

CASE 5562: Appl. of AGUA, INC.
For amendment of Order no. R-4495,
Lea County, New Mexico

CASE NO.

5562

APPLICATION,
TRANSCRIPTS,
SMALL EXHIBITS,
ETC.

NEW MEXICO OIL CONSERVATION COMMISSION

EXAMINER HEARING

SANTA FE, NEW MEXICO

Hearing Date

SEPTEMBER 26, 1975

TIME: 10:00 A.M.

NAME	REPRESENTING	LOCATION
J. E. Sperry	Wolcott Sperry et al	all
W. L. Jordan Jr.	Exxon	Andrews, Texas
Kenneth Stearns Rose	EXXON	ANDREWS, TEXAS
W. G. Abbott	AGUA	Hobbs
A. J. T. Janica	ACUA	Hobbs.
Paul Van Wageningen	EXXON	MIDLAND, TX
Paul Dunning	Quincy Church & Co.	Roswell

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
September 26, 1975

EXAMINER HEARING

IN THE MATTER OF:

Application of Agua, Inc. for the amendment of Order No. R-4495, Lea County, New Mexico. CASE 5562

BEFORE: Daniel S. Nutter, Examiner.

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the New Mexico Oil Conservation Commission: William F. Carr, Esq.
Legal Counsel for the Commission
State Land Office Building
Santa Fe, New Mexico

For the Applicant: James T. Jennings, Esq.
JENNINGS, CHRISTY & COPPLE
Attorneys at Law
1012 Security National Bank Bldg.
Roswell, New Mexico

For Exxon Company: James E. Sperling, Esq.
MODRALL, SPERLING, ROEHL,
HARRIS & SISK
Attorneys at Law
Public Service Building
Albuquerque, New Mexico

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1 MR. NUTTER: The Hearing will come to order, please.
2 This morning we will hear Case Number 5562 which is the
3 application of Agua, Inc. for the amendment of Order No.
4 R-4495, Lea County, New Mexico.

5 Call for appearances, please.

6 MR. JENNINGS: I'm James T. Jennings of Jennings,
7 Christy and Copple, appearing for the applicant. I will have
8 two witnesses, Mr. Bill Abbott and Mr. Joe Janica.

9 MR. SPERLING: James E. Sperling of Modrall,
10 Sperling, Roehl, Harris and Sisk, Albuquerque, appearing for
11 Exxon Company U.S.A. We will have two witnesses.

12 MR. NUTTER: Other appearances? Will you please
13 proceed, Mr. Jennings?

14 MR. CARR: Will all witnesses please stand?

15 (THEREUPON, the witnesses were duly sworn.)

16 WILLIAM G. ABBOTT

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

19
20 DIRECT EXAMINATION

21 BY MR. JENNINGS:

22 Q Would you state your name and occupation, please,
23 sir?

24 A I'm W. G. Abbott and I'm the manager of Agua, Inc.
25 in Hobbs, New Mexico.

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1 Q What is the nature of Agua, Inc.'s business?

2 A We are in the salt water disposal business.

3 Q Mr. Abbott, have you appeared before this Commission
4 many times and had your qualifications accepted?

5 A Yes, sir.

6 MR. JENNINGS: Do you wish to further qualify Mr.
7 Abbott?

8 MR. NUTTER: No, sir.

9 Q (Mr. Jennings continuing.) Are you familiar with
10 the application that has been filed herein, Mr. Abbott?

11 A Yes, sir.

12 Q Generally are you in charge of the operations of
13 the salt water disposal, or what do you call your salt water
14 disposal system?

15 A Blinebry-Drinkard salt water disposal system.

16 Q Where is this generally located?

17 A It is generally located around the area of -- the
18 immediate area of units.

19 Q How many wells?

20 A Approximately four hundred and thirty wells are
21 connected to this system.

22 Q You have stated that you are familiar with the
23 application filed herein, would you briefly state what the
24 purpose of the application is?

25 A We are applying to perforate some additional zone

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1 above our original open hole interval. We want to perforate
2 an additional zone behind the seven-inch casing from forty-one
3 twenty to forty-one ninety, and from forty-two thirty to
4 forty-three twenty.

5 Q That is in the well, your SWD Well No. C-2 located
6 in Unit C of Section 2, Township 22 South, Range 37 East?

7 A That's right.

8 Q Did you at a prior hearing before this Commission
9 obtain permission to use that water for water disposal purposes?

10 A Yes, to use the well for salt water disposal.

11 Q By Order 4495?

12 A Yes.

13 Q Is the well currently being used for that purpose?

14 A Yes, it is.

15 Q At what depth are you currently injecting water?

16 A We received permission, verbal permission, to
17 perforate from forty-one twenty to forty-one ninety, and also
18 from forty-two thirty to forty-three twenty. We selected to
19 perforate on September 17th, the interval from forty-two
20 thirty to forty-three twenty.

21 Q Prior to the perforation what interval were you --

22 A It was the open hole interval below forty-four
23 hundred where the seven-inch casing was set, down to the total
24 depth of the well of forty-nine fifty.

25 Q And how much water were you disposing of in that area?

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1 A. The maximum at that depth in that interval, the
2 maximum injection of the well was two hundred and forty barrels
3 an hour.

4 Q Is that all on a vacuum?

5 A. Yes, sir.

6 MR. NUTTER: That two hundred and forty barrels
7 an hour was initial injection into what zone, Mr. Abbott?

8 THE WITNESS: That was the open hole zone.

9 MR. NUTTER: Was that when the well was originally
10 completed?

11 THE WITNESS: No, that was a test taken approximately
12 a week ago.

13 MR. NUTTER: I see.

14 Q (Mr. Jennings continuing.) Now, you propose to
15 perforate a different zone, is that correct?

16 A. Yes, we have perforated on September 17th from
17 forty-two thirty to forty-three twenty. We acidized with
18 five thousand gallons of fifteen percent acid and then we
19 took another maximum injection test which indicates that
20 these perforations, plus the open hole, would take approximately
21 five hundred barrels an hour.

22 Q Why did you desire to put the additional water into
23 this well, Mr. Abbott?

24 A. Well, if we go back to our exhibits -- first of
25 all we had a letter from Mr. Joe Ramey dated the twenty-second

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1 of August.

2 Q I hand you what has been marked Exhibit One, is
 3 that the letter?

4 A Yes, sir.

5 Q What is the general nature of that letter?

6 A In this letter the Commission instructed us to shut
 7 in our disposal well H-35 located in Unit letter H of Section
 8 35, of Township 22 South, Range 37 East, and because of this
 9 we had to direct the water from this SWD H-35 to SWD C-2.
 10 That is shown on our Exhibit Two?

11 Q Exhibit Two is the map that is on the wall behind
 12 Mr. Nutter?

13 A Yes, sir.

14 Q Generally what does that map show?

15 A Well, that shows an indicated line in red which is
 16 a six-inch line that we installed to pump the water up from
 17 SWD H-35 up to SWD C-2.

18 Q That line is installed now?

19 A Yes, sir, it is.

20 Q What type of a line is it?

21 A It's a six-inch PVC line. This permission to lay
 22 this line to take care of the water from H-35 and dispose
 23 of it in SWD C-2 is shown in our next exhibit, minutes of
 24 our committee meeting of the Blinebry-Drinkard SWD system.
 25 At that meeting we indicated that this was the only way that

1 we could see to dispose of the water from H-35 after we shut
2 in H-35. This meeting was attended by quite a few of the
3 operators or parties to the Blinebry-Drinkard salt water
4 disposal system.

5 Q When you received Mr. Ramey's letter of August 22nd,
6 did you have any alternate places to dispose of the water
7 that was being injected into the H well in Section 35?

8 A No, the alternative would be to haul the water and
9 we estimated that would cost two thousand dollars a day to
10 haul the water from the H-35 to other disposal wells. This
11 amounted to approximately two hundred and fifty barrels an
12 hour which would have required us to have two trucks per
13 hour hauling from that well, and the cost was excessive.

14 So at our meeting with all of the parties to the
15 system on August 25th, we decided to go the route of laying
16 a temporary six-inch line and pumping the water to SWD C-2.

17 Q Is it your plan to use this well for this increased
18 volume permanently, or is this a temporary thing?

19 A We hope it is just a temporary measure until we
20 secure another disposal well to replace the SWD H-35. We
21 are at present making a search of the area in the records to
22 secure a suitable location for reCompleting a present well
23 or drilling a new disposal well somewhere in the area north
24 and west of our SWD H-35.

