add?

A No. I believe that is all.

Q Is there any potential contamination to fresh water in the area, Mr. Kernaghan?

A To my knowledge, there are no fresh-water sands in that area.

Q Were Exhibits 1 through 6 either prepared by you

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directly or were they compiled under your direction and supervision?

A Yes, they were.

Q In your opinion, will the granting of this Application be in the best interest of conservation and prevention of waste and the protection of correlative rights?

A Yes, in my opinion, it would be.

MR. KELLAHIN: If the Examiner please, we move the introduction of Exhibits 1 through 6.

MR. STAMETS: These exhibits will be admitted into evidence.

(Whereupon, Applicant's Exhibits Nos. 1 through 6 were marked for identification, and were offered and admitted into evidence.)

MR. KELLAHIN: That concludes our examination.

CROSS EXAMINATION

BY MR. STAMETS:

Q Mr. Kernaghan, referring to Exhibit No. 1, you have three isolated areas which you wish to consolidate and administer as single flood, is that correct?

A Yes, that's correct.

Q Do you know of any other case where the Commission has made one flood out of isolated areas?

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A I believe Numont's operations are possibly consolidated.

(Whereupon, a discussion was held off the record.)

A In answer to your question, Numont Oil Company, under Order No. R-2664 received administrative procedure to govern their property in this area which are pretty extensive. I don't have them plotted on the map and I can't say whether any of these are non-contiguous or not, but they do cover Sections 28, 29, 32, 33, 34 in this township and range. They are spread out there quite a bit.

Q Are any of the wells inside the project areas, top allowable at the present time?

A No, sir, they are not.

Q Do you anticipate that that No. 2 Well on the Baxter A Lease would become a top-allowable well?

A I don't anticipate it. This is a very very tight Grayburg Formation in this area, San Andres, and these floods have not responded with high peak rates. They have responded slowly over a good many years and fallen off over several years. Our best well is making 39 barrels a day now and I wouldn't anticipate the Baxter A Federal No. 2 would reach anywhere near top-allowable rate.

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Q Mr. Kernaghan, are your field people instructed to advise the appropriate Commission District Office of any leakage of water from any injection wells or producing wells or dry holes?

A Yes, they are. We have either a guage or method of determining leakage on all of our injection wells and those are watched regularly.

Q Each of the proposed injection wells would have injection through tubing under packer and the annulus would be loaded and some sort of leak-detection device would be installed?

A Yes. It would be loaded with a corrosion inhibiting fluid.

Q Does this 2600-pound pressure give you any problem with channeling behind the pipe or formation problem?

A To my knowledge, there has been no problem in this area. This is probably the highest pressure that any of our projects operate under, but this has been a fact of life for several years now. To my knowledge, we have had no problem in this area with channeling.

Q Just one more question: What you are asking for is an administrative procedure, just a typical

administrative procedure that appears in many Commission Orders?

A Yes.

MR. STAMETS: If there is nothing further, the witness may be excused.

(Witness dismissed.)

MR. STAMETS: Is there anything further in this case? We will take the case under advisement.

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STATE OF NEW MEXICO )  
COUNTY OF SANTA FE ) SS.

I, RICHARD L. NYE, Court Reporter, do hereby certify that the foregoing and attached Transcript of Hearing before the New Mexico Oil Conservation Commission was reported by me, and the same is a true and correct record of the said proceedings, to the best of my knowledge, skill and ability.

*Richard L. Nye*  
COURT REPORTER

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 5518 heard by me on 7-27, 1975.  
*Richard L. Nye*, Examiner  
New Mexico Oil Conservation Commission

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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. 5518  
Order No. R-5065

APPLICATION OF ANADARKO PRODUCTION  
COMPANY FOR WATERFLOOD PROJECT  
CONSOLIDATION, WATERFLOOD EXPANSION,  
AND AN ADMINISTRATIVE PROCEDURE, EDDY  
COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on July 2, 1975,  
at Santa Fe, New Mexico, before Examiner Richard L. Stamets.

NOW, on this 22nd day of July, 1975, 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, is  
the operator and successor in interest to those certain water-  
flood projects and waterflood buffer zones heretofore approved  
by the Commission, as follows:

- (a) The Anadarko Square Lake Etz Waterflood project.
- (b) The Anadarko Square Lake Grier No. 2 Waterflood  
project.

Both of which were approved by Commission Order No. R-3677,  
dated February 13, 1969.

- (c) The Kennedy Oil Company Square Lake Waterflood  
project, approved by Commission Order No. R-2920,  
dated June 8, 1965.

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Case No. 5518  
Order No. R-5065

- (d) The Cima Capitan, Inc., et al., cooperative waterflood project in the Square Lake Pool, approved by Order No. R-2977, dated October 7, 1965, in which project applicant has succeeded to the interests of Western Oil Fields, Inc., and Cima Capitan, Inc.
- (3) That for convenience of operation, reporting, and control of said projects, they should be consolidated into a single project.
- (4) That the applicant seeks to expand said project by the injection of water into the Grayburg and San Andres formations through its Baxter "A" Federal Well No. 1 in Unit O of Section 20 and its Federal "A" Well No. 3 in Unit M of Section 21, both located in Township 16 South, Range 31 East, NMPM, Square Lake Pool, Eddy County, New Mexico.
- (5) That the proposed waterflood project consolidation and expansion should result in the recovery of otherwise unrecoverable oil, thereby preventing waste.
- (6) That the operator should take all steps necessary to ensure that the injected water enters only the proposed injection interval and is not permitted to escape to other formations or onto the surface from injection, production, or plugged and abandoned wells.
- (7) That an administrative procedure should be established whereby additional injection and producing wells at orthodox and unorthodox locations in the project area may be approved without notice and hearing.
- (8) 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 is hereby authorized to consolidate for purposes of operation and reporting those certain waterflood projects and waterflood buffer zones heretofore approved by the Commission, as follows:
  - (a) The Anadarko Square Lake Etz Waterflood project;
  - (b) The Anadarko Square Lake Grier No. 2 Waterflood project;
  - (c) The Kennedy Oil Company Square Lake Waterflood project; and

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Case No. 5518  
Order No. R-5065

(d) The Cima Capitan, Inc., et al., cooperative waterflood project in the Square Lake Pool;

all in Eddy County, New Mexico.

(2) That the resultant consolidated waterflood project is hereby designated the Anadarko Consolidated Square Lake Waterflood Project and shall be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

(3) That the applicant is hereby authorized to expand said Consolidated Square Lake Waterflood Project in the Square Lake Pool by the injection of water into the Grayburg and San Andres formations through the following-described wells in Township 16 South, Range 31 East, NMPM, Eddy County, New Mexico:

<u>LEASE NAME</u>	<u>WELL NO.</u>	<u>UNIT</u>	<u>SECTION</u>
Baxter "A" Federal	1	O	20
Federal "A"	3	M	21

(4) That injection into each of said wells shall be through internally coated tubing, set in a packer which shall be located as near as practicable to the uppermost perforation; 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.

(5) 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 injection well, 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.

(6) The Secretary-Director of the Commission is hereby authorized to approve such additional producing wells and injection wells at orthodox and unorthodox locations within the boundaries of the Anadarko Consolidated Square Lake Waterflood Project area as may be necessary to complete an efficient production and injection pattern, provided said wells are drilled no closer than 330 feet to any lease line nor closer than 10 feet to any quarter-quarter section or subdivision inner boundary. To obtain such approval, the project operator shall file proper application with the Commission, which application, if it seeks authorization to convert additional wells to injection or to drill additional production or injection wells shall include the following:

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Case No. 5518  
Order No. R-5065

- (a) A plat showing the location of proposed well, all wells within the project area, and offset operators, locating wells which offset the project area.
- (b) A schematic drawing of the proposed well which fully describes the casing, tubing, perforated interval, and depth.
- (c) A letter stating that all offset operators to the proposed well have been furnished a complete copy of the application and the date of notification.