25 Q Mr. Abbott, I hand you what has been marked as

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1 Exhibit Six and ask if you would identify that and tell us
2 what that is?

3 A Exhibit Number Six is our request to the Conservation
4 Commission on our C-103, requesting permission to go ahead
5 with the additional perforations in the SWD C-2.

6 Q And that was approved?

7 A Yes, sir, it was.

8 Q And that was pursuant to that that you did make
9 the perforations?

10 A Yes, that's right.

11 Q Referring to what has been marked as Exhibit Eight
12 would you tell us what that is?

13 A Exhibit Eight is the diagrammatic sketch of our
14 SWD C-2.

15 Q What does it show with reference to the casing
16 program?

17 A It shows the nine and five-eighths inch casing set
18 at three hundred and twelve feet, and the seven-inch casing
19 set at forty-four hundred feet, and the open hole area from
20 the bottom of the casing to the total depth. Also shown on
21 here is the perforated interval, forty-two thirty to
22 forty-three twenty, which we perforated September 17th.

23 It also indicates the oil blanket in the annular
24 space between the five and a half inch tubing and the seven-
25 inch casing.

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1 Q This is the same well that was originally drilled
2 pursuant to the Commission's approval?

3 A Yes, sir.

4 Q How much cement do you have in that, Mr. Abbott?

5 A The seven inch is cemented with one hundred and
6 seventy-five sacks of cement, the calculated top is thirty-
7 four hundred. The cement on the surface string circulated to
8 the surface.

9 Q Have you also made application to perforate the
10 upper zone?

11 A Yes, we have, as indicated on a submitted C-103.

12 Q But you have not yet done that?

13 A No.

14 Q Do you contemplate doing that?

15 A We will probably have to perforate in that interval,
16 or within the interval because there are indications on our
17 SWD C-2 that we have a declining injectivity, that is the
18 more water that is put in steadily, the injectivity decreases
19 on the well. This is common in San Andres disposal wells. It
20 acts approximately the way declining PI works in a San Andres
21 well, the longer you produce it the lower the PI. The
22 injectivity index indicates the same phenomona. You can shut
23 the well in and the injectivity will bounce back to about
24 the original, so that means if you put a certain volume of
25 water in the C-2, a high volume, your first indication is that

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1 you have a pretty high injectivity, but as time goes on it
2 will decrease and we think that we will have to open up some
3 more zone in the SWD C-2.

4 Q Are there other salt water disposal wells in the
5 area?

6 A Yes, sir, there is a well southwest of our disposal
7 well. It's a disposal well completed by Warren Petroleum,
8 I believe back in 1968.

9 Q To your knowledge is it currently being used as
10 an injection well?

11 A Yes, it is being used as an injection well. At
12 the end of June of this year they had disposed of five
13 million, forty-three thousand, and sixty-eight barrels in
14 that well.

15 Q How much have you injected into your SWD C-2?

16 A At the end of the same, the month of June of this
17 year, we had disposed of one million, nine hundred and thirty-
18 eight thousand, seven hundred and thirty-seven barrels.

19 Q Does Gulf have any disposal wells in the area?

20 A Not to my knowledge. Gulf has some water supply
21 wells completed in the San Andres about two and a half miles
22 northwest of our SWD C-2.

23 MR. NUTTER: Mr. Abbott, is that Warren well you
24 mentioned being southwest of your C-2 shown on your Exhibit
25 Number Two?

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1 THE WITNESS: No, it doesn't show on our Exhibit
2 Two.

3 MR. NUTTER: What is the location of it, could
4 you tell us what that is?

5 THE WITNESS: Twenty-two fifty-five from the north
6 and nine-eighty from the east of Section 3.

7 MR. NUTTER: That is Unit H of Section 3?

8 THE WITNESS: Yes, it is about right here.

9 MR. JENNINGS: It is actually shown on Exhibit
10 Thirteen when we get to that.

11 THE WITNESS: It is shown on another exhibit.

12 MR. NUTTER: That has been identified on my copy
13 of Exhibit Two with a red dot in Unit H of Section 3.

14 Q (Mr. Jennings continuing.) Mr. Abbott, I hand you
15 what has been marked as Exhibit Nine, it's a log and I ask
16 you to identify that and tell us what shows, please?

17 A Yeah, in our electric log in our SWD C-2, which
18 was run at completion, we have indicated on the log, both the
19 detailed log and the upper part of the log, the top of the
20 San Andres which is at thirty-eight thirty-two or subsea
21 depth of minus four sixty-six.

22 Also shown is our five and a half inch tubing. We
23 have shown our requested perforations and then the perforated
24 interval that we perforated on the seventeenth, and the
25 casing in open hole sections.

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1 Q Mr. Abbott, do you feel that it is feasible to
2 dispose of this additional salt water into this well in the
3 newly perforated zones?

4 A Yes, I do.

5 Q Will that result in increased recovery of oil and
6 prevent waste in your opinion?

7 A Yes, we believe it will.

8 Q Are you familiar with any production in the immediate
9 area from this zone in which you propose to dispose of the
10 water?

11 A No, sir, I can briefly go through Exhibit Ten which
12 shows the structure map.

13 Q Referring to Exhibit Ten, what is that?

14 A It is a structure map drawn on the top of the
15 San Andres in this area. If you will notice on this Exhibit
16 our top of the San Andres in the SWD C-2 is at a minus four
17 sixty-six. This is lower than any of the producing wells in
18 that area. The oil production in the San Andres Zone is to
19 the south of us on a sort of a small local high. This is
20 shown on our Exhibit Twelve, the well status map, which shows
21 which wells are producing and which are disposal and which are
22 plugged and abandoned.

23 It also shows on the next exhibit, our production
24 map, where we indicate the oil-water and percent water that
25 are being produced from these oil wells to the south.

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1 The closest well to our closest producing oil well,
2 to our SWD C-2, is Well Number 4 operated by Exxon. You will
3 note that that well has produced approximately sixteen thousand
4 barrels of oil, one hundred and forty-five thousand barrels
5 of water, and is presently making about ninety percent water.

6 Q Would you locate that well, please?

7 A That's in Unit letter O of Section 2, Township 22
8 South, Range 37 East.

9 The only other well that has -- well, there have
10 been two wells -- or one other well that has produced oil
11 in this section which is the water supply well of Exxon which
12 produced eighty-six thousand, eight hundred and seventy-seven
13 barrels of oil and three million, two hundred and fifty
14 thousand barrels of water, which is about ninety-seven percent
15 water. I think at the present time that well is shut in.

16 Q Where is it?

17 A It is in Unit letter M of Section 22, 37.

18 Q Mr. Abbott, have you obtained permission of or a
19 waiver from the various off-set operators for the injection
20 of water into this area?

21 A Yes, sir, we have secured waivers from everybody
22 except Exxon.

23 Q All of the other operators have consented to it?

24 A Yes.

25 Also I want to point out in our Exhibit Number Three,

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1 which was the minutes -- Excuse me, Exhibit Number Four,
2 which was the AFE 147, dated September 2nd of '75, that we
3 sent out to all of the parties to the system. At the
4 present time, this is at nine twenty-five, seventy-five, the
5 operators representing three hundred and eight wells have
6 approved of this AFE for a percent of seventy-three point
7 six eight. The only operator that sent the AFE back
8 disapproved was Exxon Corporation.

9 Q Mr. Abbot, were Exhibits Two and Eight prepared by
10 you or under your supervision, namely the diagrammatic sketch
11 and the map of the field?

12 A Yes.

13 Q Was Exhibit Number One received by you in the
14 ordinary course of business?

15 A Yes.

16 Q And was Exhibit Number Five received by you from
17 the Oil Conservation Commission, the approval, that is the
18 one oh three.

19 A Yeah, that was Exhibit Number Six.

20 MR. JENNINGS: That's all I have of this witness.

21 MR. NUTTER: Any questions of this witness?

22 MR. SPERLING: Yes, sir.

23 MR. NUTTER: Mr. Sperling.

24 CROSS EXAMINATION

25 BY MR. SPERLING:

1 Q Mr. Abbott, when was the C-2 well drilled?

2 A That was drilled in April of '73.

3 Q And when was it that you first contacted the
4 operators in the area indicating your interest in drilling
5 such a well?

6 A It was probably about that same time.

7 Q Well, would January of 1973, in a letter from you
8 to Exxon, I will show you a copy of it if you wish to refresh
9 your memory, be when the request was first made?

10 A That is probably about the right date.

11 Q Okay. What was Exxon's response to that advice,
12 if you recall.

13 A They didn't want us to complete in that interval
14 and requested that we complete the well or set the casing
15 at forty-four hundred and complete the open hole below
16 forty-four hundred.

17 Q Did you comply with that request?

18 A Yes, sir.

19 Q So you have been aware since January of 1973, of
20 Exxon's continuing objection to the injection of water in
21 an interval above forty-four hundred in that well, have
22 you not?

23 A Yes, we have.

24 Q When was it that you first began to have problems
25 with disposal or possible fresh water contamination in the

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1 disposal well H-35?

2 A. We haven't had any contamination. The action taken
3 by Mr. Ramey on August 21st was our first indication that
4 we would have to close in the well.

5 Q. When was that?

6 A. August 21st, 1975.

7 Q. Well, what about November of 1974, it's reflected
8 in the memo to all parties in the Blinebry-Drinkard salt water
9 disposal system in which you advised that a hearing in cause
10 number 5377 was to be held on December 3rd, 1974 in response
11 to a show cause order as to why the continued injection
12 of water for disposal purposes in the Well H-33 should be
13 permitted?

14 A. Yes, we had a state-wide hearing on that, or a
15 hearing on that area.

16 Q. Well, didn't that affect your ability to dispose
17 of salt water in the H-35 either at that time or prospectively?

18 A. No, the order written because of that hearing
19 indicated and specifically stated that Agua could continue
20 disposal in there SWD H-35.

21 Q. With what qualification?

22 A. That the maximum disposed per day over a monthly
23 period would be fifty-one hundred barrels or something like
24 that per day.

25 Q. Well, did that curtail your ability to dispose of

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1 salt water in that well?

2 A. No, we continued to dispose. We had to haul some
3 water to get the limit down below the fifty-one hundred
4 barrels a day.

5 Q. And that first began when?

6 A. After that order was put out, I don't remember
7 what the date was.

8 Q. Well, Order Number R-5003 which was issued in
9 Case 5403 on April 29, 1975 curtailed your ability to dispose
10 of water in that well, did it not?

11 A. It limited it to fifty-one hundred barrels a day.

12 Q. I said curtailed, it is approximately the same
13 thing as limited, right?

14 A. Yes, sir.

15 Q. So you have been aware since April of 1975 that
16 your ability to dispose of salt water in H-35 was limited?

17 A. Yes, sir, we have been making other plans since
18 that time.

19 Q. And what were those plans?

20 A. We were going to sell the water to Anadarko for
21 water flood which they indicated at the hearing and sub-
22 sequently when I contacted them they changed their mind and
23 they didn't want our water. I made a trip to Houston and
24 they had a change in management which changed their whole
25 promise of taking this water, and so we had to make other

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1 plans.

2 Q Did you have any information in advance of the
3 August 22, 1975 letter, Exhibit One, from Mr. Ramey to you,
4 that the injection of water in the H-35 well would be curtailed?

5 A Yes, we had an indication in a conversation with
6 Mr. Ramey on August 21st, 1975.

7 Q What was the substance of that?

8 A Mr. Ramey indicated that in the Commission's
9 opinion there was communication between the tubing and
10 casing strings in the well and we would have to close in the
11 well.

12 Q Do you know what the evidence of that communication
13 was?

14 A There was pressure indicated on our surface pipe
15 in the H-35.

16 Q How long had that continued?

17 A This was the first survey that had been run by
18 the Commission on that well to check the pressures on the
19 strings of pipe.

20 Q What was the initial test rate for disposal in the
21 C-2 well?

22 A At completion it was approximately four hundred
23 barrels per hour, I believe it was.

24 Q Well, the original C-108, I think, which you filed,
25 showed a maximum disposal of twelve thousand barrels a day,

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1 is that approximately correct?

2 A. That is approximately, yes.

3 Q. Has that declined substantially, like accept that
4 it is for physical reasons other than the curtailment order
5 of the Commission?

6 A. In SWD C-2, yes, that well has declined to about
7 two hundred and forty barrels an hour.

8 Q. Did you ever make any attempt to increase the
9 ability of the well to take water in the interval below
10 forty-four hundred feet?

11 A. We gave it a small acid job of five hundred gallons
12 of thirty percent acid which helped it somewhat, but it
13 did not greatly increase it.

14 Q. As compared to the five thousand gallon treatment
15 that you gave to the perforated interval that you testified
16 to earlier?

17 A. Yes, sir.

18 Q. Why did you use such a small quantity?

19 A. Well, at the time we knew, or I knew, that we
20 couldn't get sufficient capacity in the open hole zone, and
21 from experience I knew that we would have to perforate an
22 additional zone in that well because of the permeability
23 and porosity development below the casing.

24 Q. You say you knew, how did you know that?

25 A. From experience.

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1 Q From this well?

2 A No, from the area and the San Andres disposal.

3 Q You dismissed it as impractical to increase the
 4 acid dose?

5 A Yes, and we didn't want to increase the permeability
 6 in that open hole zone before we perforated the upper zone
 7 because we wanted the restriction in the open hole zone so
 8 that the acid treatment of the perforations would be directed
 9 to the perforations, rather than going into the open hole
 10 zone.

11 Q Well, can't you selectively inject acid into the
 12 intervals by other means?

13 A You can, but we are disposing of one hundred and
 14 twenty-five barrels per hour in that well at all times. We
 15 were perforating and we just had a short time to shut the
 16 well down so that we could do the work on it.

17 Q What method have you been using for injection in
 18 your H-35 well?

19 A Previous to the shut in of that well, we were
 20 injecting with two triplex pumps.

21 Q Of what capacity?

22 A One hundred and fifty horsepower.

23 Q A total of three hundred horsepower?

24 A Yes, sir.

25 Q Have you tried any pumps on the C-2 in the open

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1 hole interval?

2 A. No, we have not.

3 Q. Why?

4 A. They would cost money; we are trying to hold the
 5 cost down.

6 Q. What about the use of the two J-2 pumps on the
 7 S-35?

8 A. We are using those triplex pumps to pump the
 9 water from the H-35 well to the C-2 at the present time.
 10 This was all discussed at our meeting with the operators in
 11 which two representatives from Exxon were at this meeting
 12 and approved our action.

13 Q. In what form?

14 A. Vote.

15 Q. Is that a recorded vote?

16 A. No, there are twenty-five witnesses.

17 Q. Well, have you been advised since that time of
 18 Exxon's continuing objection to the injection of water at
 19 any interval above forty-four hundred feet into the C-2
 20 well by Exxon's management?

21 A. Yes, sir. In fact, I had a lecture from Mr. Byrd,
 22 Division Manager.

23 Q. Mr. Byrd made it quite clear that they were not
 24 happy with this situation, as I understand it?

25 A. That's right.

1 Q What would be the cost of installing these pumps,
2 as compared to perforating, acidizing and all of the things
3 you propose to do above forty-four hundred?

4 A Oh, pumping in the lower zone below forty-four?

5 Q Yes.

6 A The cost wouldn't be excessive, although I don't
7 believe the Conservation Commission would allow us to
8 pressure inject in that area because of the existing casing
9 programs of the producing wells around it. They would
10 rather we completed a gravity disposal well.

11 Q What are the casing programs in the other wells,
12 and what wells are you speaking of?

13 A Well, there are producing wells, deeper producing
14 wells in the area which may or may not be protected by
15 cement.

16 Q Well, has there been any investigation of that
17 situation to determine if that is the case or is that just
18 a suspicion?

19 A That is my belief that there are wells --

20 Q You have made no investigation of it personally
21 have you?

22 A No, sir.

23 Q You did make reference to the oil production from
24 the San Andres toward the south of Section 2 and continuing
25 over into Section 11, do you know what the accumulative

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1 production from the San Andres has been from the wells in
2 the area immediately to the south of the C-2 well?

3 A. I would say around three hundred and twenty-five
4 thousand barrels.

5 Q. If it is almost a half a million would that surprise
6 you?

7 A. No, that seems reasonable.

8 Q. The deeper wells that you referred to and concerning
9 which you have no specific information on the casing programs,
10 are the Glorieta wells, are those the ones you are referring
11 to, you said they were deeper, are they the ones?