The Secretary-Director may approve the proposed well if, within 20 days after receiving the application, no objection to the proposal is received. The Secretary-Director may grant immediate approval, provided waivers of objection are received from all offset operators.

(7) 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.

(8) 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.

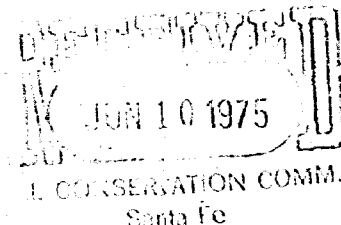
STATE OF NEW MEXICO  
OIL CONSERVATION COMMISSION

  
PHIL R. LUCERO, Member

  
JOE D. RAMEY, Member & Secretary

  
S E A L

dr/



BEFORE THE

OIL CONSERVATION COMMISSION OF NEW MEXICO

IN THE MATTER OF THE APPLICATION  
OF ANADARKO PRODUCTION COMPANY  
FOR WATER INJECTION SQUARE LAKE  
POOL, EDDY COUNTY, NEW MEXICO

A P P L I C A T I O N

COMES NOW ANADARKO PRODUCTION COMPANY and applies to the Oil Conservation Commission of New Mexico for approval of water injection in the Grayburg-San Andres formations, Square Lake Pool, Eddy County, New Mexico, and in support thereof would show the Commission:

1. Applicant is the operator and successor in interest to those certain waterflood projects and waterflood buffer zones heretofore approved by the Commission, as follows:

- a. The Anadarko Square Lake Etz Waterflood project.
- b. The Anadarko Square Lake Grier No. 2 Waterflood project.

Both of which were approved by Commission Order No. R-3677, dated February 13, 1969.

- c. The Kennedy Oil Company Square Lake waterflood project, approved by Commission Order No. R-2920, dated June 8, 1965.
- d. The Cima Capitan, Inc., et al., cooperative waterflood project in the Square Lake Pool, approved by Order No. R-2977, dated October 7, 1965, in which project applicant has succeeded to the interests of Western Oil Fields, Inc., and Cima Capitan, Inc.

2. Applicant proposes to convert its Anadarko Kennedy No. 1 well, formerly the Kennedy Oil Company DOB A Well No. 3,

DOCKET MAILED

Date 6/18/75

located in Unit M of Section 21, Township 16 South, Range 31 East, N.M.P.M., Eddy County, New Mexico. Approval of conversion of this well to injection was granted by Commission Order No. R-2920, entered June 8, 1965, but with a provision that if injection was not commenced within 90 days after any well in the project area has received a positive stimulation from the offsetting water flood, the order would automatically terminate. Applicant is unable to determine if this order is still valid.

3. Applicant proposes to convert its Baxter "A" Federal No. 1 well, located in Unit O of Section 20, Township 16 South, Range 31 East, N.M.P.M., Eddy County, to injection.

4. Applicant further seeks approval of an administrative procedure for the conversion of other producing wells or non-producing wells to injection, and from injection to production, without the requirement that such well shall have had a response to water injection.

5. Attached hereto is a plat showing the waterflood projects operated by applicant, showing existing injection wells, both on applicant's properties and offsetting applicant.

6. Applicant proposes to combine all of its developed acreage in Sections 19, 20, 21, 30 and 31, Township 16 South, Range 31 East, N.M.P.M., into one single project for convenience of operating, reporting and control of the waterflood projects.

WHEREFORE, applicant prays that this application be set for hearing before the Commission or the Commission's duly appointed examiner, and that after notice and hearing as required by law the Commission enter its order consolidating the waterflood projects into one project, and approve water injection and an administrative procedure for further operation of the projects, as proposed.