12 A. There may be a Glorieta, a Tubb, a Drinkard,
13 Blinebry.

14 Q. What is the depth of the Glorieta in that area?

15 A. It may be around six thousand feet, fifty-five
16 hundred.

17 Q. And the Tubb?

18 A. I don't know what the depth is, six thousand,
19 sixty-two hundred.

20 Q. What is the nature of the San Andres reservoir in
21 this area, does it have good porosity, good permeability?

22 A. In this area it seems to have very good porosities
23 and permeabilities.

24 Q. Your injection rates would certainly indicate that?

25 A. Yes, sir.

1 Q Is it your opinion that the characteristics of
2 the reservoir are fairly uniform within the, oh, say, a mile
3 radius of the C-2 well?

4 A I think they are fairly uniform. I believe the
5 bottom of the San Andres is filled with salt water and
6 if there are any local highs there may be an accumulation of
7 oil or gas.

8 Q Did you prepare the structure map, I forget the
9 number of it, that you referred to?

10 A No, sir, our consulting geologist prepared that,
11 Mr. Janica.

12 Q Mr. Abbott, were you aware that with reference to
13 the water supply well, that you had identified, I believe,
14 as being in Unit M of Section 2, that that well had been
15 squeezed above, or in the upper San Andres?

16 A Yes, we realized that it had been squeezed.

17 Q Do you know the reason?

18 A I imagine it was squeezed because it was making
19 too much oil for a water supply well.

20 Q You expressed your opinion as to increasing the
21 production of oil and the prevention of waste, I think you
22 neglected to express an opinion as to the protection of
23 correlative rights in connection with this application, Mr.
24 Abbott. Do you think what is proposed here is designed to
25 protect correlative rights of those who might have oil

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1 production in the San Andres?

2 A. I believe we are injecting the water below the
3 oil-water contact and that any injection may even help
4 the oil wells producing to the south.

5 Q. Is that by way of saying that you are initiating
6 sort of an involuntary flood for the folks to the south?

7 A. Well, it could or could not be, it's a huge aquifer
8 and our disposal is only a small part of the aquifer.

9 Q. Would you list specifically the operators from
10 whom waivers have been obtained?

11 A. I believe the original waivers were obtained from
12 Gulf and Marathon, Cities Service.

13 Q. Can you point out to me the operators of San Andres
14 oil wells in the area who have furnished you with waivers,
15 furnished the Commission with waivers? Not just the
16 operators in the area, but the ones with the San Andres oil
17 production?

18 A. Gulf and Marathon has, I'm sure they have a piece
19 of the Anadarko and they approved the waivers also.

20 Q. How about Anadarko?

21 A. No, we didn't get a waiver from them.

22 Q. Are they the operator?

23 A. They are the operator of the San Andres wells, yes.

24 Q. Anybody else besides Gulf and Marathon?

25 A. Those are the only ones that have San Andres wells.

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1 Q Okay. You may have identified by interval where
2 you believe the oil-water contact to be, if you did I missed
3 it. What was your pick of the oil-water contact?

4 A I think probably Mr. Janica can point out that in
5 his testimony.

6 Q Oh, so your opinion as to the injection below the
7 oil-water contact is relying upon Mr. Janica's information,
8 is that right?

9 A It's obvious that the oil-water contact is indicated
10 in your supply well, in that you tried to squeeze off the
11 perforations.

12 Q Do you think that prevails for all wells?

13 A Yes, I think it does.

14 Q Do you know whether there are perforations in
15 wells below that point in the San Andres?

16 A There may be perforations below that point, but they
17 are also making a tremendous amount of water.

18 Q Now, you indicated in response to Mr. Jennings'
19 questions that you consider this arrangement to be a
20 temporary arrangement, is that right, the one that you are
21 suggesting here in this application?

22 A We think that our arrangement of pumping the water
23 from H-35 up to SWD C-2 is temporary until we secure another
24 disposal well.

25 Q Well, what interval of time is encompassed by

1 temporary in this instance?

2 A. We are moving as rapidly as we can. I would say
3 the time limit is approximately six months.

4 Q. Well, during which time what quantities of water
5 would be injected through the perforated interval proposed
6 by you?

7 A. Yes, sir.

8 Q. What would it be?

9 A. Approximately three hundred and sixty to three
10 hundred and seventy barrels per hour.

11 Q. Into the perforated interval?

12 A. No, into the perforated interval and into the open
13 hole section.

14 Q. Well, what's the differential between the two now
15 again?

16 A. The open hole is below the perforations.

17 Q. I understand. You gave a current figure I thought
18 for the quantity being disposed of, I believe it was two
19 hundred and forty barrels per hour?

20 A. Yes, sir, in the open hole.

21 Q. And you propose three hundred and seventy, is
22 that right?

23 A. Yes, sir.

24 Q. The difference would be the quantity of water
25 injected into the perforations, I assume?

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1 A. Well, you could assume that, but after you acidize
2 the perforations and the open hole you don't know which
3 zone takes the most. We assume that the most water will be
4 injected into the perforated interval because there is
5 better porosity and permeability.

6 Q. And it has had substantially greater acid treatment
7 too, right?

8 A. No, the original acid treatment in the open hole
9 was, I believe, five thousand gallons.

10 Q. You mean this was in addition to the five hundred
11 that you --

12 A. Yes, this was at completion.

13 Q. At completion?

14 A. In '73.

15 Q. Well, if it took a five thousand gallon acid
16 treatment initially, why did you conclude based on your
17 experience, that five hundred was an adequate shot at a
18 later interval?

19 A. We were just trying to determine if a small acid
20 job would help the well, which it did. It helped it, but
21 not to the extent that we --

22 Q. Do you think that five thousand gallons would have
23 helped it more?

24 A. Yeah, I believe so.

25 Q. That would have been another possible solution,

1 wouldn't it?

2 A. Yes, sir.

3 Q. Are you telling the Examiner that the authority
4 granted, if it is granted, ought to be limited to six months?

5 A. No, sir, we are proceeding as rapidly as we can,
6 but we are in a very difficult area to secure a surface
7 lease and right-of-ways, which may hold us up.

8 Q. What effort is being made with reference to well
9 H-35 at this time to bring it back into use as a part of the
10 system?

11 A. We, at the present time, are bleeding the pressure
12 off the well in preparation for running radioactive surveys
13 and temperature surveys on the well.

14 Q. About how long will that take?

15 A. Approximately thirty days.

16 Q. Another alternative is the back-flow disposal well
17 number H-35 to reduce the pressure, is that what you just
18 said you were doing?

19 A. Yes, sir.

20 Q. (Reading) Research and acquire surface lease in
21 area of developed porosity and permeability conducive to
22 accepting water by gravity. (End of reading.)

23 A. Yes, that is our search for another disposal
24 well location.

25 Q. Is that being conducted by your people or by

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1 somebody else?

2 A. We have a consultant and both the consultant and
3 our people are conducting that search.

4 Q. You indicated that you thought you had a deal with
5 Anadarko to sell some of this water, are you pursuing your
6 efforts to supply others with produced water?

7 A. Yes, we contacted Petro-Lewis and Skelly, plus the
8 Anadarko and they indicated that they did not want to use
9 this disposal water.

10 Q. Do you have any other customers other than that
11 in the area, whose needs might be anticipated to increase?

12 A. No, sir, not that I know of.

13 Q. Who do you sell water to?

14 A. No one at this time.

15 Q. Do you know the reason for the Commission's concern
16 on November 15, 1974, not just with H-35, but with wells
17 in which injection of water was occurring for secondary or
18 disposal purposes in any formation from the surface of the
19 ground down to and including the Drinkard formation in
20 Townships 22 and 23 South, Range 37 East; what was the
21 Commission's concern at that time by injection or disposal
22 into those formations indicated?

23 A. Evidently the water was not being isolated into
24 the zones into which they were injected or disposed. The
25 waters were migrating through well bores up into the salt

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1 section and ending up with pressure in various parts of the
 2 field.

3 Q Did you attend a hearing that was held on December
 4 3rd, 1974?

5 A Yes, sir.

6 Q I don't have a copy of the order that was issued
 7 following that hearing. Do you recall the substance of it?

8 A Yes, sir.

9 Q What was it, please?

10 A The order was 53 -- this was Case 5403, it was
 11 Order Number R-5003.

12 MR. NUTTER: Now, is that the order that was issued
 13 in December, Mr. Abbott? There were two orders, one in
 14 December and one in April.

15 THE WITNESS: This was in April of '75.

16 MR. NUTTER: He is talking about the order that
 17 was issued in December.

18 THE WITNESS: No, I don't have a copy of it.

19 Q (Mr. Sperling continuing.) Well, do you recall
 20 the substance of the order? It issued pursuant to the
 21 hearing which you attended on December 3rd, 1974 and concerned
 22 the notice I just read you about -- and I asked you about
 23 the Commission's concern and what prompted the Commission's
 24 concern. Now, my question is: Do you recall what the
 25 substance of the Order was that issued following that hearing?

1 A. No, that was subsequently taken up later and I want
2 to read you paragraph thirteen of the later order.

3 (Reading.) That the continued disposal water into
4 the -- Excuse me, it is paragraph twelve. That the
5 continued disposal of water into the Agua, Inc. SWD well
6 Number H-35 located in Unit letter H, Section 35, Township 22
7 South, Range 37 East, shall be permitted until further order
8 of the Commission, provided, however, that said disposal shall
9 not exceed an average of fifty-five hundred barrels of water
10 per day during any one month period. (End of reading.)

11 That is the last order issued by the Commission
12 on this area of the H-35 well.

13 Q Well, that was with specific reference to H-35,
14 whatever the problems might have been with H-35. What I'm
15 trying to find out is what the Commission's concern was
16 as expressed earlier and which resulted in the December 3,
17 1974 hearing.

18 A I can't remember what it was. Read it off.

19 Q I don't know what it was. You don't have any
20 recollection of it, is that right? Okay. But your well,
21 your H-35 well, was within the area concerning which the
22 Commission had expressed concern as early as November of
23 '74, right?

24 A It probably was, yes, sir, the 36 Section area.

25 Q Certainly it is within Township 22 South, Range 37

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1 East, isn't it?

2 A. Some of it was. Not the whole township was in
3 that.

4 Q H-35 was?

5 A. Yes, sir.

6 Q Did you start looking at alternatives at that
7 point in time?

8 A. Yes, we were talking to Anadarko and various other
9 operators on selling the water to them.

10 Q But you didn't look at the alternatives, such as
11 drilling another disposal well, did you?

12 A. No, there were no indications that we had any
13 problems with SWD H-35.

14 Q Except the concern expressed by the Commission in
15 the area in which it lies.

16 A. That's right, in the 36 Section area.

17 MR. SPERLING: That's all.

18 MR. NUTTER: Are there any further questions of
19 the witness? He may be excused.

20 Call your next witness, please, Mr. Jennings.

21 JOE JANICA

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

24 DIRECT EXAMINATION

25 BY MR. JENNINGS:

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1 Q Would you state your name and occupation, please,
 2 sir?

3 A I'm Joe Janica, consulting geologist, production
 4 and geological engineer in Hobbs, New Mexico.

5 Q How long have you been engaged in this type of
 6 work, Mr. Janica?

7 A Over all with major companies and what I have been
 8 on my own, about eighteen years.

9 Q What is your educational training?

10 A I have a geological engineering degree from Texas
 11 A & M University.

12 Q When did you obtain that?

13 A In 1957.

14 Q Do you have any other degrees or honors or have
 15 you written any papers?

16 A I do not.

17 Q By whom were you employed after you graduated from
 18 Texas A & M?

19 A I was employed by, then the old Humble Company.

20 Q How many years were you employed by the Humble
 21 Company?

22 A I was employed by the Humble Company about seven
 23 or eight years.

24 Q And just trace briefly what your various occupations
 25 were with the Humble Company?

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1 A. I started out as a junior geologist in the reserves
2 and evaluation group and spent about six years in this
3 group and then I came to West Texas to the Midland area and
4 I was employed by the production geology group. From that
5 time on I worked in Midland, Monahans and the Permian Basin
6 area as a production geologist.

7 Q. What was your position with the Humble Company when
8 you left their employment?

9 A. I was a senior geologist.

10 Q. And when was that?

11 A. In March of 1974.

12 Q. And that was when you moved to Hobbs?

13 A. Yes, sir.

14 MR. JENNINGS: Are the witness's qualifications
15 acceptable?

16 MR. NUTTER: Yes, they are.

17 Q. (Mr. Jennings continuing.) Mr. Janica, are you
18 familiar with the application which has been filed herein
19 by Agua to dispose of -- to make additional perforations
20 in the C-2 well located in Unit C of Section 2, Township 22
21 South, Range 37 East, Lea County?

22 A. Yes, sir.

23 Q. I refer you to what has been marked as Exhibit
24 Number Ten and ask you if you would identify that and
25 explain the exhibit?

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1 A. This is a structure map on top of the San Andres
2 formation, involving about a four-section area, Section 2,
3 3, 10 and 11 of 22, 37.

4 Q. What does it show with reference to the top of
5 the formation?

6 A. It indicates that we have a little high to the
7 south and the southwest. It is a little bit higher than it
8 is to the north of Section 2 in the northeast.

9 Q. How does the C-2 well compare as to height and
10 depth with the producing San Andres well in the area?

11 A. The C-2 well is about a minus four sixty-six while
12 the wells to the south are about fifteen feet higher, about
13 four forty-five, four fifty subsea. They are about ten
14 to fifteen feet higher, possibly.

15 MR. NUTTER: Mr. Janica, what are the yellow marks
16 on that exhibit?

17 THE WITNESS: It just highlights the control points.

18 MR. NUTTER: Are the producing wells in the San
19 Andres identified as such on that particular exhibit?

20 THE WITNESS: On this particular exhibit, no, sir.

21 MR. NUTTER: Okay.

22 Q. (Mr. Jennings continuing.) What else is on your
23 exhibit, just the structure lines?

24 A. Yes, sir, just the structure lines.

25 Q. Referring to what has been marked as Exhibit

1 Eleven, would you identify that Mr. Janica, and I believe
2 it is on the wall here. Tell what it is and what it shows.

3 A. That is a cross section commencing with the C-2
4 well, going over to the Warren disposal well back to the
5 Humble or Exxon S-26, to their water source well 4, to
6 their current producing well, 104. I think it is 4 on the
7 map. And then across to Exxon's Number 2, Anadarko C-1,
8 Anadarko 5, then 6.

9 This is a structural cross section on our subsea
10 datum of minus eight hundred feet. On this we have the top
11 of the San Andres and marks in the well bores, the green
12 marks are the injection wells, this being the Agua C-2, this
13 being the Warren well. The red marks are the perforated
14 intervals and completed and some plugged and abandoned
15 San Andres wells which at some time or another had produced
16 San Andres oil in varying amounts.

17 On this, the top of subsea top perforations of
18 Agua C-2 there is a minus eight, sixty-four and that is
19 this little bit darker line running across here. As we can
20 see, this subsea line runs all the way across in all of
21 these wells. The only wells that are perforated below that
22 subsea line is the salt water source well of Exxon's which
23 is perforated below that. These perforations were squeezed
24 in an attempt to cut off the oil and they were not successful
25 in doing so.

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1 They started out producing about three percent
2 oil, then when the casing collapsed they shut it in and it
3 was still producing about three percent.

4 There is one other well which produces from below
5 this point which is the number 5 and it is a little over a
6 mile from the Agua C-2 and it is about ten feet below that
7 line. It produces about nineteen percent water currently.

8 Further, the S-26 well for Exxon was drilled as
9 an off-set to the other four to complete as an oil well.
10 They tried to complete higher and could not complete in it.
11 I think it produced about one hundred and fifty-three barrels
12 of oil. It was subsequently converted to a salt water disposal
13 well in which they were going to produce, or dispose of salt
14 water in this zone. The injected pressure was too high so
15 that well is now plugged and abandoned.

16 And up above this line, this is the water source
17 well. This is the Exxon, currently producing, 104, and as
18 you see it produces very near this line that we are talking
19 about here, the subsea line where we are injecting. That
20 well has consistently produced about ninety percent water.

21 Their S-2 well, I believe, was recently worked
22 over, the first part of '75, and it is currently shut in
23 because it produced one hundred percent salt water.

24 The wells to the south, and these are slightly
25 higher structurally, this well produces eighty-two percent

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1 water.

2 MR. NUTTER: Indicate what well you are talking
3 about, please?

4 THE WITNESS: This Anadarko Number 1-C Lou Worthem
5 and Anadarko 5 Lou Worthem currently produces nineteen
6 percent water. And the Anadarko 6 Lou Worthem produces
7 ninety-three percent water.

8 But this basically shows that Agua is injecting
9 into an interval below where oil is being produced commercial-
10 ly.

11 Q (Mr. Jennings continuing.) Mr. Janica, you say
12 that Agua is injecting, do you mean at this time, or in
13 the proposed --

14 A In the proposed injection.

15 Q In the new perforations?

16 A Yes.

17 MR. NUTTER: Mr. Janica, on your exhibit there, I
18 wonder if you would indicate where the open hole interval
19 is and where the two proposed sets of perforations would be?