Respectfully submitted,

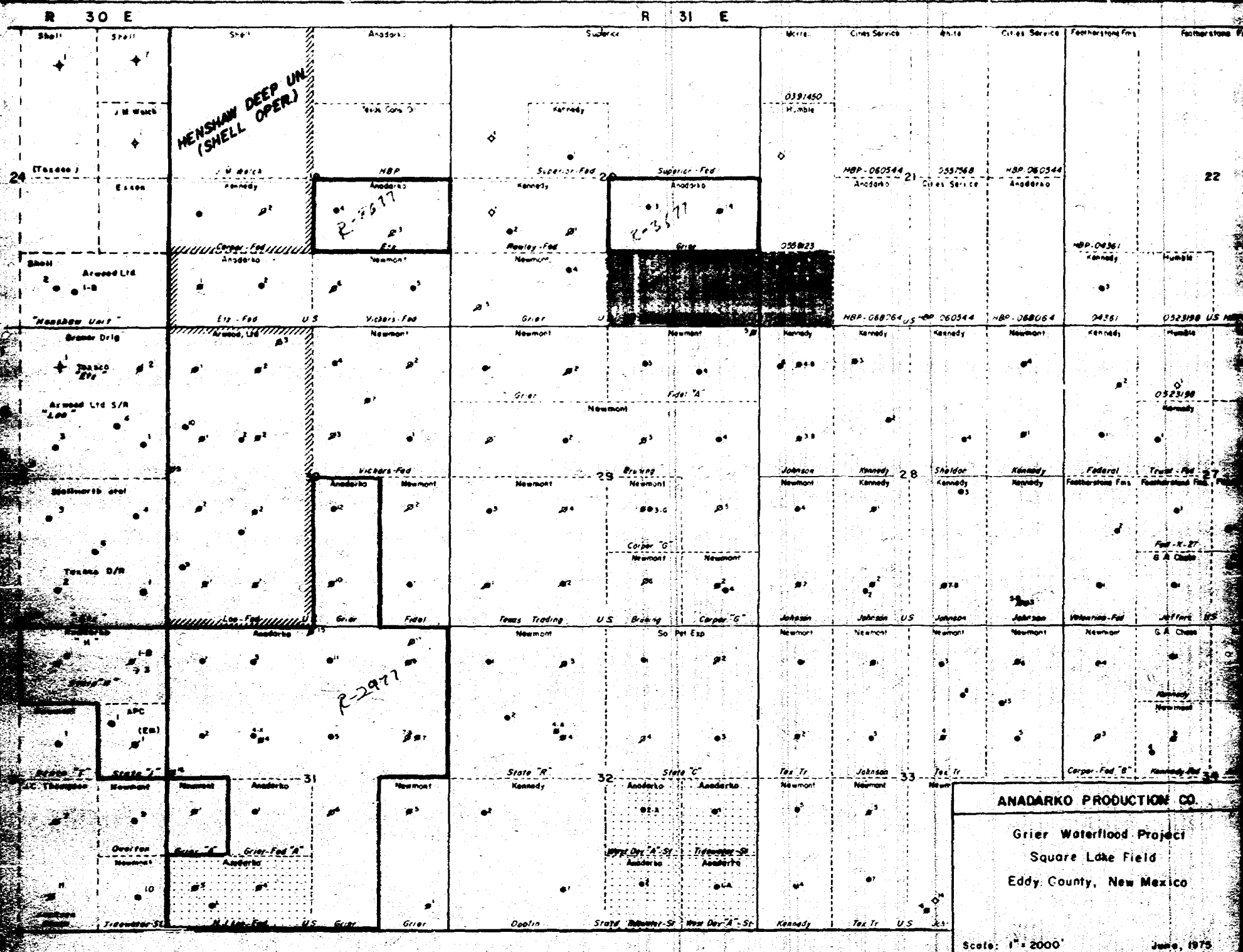
ANADARKO PRODUCTION COMPANY

BY

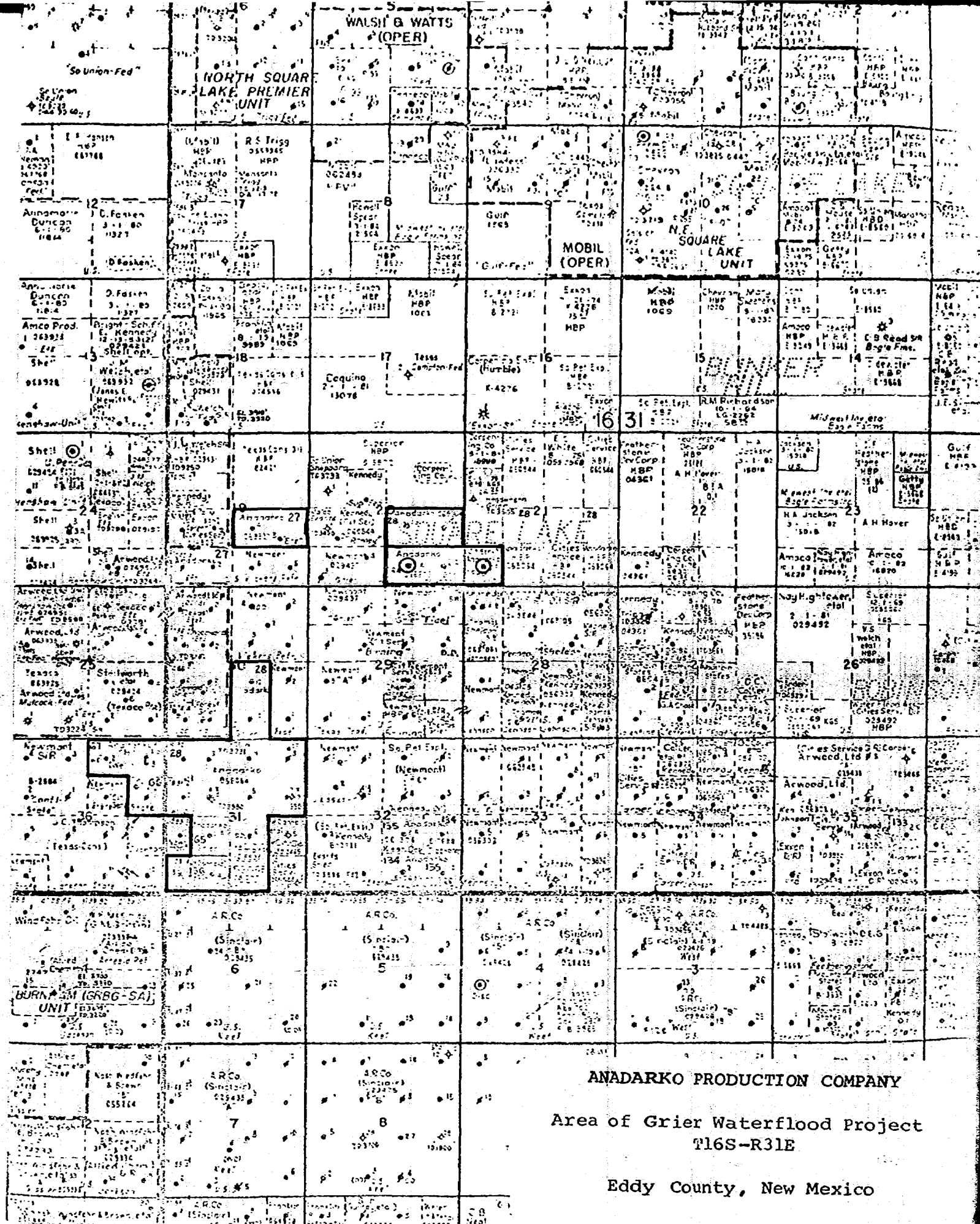
*James W. Kellahin*  
KELLAHIN & FOX

Post Office Box 1769  
Santa Fe, New Mexico 87501









BAXTER "A" FEDERAL NO. 1  
660' FSL & 1980' FEL SECTION 20 T 16S - R 31E

ELEV 3964' GL

Injection to consist of 150-200  
Barrels of Fresh-Produced  
Water Mixture into Premier and  
Lovington Zones @ a Surface  
Pressure of 2600 PSI.

Pressure Monitor

8 3/8" OD Surface Casing Set @  
272' Cemented to Surface.

2 3/8" Plastic Coated Tubing Set @  
Approx. 3320' w/ Tension Packer.

5 1/2" Casing Set @ 3517' w/ 125 sx.

Premier Sand

Perfs 3356-66'

Lovington Zone

Perfs 3492-3506'

PB TD. 3507'  
TD 3517'

ANADARKO PRODUCTION COMPANY  
GRIER WATERFLOOD EXPANSION  
EDDY COUNTY, NEW MEXICO

PROPOSED  
DIAGRAM OF INJECTION WELL  
COMPLETION

JUNE 30, 1975

FEDERAL "A" NO. 3  
660' FS & WL SEC. 21 T16S - R 31E

ELEV. 3983' GL.

Pressure Monitor

8 3/4" O.D. Surface Pipe Set  
@ 359'

Injection to Consist of 150-200  
Barrels of Fresh-Produced Water  
Mixture into Premier Zone @ a  
Surface Pressure of 2600 PSI

2830' Top of Cement By Temp. Log

2 3/8" O.D. Plastic Coated Tubing  
Set @ Approx 3400' w/ Tension Packer

4 1/2" O.D. Casing Set @ 3615'

Premier Sand

3415'

3450'

TD 3615'