20 THE WITNESS: Okay, I neglected to mention that.
21 This is an open hole completion from forty-four hundred to
22 TD which is forty-nine fifty. These are the perforations at
23 forty-two thirty and forty-three twenty. The proposed
24 perforations are forty-one twenty to forty-one ninety. Those
25 are the additional proposed perforations.

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1 MR. NUTTER: Those would be above your line, then?

2 THE WITNESS: Yes, sir, they would. This in green
3 is a Warren well, a plant disposal well, and it is open hole
4 from forty-one thirty where a seven-inch casing is cemented,
5 to a total depth, I think, of forty-eight or nine. This is
6 the well that has produced over -- has injected over a
7 half a million barrels of water.

8 MR. NUTTER: All right, thank you.

9 Q (Mr. Jennings continuing.) A half a million or
10 five million?

11 A I'm sorry, five million.

12 Q Mr. Janica, referring to the Warren well, that is
13 at the Warren plant, is it not?

14 A Yes, it is.

15 Q And how far is that from the SW-2 well?

16 A About three quarters of a mile.

17 Q How far is it from the closest Exxon producing
18 well?

19 A Just about seven-eighths of a mile or just a little
20 bit farther.

21 Q It appears to me it is equidistant -- that the
22 SWD well and the Humble producing well are about equidistant
23 from that well?

24 A That is affirmative. The producing well is just
25 a little bit farther from it.

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1 Q In the Warren are they injecting or do they have
2 an open hole in the area where Humble is producing from?

3 A Yes, they are injecting in an open hole in an
4 interval that is complimentary to the Exxon 104.

5 Q So they are also injecting into an open hole in an
6 interval that is comparable to the one which we propose to
7 perforate, is that right?

8 A That's right.

9 Let me check this tabulation here just a second.
10 We would be injecting, if allowed these perforations, at a
11 minus seven fifty-four, versus a Warren injection of seven
12 thirty-nine, fifteen feet lower than Warren is injecting
13 into their well.

14 Q Mr. Janica, have you made a study of the current
15 status of the San Andres wells in the area?

16 A Yes, I have.

17 Q I refer you to what has been marked as Agua's
18 Exhibit Number Twelve and ask you what that reflects con-
19 cerning the study?

20 A This is the current status of the wells in the
21 area. Signified by the green circles are the two disposal
22 wells. The blue circle is a plug and abandoned San Andres
23 well. The orange or the yellow circles are currently shut
24 in, attempted completions in the San Andres. The Number 4
25 SW, the water source well for Exxon, is in the southwest

1 quarter of the southwest quarter. And the Number 2 in the
2 southeast quarter of the southeast quarter was the well that
3 was an attempted completion the first part of this year and
4 currently is shut in because of one hundred percent water.

5 The red triangles are the currently producing wells
6 in the field.

7 Q Would you identify the green?

8 A The green are the injection wells, I'm sorry, the
9 C-2, the Agua C-2 and the Warren, I think that is well Number
10 161.

11 Q Referring to what has been marked Exhibit Thirteen,
12 would you refer to that and identify that and tell us what
13 it is, what it shows?

14 A Exhibit Thirteen just indicates each of these
15 wells in the San Andres. The two injection wells are at
16 the top and their accumulative injection as of six, one,
17 seventy-five and the remaining wells indicate the cumulative
18 production as of seven, one, seventy-five, oil on the top
19 line, water, and then the percent of the total on the very
20 bottom.

21 I believe you will see that if we go down further
22 south we have a higher percentage of oil cut, or less water
23 production to the south in the little high that was indicated
24 on the structure map.

25 Q What does that indicate the total production in

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1 the San Andres to have been from the wells, I believe that
2 most of them are in the north half of Section 11? Or all
3 of the wells that you have indicated on there?

4 A. From all of the wells it would be around three
5 hundred and eighty thousand barrels, plus or minus.

6 Q And did you tabulate the water production from
7 the wells?

8 A. I think the water production is around three
9 million. I'm not real sure.

10 Q Have you made a tabulation of the wells in the
11 area?

12 A. Yes, sir.

13 Q Referring to what has been marked as Exhibit
14 Fourteen, is that a tabulation?

15 A. That is a tabulation.

16 Q Would you state briefly what the tabulation
17 reflects?

18 A. It was a work sheet, just kind of cleaned up a
19 little bit and it indicates the operators, the lease and
20 the location of the well, kelly bushing and the top of
21 the San Andres and subseas of the perforations and the
22 subsea of the bottom perforations, accumulative oil,
23 accumulative water, the total volume and then the June
24 production. And then the last two, the Agua and the Warren,
25 on the two bottom lines, their accumulative injection.

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1 Q Mr. Janica, from your study of this salt water
2 disposal well, do you feel it is feasible to dispose of the
3 additional water in the newly perforated zones and in zones
4 which you propose to perforate?

5 A Yes, the zones up there on my log indicate that
6 they are much more porous than the zones in the open hole and
7 I think if we could perforate the upper zones and give them
8 a good acid job, give them a good treatment, I think we could
9 get rid of the water in there on gravity or by vacuum.

10 Q Do you feel that this would be in the nature of
11 conservation and the prevention of waste?

12 A I think so. I think that any oil that is in that
13 area, by injection will be swept up dip to the wells on the
14 higher structures, if the water goes that way, and it would
15 have to go someplace, so the oil would tend to migrate up
16 there, you would have a water flood, so-called.

17 Q In your opinion would this impair the correlative
18 rights of any of the off-set operators?

19 A I don't think so.

20 Q Mr. Janica, were Exhibits Ten, Eleven, Twelve,
21 Thirteen and Fourteen prepared by you or under your supervision?

22 A Yes, they were.

23 MR. JENNINGS: I believe that's all at this time.

24 MR. NUTTER: Are there any questions of the
25 witness?

1 MR. SPERLING: Yes, sir.

2 CROSS EXAMINATION

3 BY MR. SPERLING:

4 Q I believe you indicated quite recently in your
5 testimony that you considered the porosity in the upper zones
6 of the San Andres in the vicinity of the C-2 well to be better
7 than the porosity below forty-four hundred feet, is that
8 right?

9 A That's right.

10 Q What is the range of the porosity from the point
11 of your perforations or proposed perforations, down into the
12 open hole interval below forty-four hundred?

13 A Oh, by looking at the log I would estimate about
14 eighteen percent.

15 Q The range?

16 A The range?

17 Q Yes.

18 A Oh, from about ten to twenty-four. If I understood
19 your question, that is in the proposed perforated interval.

20 Q Well, you've got two sets of proposals as I
21 understand it, one is as advertised and one is as perforated.
22 What I want to know is the range between the two extremes,
23 the top and the bottom.

24 A Okay, the top, I think would be about twenty-four
25 and the bottom would be about ten.

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1 Q And that takes into account the usual casing shift
2 on the log at forty-four hundred?

3 A Oh, maybe that wasn't a built-in factor.

4 Q Well, that has no affect on the statement that you
5 just made.

6 A I think this was an open hole log, there is no
7 casing shift in there, this is an open hole log, there would
8 be no change that would stand as quoted.

9 Q Okay. Well, if the upper zone of perforations as
10 proposed by you and as shown on your cross section, is
11 opened, and you indicated that it would be opened into the
12 zone presently productive of oil and you have those wells
13 productive of oil in areas of reduced pressure by reason of
14 them being producing, and you are injecting water at the
15 proposed point, what happens to the oil in between?

16 A I'm not sure I understand your question. What do
17 you mean by oil in between?

18 Q In between the location of the C-2 well and the
19 south line of Section 2?

20 A That is going up structure and you would expect
21 oil to go up structure.

22 Q So it would move?

23 A It should move, yes.

24 Q Will it move beyond the south line of Section 2?

25 A That is a moot question. I don't think you could

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1 say where it would move to. I would expect it to move beyond
2 the south line to a certain degree.

3 Q That would be off of Humble's lease?

4 A Obviously it would be off of the lease if it
5 crossed the section line.

6 Q Okay. You do know that the Humble lease does
7 comprise Section 2, don't you?

8 A Yes, I do.

9 Q If it does so move, and you indicate the possibility
10 is good that it will, how does Exxon recover its fair share
11 of the oil thus moving beyond the south line of Section 2?

12 A I think it would sweep the oil, if there is any
13 down to the north, it would sweep it to the south and
14 Humble could catch it on its way.