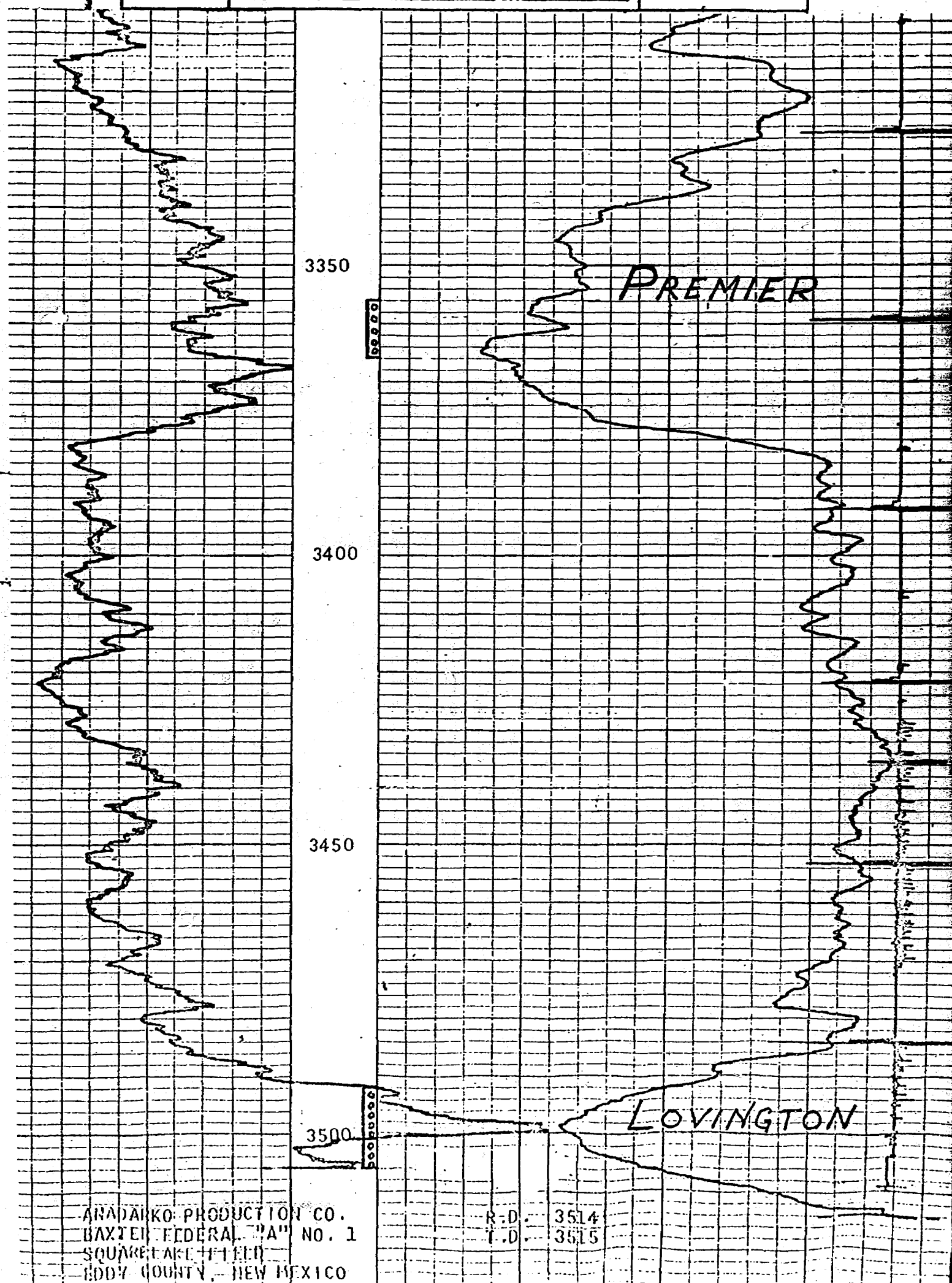
ANADARKO PRODUCTION COMPANY  
GRIER WATERFLOOD EXPANSION  
EDDY COUNTY, NEW MEXICO

PROPOSED  
DIAGRAM OF INJECTION WELL  
COMPLETION

JUNE 30, 1975

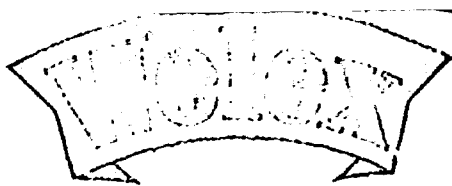
# Radioactivity Log CORRECTED COPY

	COMPANY	ANADARKO PRODUCTION CO.	
	WELL	BAXTER FEDERAL "A" NO. 1	
	FIELD	SQUARE LAKE	
	STATE	NEW MEXICO	COUNTY
	LOCATION:		OTHER SERVICES:
	SEC.	TWP.	RGE.



ANADARKO PRODUCTION CO.  
BAXTER FEDERAL "A" NO. 1  
SQUARE LAKE FIELD  
EDDY COUNTY, NEW MEXICO

R.D. 3514  
F.D. 3515



ANADARKO PRODUCTION COMPANY  
1966

COMPANY Anadarko  
Production Company  
WELL Kennedy Federal  
= 1  
FIELD East Square Lake  
County Eddy State N.M.

COMPANY ANADARKO PRODUCTION COMPANY

WELL KENNEDY FEDERAL # 1

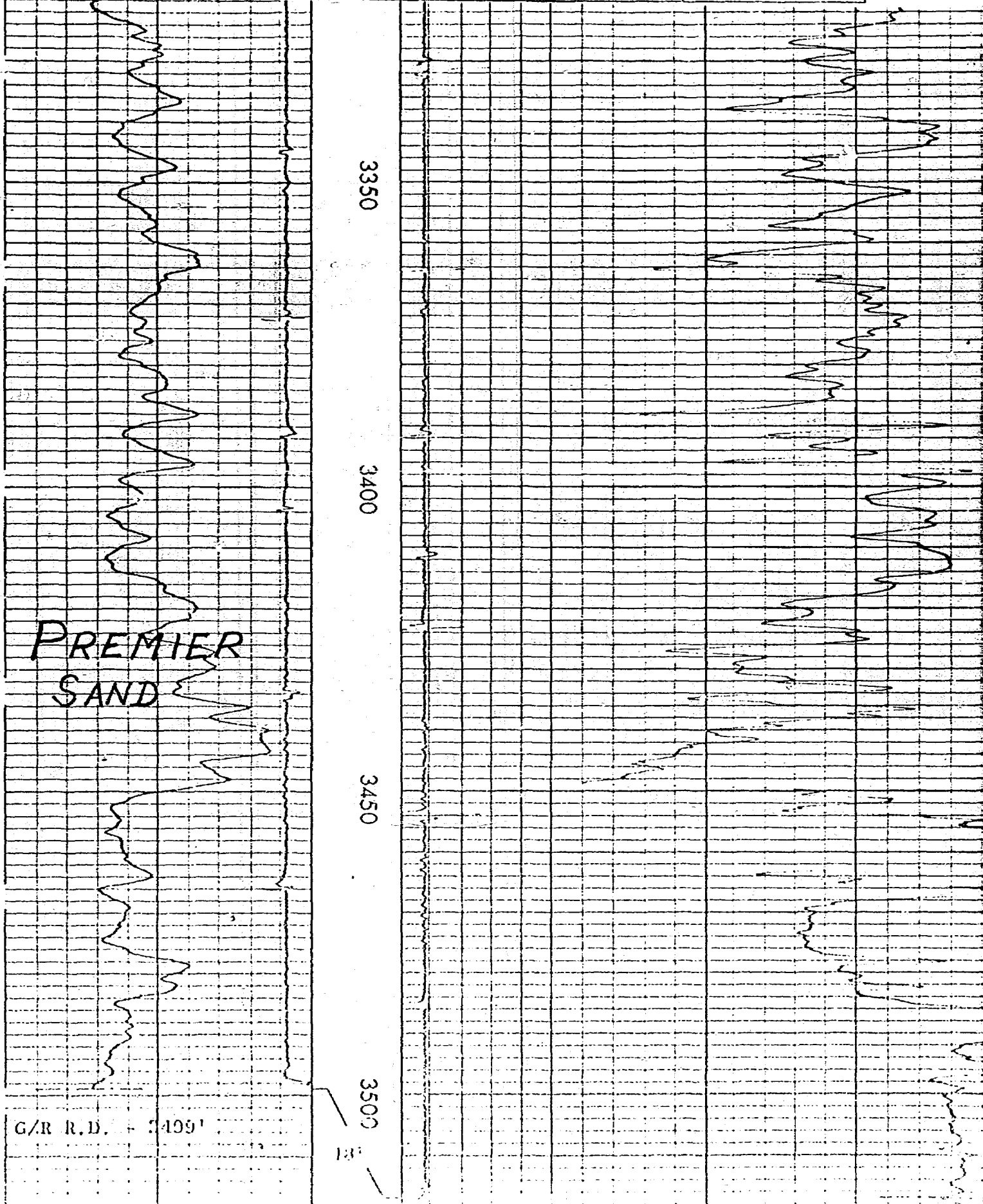
FIELD EAST SQUARE LAKE

COUNTY EDDY STATE NEW MEXICO

Location 660' FSL & 660' FWL

Other Services:

Sec. 21 Twp 16-S Rge 31-E





FIELD: SQUARE LAKE

RESERVOIR: \_\_\_\_\_

STATE: NEW MEXICO

LEASE/UNIT: BAXTER 'A' FEDERAL

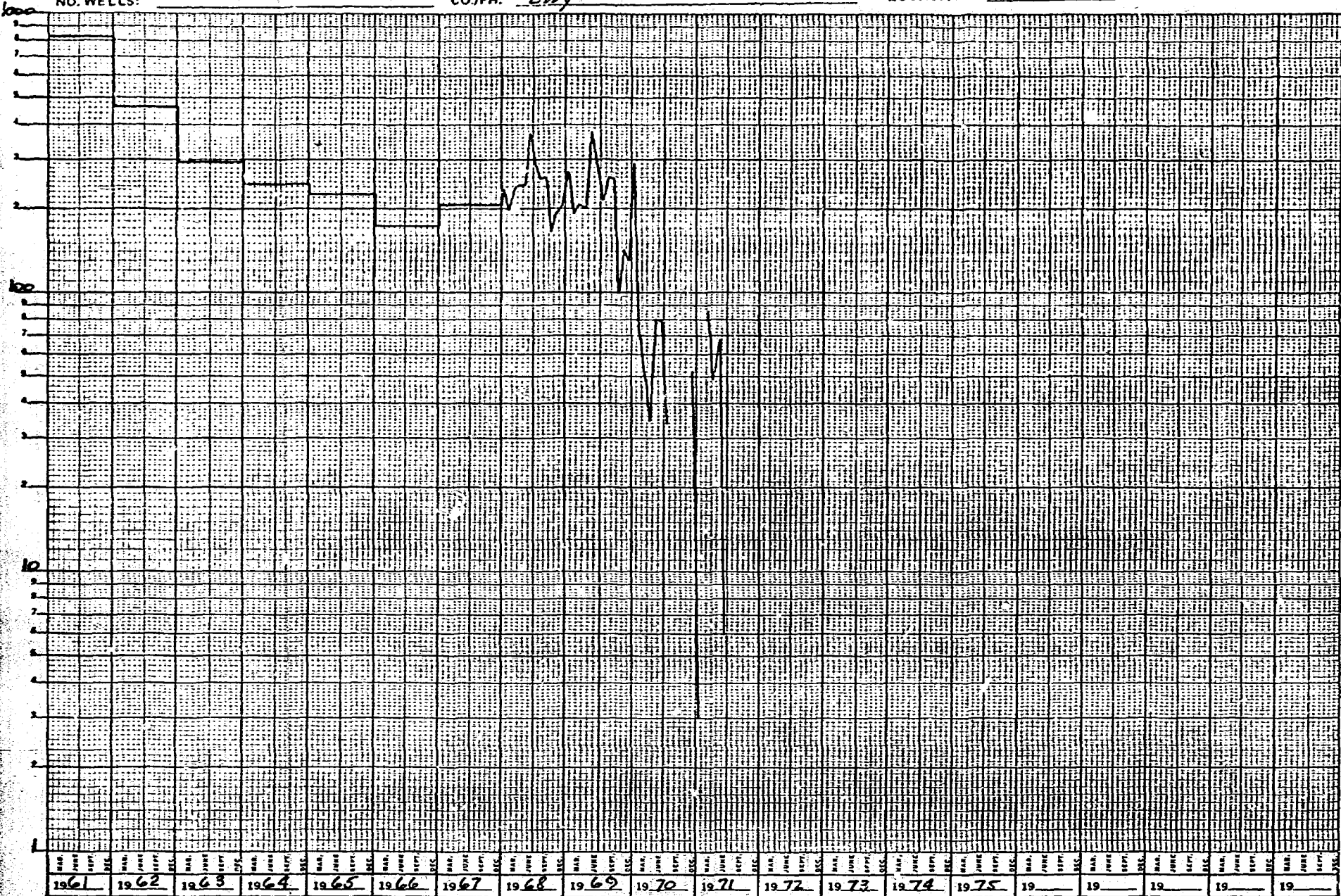
PERFS: \_\_\_\_\_

OPERATOR: ANADARKO PRODUCTION CO.

NO. WELLS: \_\_\_\_\_

CO./PH. EDDY

LOCATION: 0 SEC. 20 - T16S - R31E



TIME IN YEARS

ACCT. CODE NO. \_\_\_\_\_

LEASE NAME BAXTER 'A' FEDERAL

WELL NO. 1

FIELD: SQUARE LAKE

RESERVOIR: \_\_\_\_\_

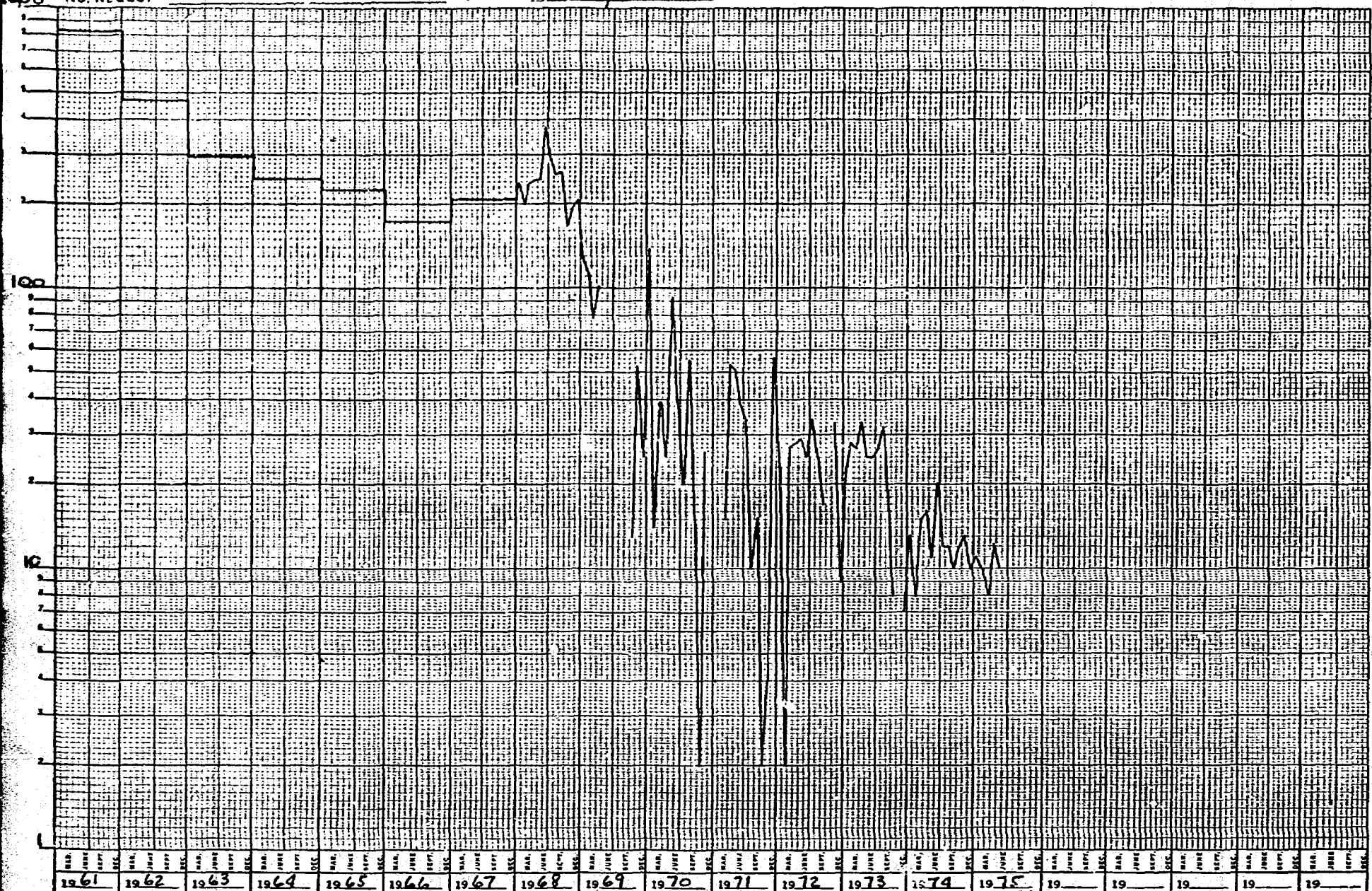
STATE: NEW MEXICOLEASE/UNIT: BAXTER "A" FEDERAL

PERFS: \_\_\_\_\_

OPERATOR: ANADARKO PRODUCTION Co.

NO. WELLS: \_\_\_\_\_

CO./PH. \_\_\_\_\_

EddyLOCATION: P SEC 20-T16S-R31E

ACCT. CODE NO. \_\_\_\_\_

LEASE NAME

BAXTER "A" FEDERAL

WELL NO.

2

LEASE/UNIT: FEDERAL "A"

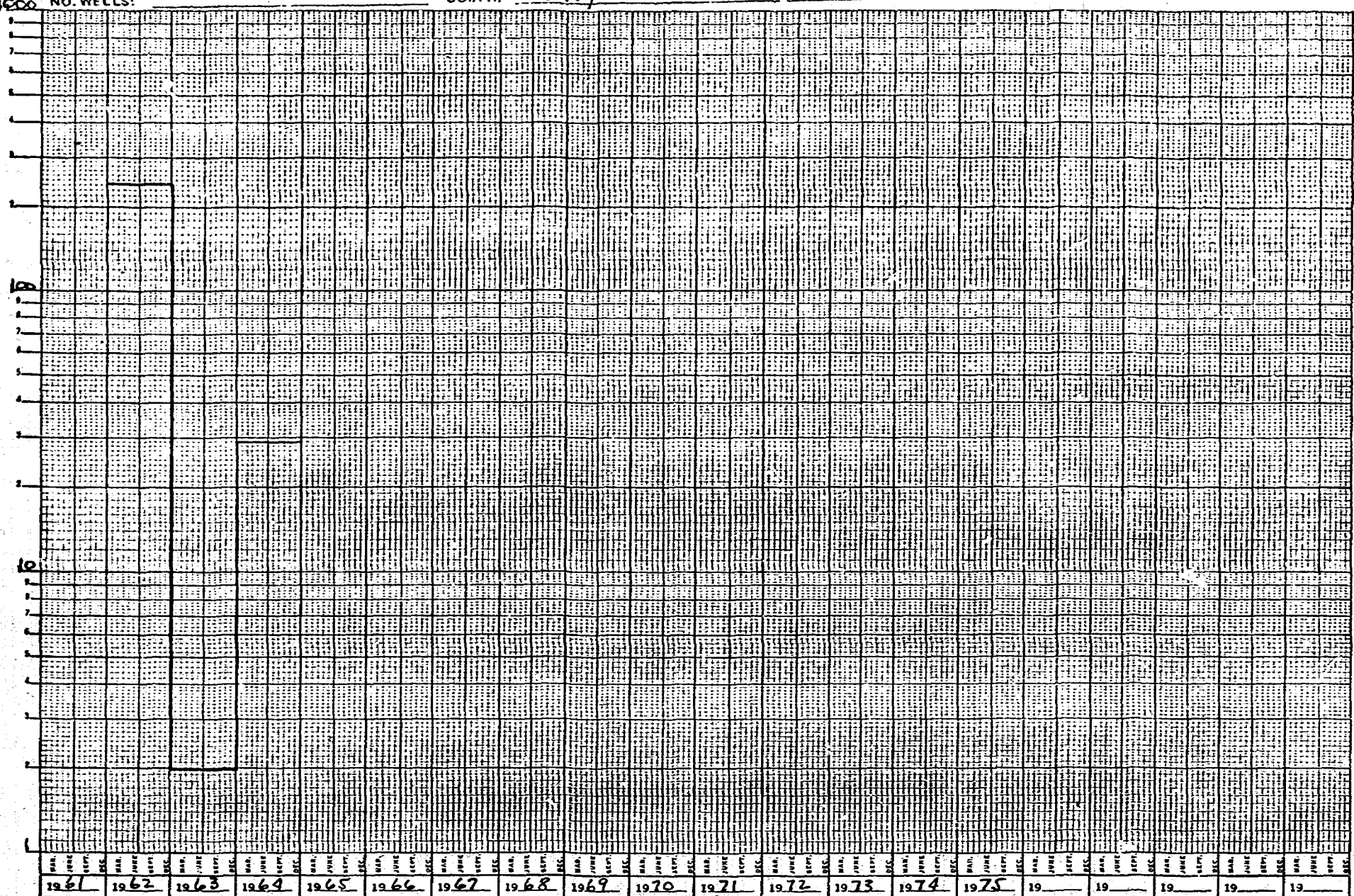
RESERVOIR: \_\_\_\_\_

STATE: NEW MEXICO

OPERATOR: ANADARKO PRODUCTION Co.

LOCATION: M SEC 21-T16S-R31E

1000 NO. WELLS:

CO./PH. Eddy

ACCT. CODE NO.

LEASE NAME

TIME IN YEARS  
FEDERAL "A"

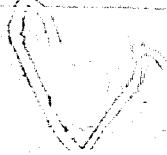
WELL NO.

5



## ANADARKO PRODUCTION COMPANY WELLS

<u>Month</u>	Baxter "A" Federal Lease Sec. 20 T16S-R31E		
	<u>Oil</u>	<u>Gas</u>	<u>Water</u>
January 1975	11		
February	10		
March	8		
April	12		
May	10		



<u>Month</u>	Baxter "A" Federal #1 Sec. 20 T16S-R31E			Baxter "A" Federal #2 Sec. 20 T16S-R31E			Federal "A" #3 Sec. 21 T16S-R31E		
	<u>Oil</u>	<u>Gas</u>	<u>Water</u>	<u>Oil</u>	<u>Gas</u>	<u>Water</u>	<u>Oil</u>	<u>Gas</u>	<u>Water</u>
January 1974				13		310			
February				8		280			
March				15		310			
April				16		300			
May				11		310			
June				20		300			
July				12		310			
August				12		300			
September				10		300			
October				12		310			
November				13		300			
December				<u>10</u>		<u>310</u>			
<u>1974 Total</u>				<u>152</u>		<u>3640</u>			
January 1973				22	92	567			
February				28	86	504			
March				27	203	558			
April				33	261	412			
May				25	335	310			
June				25	325	300			
July				27	226	170			
August				32	218	310			
September				18	-	300			
October				8	-	310			
November				-	-	250			
December				<u>7</u>	<u>-</u>	<u>150</u>			
<u>1973 Total</u>				<u>252</u>	<u>1746</u>	<u>3862</u>			