15 Q Catch it as it goes by?

16 A I want to bring your mind to one thing. Gulf has
17 two source wells in Section 28, 22, 37 -- 21, 37 -- north
18 about two miles. I don't think it is shown on that map.

19 Q It doesn't appear to be.

20 A It could be. It's in Section 28, I don't know
21 what location. As far as creating a pressure sink, they
22 have produced in excess of twenty million barrels of water
23 out of the San Andres in that zone and the twenty million
24 barrels produced there would create a pressure sink more
25 than likely and allow the water that is injected into the

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1 Gulf well and Agua's well to go toward the area of decreased
2 pressure.

3 Q Are you telling me now that it is moving toward
4 the northwest?

5 A I'm not saying it is moving that way. I'm saying
6 there is a possibility of it moving that way.

7 Q All right, so somebody might have a chance to
8 catch it as it goes by there?

9 A I think it is low enough down that way that there
10 won't be any oil.

11 Q Okay. You mentioned the Warren salt water disposal
12 well when you were talking about the section up there and
13 pointed it out. I believe it is the second well from the
14 right on the section?

15 A That's right.

16 Q Is injection into that well by gravity or pressure?

17 A I don't know.

18 Q You have no information?

19 A No, sir, I have no information other than how
20 much water was injected into it.

21 Q Okay. Well, it is open hole?

22 A It is open hole as you see, from about forty-one,
23 thirty-one, I think, to TD. As indicated there, all of
24 that is open hole.

25 Q Do you have approximately the same interval of

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1 open hole in the Warren well as in the C-2 well?

2 A. We have much more in the Warren well.

3 Q. Much more, how much more?

4 A. Well, from forty hundred to forty-one thirty, I
5 would say two hundred and seventy feet of open hole more.

6 Q. More?

7 A. There is two hundred and seventy feet more open
8 hole in the Warren well than there is in the C-2.

9 Q. What are the comparable rates of injection?

10 A. I have no idea.

11 Q. You don't know how much?

12 A. I don't know how much Warren is putting into there.

13 Q. So you don't have any idea what the effect is as
14 far as the wells to the south are concerned?

15 A. No, I do not, but all I know of what they have
16 produced, they have injected over five million barrels of
17 water versus Agua's one point nine million.

18 Q. Over what period?

19 A. Warren's well was completed in about 1968 and Agua's
20 was in 1973.

21 Q. Okay. On your Exhibit Twelve, Mr. Janica, are
22 you sure you have shown all of the producing wells?

23 A. Oh, let's see.

24 Q. In the San Andres?

25 A. The currently producing wells I think I have, unless

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1 I took these out of the June schedule.

2 Q What about the Gulf well?

3 A The Gulf East?

4 Q Yes.

5 A It's not colored in, I'm sorry.

6 Q It's a producing well?

7 A Yes, sir, it is and it's not colored in. That's
8 my mistake. It does have a triangle by it.

9 Q All right. How long have you been employed by
10 Agua, Inc.? I don't mean strictly.

11 A Oh, about thirty days. I'm not employed, I'm
12 retained.

13 Q Consultant? I meant retained.

14 A Yes, I merely got into trouble here.

15 Q So, your knowledge of this area has really been
16 kind of gained in the last thirty days?

17 A No, I wouldn't say that. I worked this area when
18 I worked for the Exxon Company.

19 Q But you weren't paying any particular attention
20 to the effect of the perforations above forty-four hundred
21 as compared to open hole below forty-four hundred at that
22 time, were you?

23 A I didn't go into it in this detail at that time.

24 Q Right.

25 A I was aware of some of the problems.

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1 Q Do you know whether the Warren salt water disposal
2 well was drilled prior to the well of Exxon's in, I think
3 it's Unit M, in Section 2?

4 A Unit M?

5 Q Well, it's the well --

6 A The source well?

7 Q Yes.

8 A They were drilled about the same time. As a matter
9 of fact, I think that the rigs were running both at the same
10 time.

11 Q The Warren well was projected from the start as
12 a salt water disposal well, wasn't it?

13 A Yes, it was.

14 Q And the 4 water source well of Exxon was also
15 projected as a water source well from the kickoff, wasn't
16 it?

17 A Yes, it was. Let me ask to your prior question, did
18 you say Warren's was a disposal or a source well?

19 Q Disposal.

20 A It was drilled as a disposal. Exxon's was drilled
21 as a source well.

22 Q And it was intended to be a disposal well from the
23 kickoff?

24 A That's affirmative.

25 Q And the source well was the intent and purpose

1 of the Exxon well that we were talking about?

2 A. Yes, sir, that's right.

3 MR. SPERLING: I think that's all I have at this
4 time, Mr. Examiner.

5 MR. JENNINGS: I believe that's all. I think we
6 have offered our exhibits.

7 MR. NUTTER: No, you haven't.

8 Are there any further questions of this witness?

9 He may be excused.

10 THE WITNESS: Thank you.

11 MR. NUTTER: What exhibits are you offering,

12 Mr. Jennings? We did not have any reference made to

13 Exhibits Five and Seven.

14 MR. JENNINGS: We didn't desire to offer those.

15 MR. NUTTER: Aqua's Exhibits One through Four,
16 and Exhibit Six, and Exhibits Eight through Fourteen will be
17 admitted into evidence. That is the entire sequence of
18 One through Fourteen with the exception of Exhibits Five
19 and Seven. There is no Five and there is no Seven.

20 (THEREUPON, a discussion was held
21 off the record.)

22 W. L. JORDAN, JR.

23 called as a witness, having been first duly sworn, was
24 examined and testified as follows:
25

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DIRECT EXAMINATION

BY MR. SPERLING:

Q State your name and place of residence, your employer and the capacity in which you are employed?

A I'm W. L. Jordon, Junior, I live in Andrews, Texas and I work for Exxon in Andrews.

Q In what capacity?

A I'm production geologist.

Q How long have you been employed by Exxon in that capacity?

A Almost twenty-six years.

Q Have you on any previous occasions testified before the Commission so that your qualifications are a matter of record?

A Yes, I have.

MR. SPERLING: Are Mr. Jordan's qualifications acceptable?

MR. NUTTER: Yes, they are.

Q (Mr. Sperling continuing.) Mr. Jordan, are you familiar in your employment by Exxon with the area known as Eunice San Andres South Pool in Lea County, New Mexico?

A Yes, I am.

Q Have you done considerable work in that area?

A I've worked the whole area rather thoroughly on the BTB trend and I have worked the San Andres in this area

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1 in particular. We appeared at the hearing of the field
2 rules on this particular field under consideration right now.

3 Q Would you please refer to what has been marked as
4 Exhibit One, that is Exxon's Exhibit One, and explain the
5 purpose of that exhibit and what it shows?

6 A Exhibit One is a structure map on top of the San
7 Andres in the immediate pool area. Exxon's lease is shown
8 in Section 2 bounded in yellow. It's, of course, 22 South,
9 37 East. The nine red triangles show San Andres completions
10 and seven of these are producers. Accumulative production
11 for this pool as of seven, one, seventy-five, is four
12 hundred and sixteen thousand barrels.

13 Agua Inc.'s salt water disposal well, in C position
14 in Section 2, is circled in red.

15 Based on my structure map, we show a small struc-
16 tural high in the west part of Section 2 and in the east
17 parts of Section 3. There is an additional small high to
18 the south in the west part of Section 11 and in the east
19 portion of Section 10.

20 There is a reentrant in the southwestern portion
21 of Exxon's lease, and a northeast dip at about one hundred
22 and twenty feet per mile in the northeastern portion.

23 I notice that my map differs a little bit from
24 Mr. Janica's map.

25 At Agua, Inc.'s location in Unit C we are about

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1 the same. I have minus four seventy, I believe the other
2 was a minus four sixty-six. So we started out about alike
3 and then we varied a little bit, but the structure has some
4 similarity and I wouldn't quibble with it, you know how
5 geologists are, they use a little bit of license at times.
6 It's acceptable to me.

7 There are two lines of cross section shown on
8 the San Andres map. AA prime is a structural cross section
9 which we will show in Exhibit Two. BB prime is shown in
10 green, and that is Exhibit Number Three.

11 Q Now, you have indicated that the line of sections
12 outlined in red on Exhibit One is shown on Exhibit Two. Would
13 you now refer to that exhibit and explain what it shows,
14 how it was prepared, and the significant features of the
15 exhibit.