<u>Month</u>	<u>Baxter "A" Federal #1</u> <u>Sec. 20 T16S-R31E</u>			<u>Baxter "A" Federal #2</u> <u>Sec. 20 T16S-R31E</u>			<u>Federal "A" #3</u> <u>Sec. 21 T16S-R31E</u>		
	<u>Oil</u>	<u>Gas</u>	<u>Water</u>	<u>Oil</u>	<u>Gas</u>	<u>Water</u>	<u>Oil</u>	<u>Gas</u>	<u>Water</u>
January 1972				23	286	153			
February				2	106	145			
March				27	122	189			
April				28	12	174			
May				29	67	93			
June				25	53	90			
July				34	31	93			
August				25	4	82			
September				17	12	84			
October				-	36	94			
November				33	46	90			
December				9	111	1820			
<u>1972 Total</u>				<u>252</u>	<u>876</u>	<u>3026</u>			
January 1971	3	-	-	4	-	-			
February	-	-	-	-	-	-			
March	85	-	1190	15	-	108			
April	49	-	900	53	3	100			
May	67	-	1195	51	-	90			
June	6	-	1423	38	-	108			
July	-	-	2010	34	-	135			
August	-	-	1850	10	-	110			
September	-	-	1500	15	31	150			
October	-	-	1000	2	74	142			
November	-	-	-	4	169	90			
December	-	-	-	56	308	93			
<u>1971 Total</u>	<u>210</u>	<u>-</u>	<u>11068</u>	<u>282</u>	<u>585</u>	<u>1126</u>			

Month	Baxter "A" Federal #1 Sec. 20 T16S-R31E			Baxter "A" Federal #2 Sec. 20 T16S-R31E			Federal "A" #3 Sec. 21 T16S-R31E		
	Oil	Gas	Water	Oil	Gas	Water	Oil	Gas	Water
January 1970	290	282	593	136	132	190			
February	77	307	390	14	56	-			
March	50	204	125	39	160	804			
April	35	84	1305	25	60	201			
May	80	188	1374	91	214	288			
June	79	176	1125	40	89	258			
July	34	74	89	20	45	215			
August	-	-	-	55	78	124			
September	-	-	-	15	7	174			
October	-	-	-	2	5	175			
November	-	-	-	26	-	164			
December	52	-	73	-	-	-			
<u>1970 Total</u>	<u>697</u>	<u>1315</u>	<u>5074</u>	<u>463</u>	<u>846</u>	<u>2593</u>			
January 1969	270	260	29	124	261	-	-	-	14
February	193	254	28	112	255	-	-	-	-
March	206	269	-	78	269	31	-	-	-
April	200	179	25	101	179	50	-	-	-
May	373	350	-	-	29	-	-	-	-
June	287	413	-	-	90	-	-	-	-
July	215	284	-	-	284	-	-	-	-
August	258	256	-	-	256	-	-	-	-
September	259	243	-	-	243	-	-	-	-
October	100	395	-	13	11	-	-	-	-
November	141	293	45	52	108	5	-	-	-
December	130	360	571	25	80	-	-	-	-
<u>1969 Total</u>	<u>2632</u>	<u>3556</u>	<u>698</u>	<u>505</u>	<u>1993</u>	<u>86</u>	<u>-</u>	<u>-</u>	<u>14</u>

Month	Baxter "A" Federal #1 Sec. 20 T16S-R31E			Baxter "A" Federal #2 Sec. 20 T16S-R31E			Federal "A" #3 Sec. 21 T16S-R31E		
	Oil	Gas	Water	Oil	Gas	Water	Oil	Gas	Water
January 1968	234	124	-	234	124	-	-	-	22
February	199	125	-	199	125	-	-	-	23
March	236	100	-	236	101	-	-	-	23
April	243	100	-	243	100	-	-	-	19
May	245	142	-	245	143	-	-	-	17
June	375	364	-	376	364	-	-	-	15
July	287	292	-	287	292	-	-	-	14
August	255	-	-	255	373	-	-	-	14
September	259	332	-	259	332	-	-	-	14
October	166	315	-	167	315	-	-	-	14
November	191	305	-	190	306	-	-	-	14
December	203	314	-	204	315	-	-	-	14
<u>1968 Total</u>	<u>2893</u>	<u>2513</u>	<u>-</u>	<u>2895</u>	<u>2890</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>218</u>
January 1967									
February									
March									
April									
May									
June									
July									
August									
September									
October									
November									
December									
<u>1967 Total</u>	<u>2492</u>	<u>1537</u>	<u>-</u>	<u>2491</u>	<u>1541</u>	<u>-</u>	<u>306</u>	<u>-</u>	<u>-</u>

<u>Month</u>	<u>Baxter "A" Federal #1</u> <u>Sec. 20 T16S-R31E</u>			<u>Baxter "A" Federal #2</u> <u>Sec. 20 T16S-R31E</u>			<u>Federal "A" #3</u> <u>Sec. 21 T16S-R31E</u>		
	<u>Oil</u>	<u>Gas</u>	<u>Water</u>	<u>Oil</u>	<u>Gas</u>	<u>Water</u>	<u>Oil</u>	<u>Gas</u>	<u>Water</u>
January 1966									
February									
March									
April									
May									
June									
July									
August									
September									
October									
November									
December									
<u>1966 Total</u>	<u>2063</u>	<u>1392</u>	<u>-</u>	<u>2066</u>	<u>1394</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>1138</u>
January 1965									
February									
March									
April									
May									
June									
July									
August									
September									
October									
November									
December									
<u>1965 Total</u>	<u>2699</u>	<u>4393</u>	<u>-</u>	<u>2601</u>	<u>4242</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>1284</u>

<u>Month</u>	Baxter "A" Federal #1 Sec. 20 T16S-R31E			Baxter "A" Federal #2 Sec. 20 T16S-R31E			Federal "A" #3 Sec. 21 T16S-R31E		
	<u>Oil</u>	<u>Gas</u>	<u>Water</u>	<u>Oil</u>	<u>Gas</u>	<u>Water</u>	<u>Oil</u>	<u>Gas</u>	<u>Water</u>
January 1964									
February									
March									
April									
May									
June									
July									
August									
September									
October									
November									
December									
<u>1964 Total</u>	<u>2947</u>	<u>8334</u>	<u>-</u>	<u>2936</u>	<u>8304</u>	<u>-</u>	<u>344</u>	<u>1190</u>	<u>1029</u>
January 1963									
February									
March									
April									
May									
June									
July									
August									
September									
October									
November									
December									
<u>1963 Total</u>	<u>3545</u>	<u>13600</u>	<u>16</u>	<u>3546</u>	<u>13601</u>	<u>26</u>	<u>1855</u>	<u>6760</u>	<u>-</u>

<u>Month</u>	<u>Baxter "A" Federal #1</u> <u>Sec. 20 T16S-R31E</u>			<u>Baxter "A" Federal #2</u> <u>Sec. 20 T16S-R31E</u>			<u>Federal "A" #3</u> <u>Sec. 21 T16S-R31E</u>		
	<u>Oil</u>	<u>Gas</u>	<u>Water</u>	<u>Oil</u>	<u>Gas</u>	<u>Water</u>	<u>Oil</u>	<u>Gas</u>	<u>Water</u>
January 1962									
February									
March									
April									
May									
June									
July									
August									
September									
October									
November									
December									
<u>1962 Total</u>	<u>5575</u>	<u>-</u>	<u>-</u>	<u>3424</u>	<u>-</u>	<u>-</u>	<u>2905</u>	<u>-</u>	<u>-</u>
January 1961									
February									
March									
April									
May									
June									
July									
August									
September									
October									
November									
December									
<u>1961 Total</u>	<u>2930</u>	<u>6414</u>	<u>-</u>	<u>5159</u>	<u>6419</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>



- CASE 5517: Application of Petro Lewis Corporation for an unorthodox oil well location, Sandoval County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of an oil well to be drilled 1305 feet from the North line and 2310 feet from the East line of Section 22, Township 19 North, Range 3 West, Southwest Media-Entrada Oil Pool, Sandoval County, New Mexico.
- CASE 5512: Application of NRM Petroleum Corporation for an unorthodox gas well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox gas well location, as amended, for a well to be drilled at a point 910 feet from the North line and 660 feet from the West line of Section 33, Township 20 South, Range 30 East, Golden Lane Gas Field, Eddy County, New Mexico.
- CASE 5508: Application of Dugan Production Corporation for a non-standard gas proration unit, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks approval for a 160-acre non-standard gas proration unit comprising the SW/4 of Section 14, Township 24 North, Range 5 West, Basin-Dakota Pool, Rio Arriba County, New Mexico, to be dedicated to a well at a standard location in Unit L of said Section 14.
- CASE 5518: Application of Anadarko Production Co. for two waterflood projects and an administrative procedure, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute two waterflood projects in the Square Lake Pool by injection of water into the Grayburg-San Andres formations through its Kennedy Well No. 1, located in Unit M of Section 21, and its Baxter "A" Federal Well No. 1, located in Unit O of Section 20, both in Township 16 South, Range 31 East, Eddy County, New Mexico. Applicant further seeks the adoption of an administrative procedure whereby the aforesaid projects as well as those projects operated under authority of Orders Nos. R-2920, R-2977, and R-3677 could be combined for purposes of operation, control, and reporting, and whereby additional wells could be placed on injection or production without notice and hearing.
- CASE 5519: Application of Western Oil Producers, Inc. for an unorthodox gas well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox gas well location of a proposed Devonian oil test well, in the event said well should also be completed as a gas well in the Morrow formation, said well to be located 660 feet from the South line and 2310 feet from the West line of Section 25, Township 17 South, Range 25 East, West Atoka-Morrow Gas Pool, Eddy County, New Mexico.
- CASE 5520: Application of Yates Petroleum Corporation for two unorthodox gas well locations, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of two proposed gas wells, the first being 1980 feet from the North line and 660 feet from the West line of Section 31, Township 17 South, Range 26 East, West Atoka-Morrow Gas Pool, Eddy County, New Mexico, to have dedicated the N/2 of said Section 31; and the second being 880 feet from the South line and 660 feet from the West line of said Section 31, to have dedicated the S/2 of said Section 31.

DRAFT  
RLS/jr

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. 5518

Order No. R- 5065

APPLICATION OF ANADARKO PRODUCTION COMPANY  
FOR WATERFLOOD PROJECT CONSOLIDATION, WATER-  
FLOOD EXPANSION, AND AN ADMINISTRATIVE PRO-  
CEDURE, EDDY COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on July 2, 1975,  
at Santa Fe, New Mexico, before Examiner Richard L. Stamets.

NOW, on this \_\_\_\_\_ day of July, 1975, 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, is the  
operator and successor in interest to those certain waterflood  
projects and waterflood buffer zones heretofore approved by the  
Commission, as follows:

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- (a) The Anadarko Square Lake Etz Waterflood project.
- (b) The Anadarko Square Lake Grier No. 2 Waterflood project.

Both of which were approved by Commission Order No. R-3677, dated February 13, 1969.

(c) The Kennedy Oil Company Square Lake Waterflood project, approved by Commission Order No. R-2920, dated June 8, 1965.

(d) The Cima Capitan, Inc., et al., cooperative waterflood project in the Square Lake Pool, approved by Order No. R-2977, dated October 7, 1965, in which project applicant has succeeded to the interests of Western Oil Fields, Inc., and Cima Capitan, Inc.

(3) That for convenience of operation, reporting, and control of said projects, they should be consolidated into a single project.

(4) That the applicant seeks to expand said project by the injection of water into the Grayburg and San Andres formations through its Baxter "A" Federal Well No. 1 in Unit O of Section 20 and its Federal "A" Well No. 3 in Unit M of Section 21, both located in Township 16 South, Range 31 East, NMPM, Square Lake Pool, Eddy County, New Mexico.

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

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

(7) That an administrative procedure should be established whereby additional injection and producing wells at orthodox and unorthodox locations in the project area may be approved without notice and hearing.

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(8) 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 is hereby authorized to consolidate for purposes of operation and reporting those certain waterflood projects and waterflood buffer zones heretofore approved by the Commission, as follows:

- a. The Anadarko Square Lake Etz Waterflood project;
- b. The Anadarko Square Lake Grier No. 2 Waterflood project;

~~Both of which were approved by Commission Order No.~~

~~R-2677, dated February 13, 1969.~~

- c. The Kennedy Oil Company Square Lake Waterflood project; ~~approved by Commission Order No. R-2920, dated June 8, 1967~~ ; and

- d. The Cima Capitan, Inc., et al., cooperative waterflood project in the Square Lake Pool; ~~approved by Order No. R-2977, dated October 7, 1965, in which project applicant has succeeded to the interests of Western Oil Fields, Inc., and Cima~~

~~Capitan, Inc.~~  
all in Eddy County, New Mexico.

(2) That the resultant consolidated waterflood project is hereby designated the Anadarko Consolidated Square Lake Waterflood Project and shall be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

(3) That the applicant is hereby authorized to expand said Consolidated Square Lake Waterflood Project <sup>in the</sup> ~~on its~~ Square Lake Pool by the injection of water into the Grayburg and San Andres formations through the following-described wells in Township 16 South, Range 31 East, NMPM, Eddy County, New Mexico:

<u>Lease Name</u>	<u>Well No.</u>	<u>Unit</u>	<u>Section</u>
Baxter "A" Federal	1	O	20
Federal "A"	3	M	21

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(4) That injection into each of said wells shall be through internally coated tubing, set in a packer which shall be located as near as practicable to the uppermost perforation; 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.

(5) 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 injection well, 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.

(6) The Secretary-Director of the Commission is hereby authorized to approve such additional producing wells and injection wells at orthodox and unorthodox locations within the boundaries of the Anadarko Consolidated Square Lake Waterflood Project area as may be necessary to complete an efficient production and injection pattern, provided said wells are drilled no closer than 330 feet to any lease line nor closer than 10 feet to any quarter-quarter section or subdivision inner boundary. To obtain such approval, the project operator shall file proper application with the Commission, which application, if it seeks authorization to convert additional wells to injection or to drill additional production or injection wells shall include the following:

(a) A plat showing the location of proposed well, all wells within the project area, and offset operators, locating wells which offset the project area.

(b) A schematic drawing of the proposed well which fully describes the casing, tubing, perforated interval, and depth.

(c) A letter stating that all offset operators to the proposed well have been furnished a complete copy of the application and the date of notification.

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The Secretary-Director may approve the proposed well if, within 20 days after receiving the application, no objection to the proposal is received. The Secretary-Director may grant immediate approval, provided waivers of objection are received from all offset operators.

(7) 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.

(8) 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 herein-  
above designated.