16 A First of all I would like to apologize for the
17 size of this exhibit, but due to the time element of the
18 hearing I was unable to get it reduced in size.

19 Exhibit Two is a structural and stratigraphic
20 cross section showing continuity in the San Andres between
21 Agua Salt water disposal well State C-2 and the other pool
22 wells. The wells used in this cross section are all in 22
23 South, 37 East, and reading from left to right, the Warren
24 Petroleum Company's Unit Plant Number 161, a salt water
25 disposal well, Number 1, it is in Section 3 of Unit H.

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1 This well we have a gamma ray neutron.

2 The second well to the right, Exxon Company's
3 New Mexico S State Number 26 in Section 2, Unit L. We are
4 using a gamma ray sidewall neutron.

5 The third well is Exxon's State S Number 4, water
6 source well in Section 2, Unit M and also a gamma ray
7 sidewall neutron log.

8 The next well is an Agua, Incorporated salt water
9 disposal well, State C-2, Section 2, Unit C. On this well
10 we have a gamma ray neutron sidewall, or sidewall neutron.

11 On this cross section we have had to use a stick
12 diagram because we were unable, due to the time element, we
13 were unable to get Agua's log reduced to the proper size.
14 The scale on this cross section is two and a half inches to
15 one hundred feet. The log that they were so good to furnish
16 us is both two inch and five inch, which would not fit on
17 this cross section.

18 Continuing to the right, the next well is Anadarko's
19 Production Company Lou Worthem Number 5, Section 11, Unit C.
20 There is also a gamma ray sidewall neutron log.

21 The next well, Anadarko Lou Worthem Number 6,
22 Section 11, Unit E, gamma ray sidewall neutron.

23 The next well is Anadarko's Lou Worthem C Number 2
24 in Section 11, Unit G. This is a density log.

25 The next well is Anadarko's Lou Worthem C Number 1,

1 Section 11, Unit B. This well is a density log.

2 The last log is Exxon's New Mexico State Number 104,
3 also in Section 2, Unit O. Once again we had to use a stick
4 for this log because all we had was a two-inch log and we
5 once again, did not have time to reproduce it to the scale
6 we needed to put it on the cross section.

7 I would like for you to refer to the horizontal
8 lines on the cross section. The top line is the structural
9 top of the San Andres as picked by Mr. Janica in Agua's
10 State C-2 water disposal well. At that point there is a
11 good correlatable point throughout this area that shows
12 the difference in structure between the various wells on
13 this cross section.

14 The second line from the top is a minus five
15 hundred foot subsea line and we hung this cross section at
16 a minus five hundred foot subsea.

17 The third line and the bottom line reflects the
18 top of Agua's proposed perforations and the base of Agua's
19 proposed perforations. The interval in between is a
20 stratigraphic unit for this hearing purpose and it has been
21 correlated to all of the other wells on the cross section.
22 We call it a stratigraphic equivalent interval of Agua's
23 proposed perforation.

24 As you can see from looking at this stratigraphic
25 interval it covers the following wells: It covers perforations

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1 in Exxon's State S Number 4, Anadarko's Lou Worthem Number 5,
2 Anadarko's Lou Worthem Number 6, Anadarko's Lou Worthem C
3 Number 2, Anadarko's Lou Worthem C Number 1, and also
4 perforations in Exxon's New Mexico S State 104. This is
5 a stratigraphic interval that has been correlated to each
6 well, so if Agua injects into their proposed perforations
7 they will be injecting into a comparable stratigraphic
8 interval in all of these wells.

9 The fourth line from the top, indicated as minus
10 seven fifty-four subsea, is the structural top and the bottom
11 of the perforations and is shown on the cross section. That
12 point is above the perforations in Exxon's State water source
13 well Number 4 and Anadarko's Lou Worthem Number 5 and
14 Number 6 and Anadarko's Lou Worthem C Number 2 and C Number 1,
15 and Exxon's New Mexico S State 104.

16 So this cross section shows that if Anadarko was
17 allowed to inject into their proposed perforations they
18 would be injecting both stratigraphically and structurally
19 into the wells to the south of them.

20 Q Now, there is some additional information shown
21 in the bottom portion of the section underneath each of the
22 wells, would you explain what that is intended to show?

23 A The information at the bottom of the wells is
24 the completion data. It gives the date, the initial potential
25 and the productive interval.

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1 Q The footage reference are to perforated intervals,
2 or what? For example, on Anadarko Production Company Lou
3 Worthem Number 6 well roughly in --

4 A I think I understand what you are getting at. I
5 forgot to tell you that the dark bars in the well bores are
6 the present producing perforations in these wells.

7 Q So the footage indications do indicate the range
8 of the perforations, is that right?

9 A They do. They indicate the range in the well
10 bore of the perforations.

11 Q Okay.

12 Just as a matter of information on the salt water
13 disposal well of Warren, which is the well on the extreme
14 left of the section, it shows a date of six, one, sixty-eight,
15 is that the completion date?

16 A That is the completion date.

17 Q Is that considerable -- well, on Exxon's State S
18 4 water supply well?

19 A They completed that well in nine, eighteen, sixty-
20 nine. We had to go back at a later date and work it over
21 and squeeze off the oil. This could be a very good oil
22 well if we were so disposed, but we needed the water.

23 Q I take it you are still using that well as a water
24 supply well?

25 A It has been shut in since August a year ago.

1 Q Now, please refer to what has been marked as
2 Exhibit Number Three, which is another indicated line of
3 sections, I take it?

4 A I once again apologize for the size, but due to
5 the time involved we couldn't do anything about it.

6 Exhibit Three is a structural and stratigraphic
7 comparison, a direct comparison between Agua, Inc.'s State
8 C-2 water disposal well and Exxon Company's New Mexico S
9 State 104. Once again, this is a structural and stratigraphic
10 cross section. It shows the top of the San Andres as the
11 top horizontal line and once again we hung it on a minus
12 five hundred subsea level. We have taken Agua's perms, put
13 them on their well and established a stratigraphic interval
14 for these perforations which we have correlated to our
15 S-104, and this shows once more that if Agua is allowed to
16 perforate and inject into this zone, they will be injecting
17 into a zone from which Exxon now produces. They will cover
18 the lower ninety-five feet of our producing section.

19 The minus seven hundred and fifty-four foot subsea
20 line is the top of Agua's perforations. This line is also
21 above the bottom ninety-five feet of Humble's producing
22 perforations.

23 So as a result of Exxon's study, we are of the
24 opinion that injection into the proposed zone by Agua will
25 cause waste and violate Exxon's correlative rights, and

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1 Exxon would like the disposal of salt water into this
2 well ceased and the well returned to its previous status.
3 We would like for it to happen as soon as possible,
4 immediately.

5 Q It is your opinion that if the application as
6 filed, or as modified, is granted that the correlative rights
7 of Exxon will be adversely affected?

8 A Yes, sir, I don't think there is any doubt about
9 it.

10 MR. SPERLING: I have no further questions at this
11 time.

12 MR. NUTTER: We will recess the hearing until
13 one fifteen and then we will resume with the cross
14 examination.

15 (THEREUPON, the hearing was in
16 recess.)

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AFTERNOON SESSION

MR. NUTTER: The hearing will come to order, please.

I believe you finished your direct examination,

Mr. Sperling?

MR. SPERLING: Except for one question, Mr. Examiner.

DIRECT EXAMINATION (Continued)

BY MR. SPERLING:

Q Were Exhibits One, Two and Three prepared by you, Mr. Jordan, or under your supervision?

A Yes, they were.

MR. SPERLING: That's all.

MR. NUTTER: Are there any questions of the witness?

MR. JENNINGS: Yes, sir.

MR. NUTTER: Mr. Jennings.

CROSS EXAMINATION

BY MR. JENNINGS:

Q Mr. Jordan, I believe you stated that the well you referred to as your Number 4 or WSW well is a good oil well; did I understand you to say that?

A We had to squeeze the upper perforations to keep from producing too much oil to satisfy our water needs from this water source well. In other words, an allowable from that zone would have been too high and we would have not had enough water to supply the Paddock Unit with the necessary water.

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1 Q You did squeeze it?

2 A We did squeeze the zone, yes, and the perforations
3 you see on cross section Exhibit Two, are the perforations
4 that are presently open.

5 Q And was the squeeze successful or not successful?

6 A The squeeze was successful and we have still
7 produced over eighty-six thousand barrels from the lower
8 perforations that are shown here.

9 Q And were you successful in cutting off all of the
10 oil?

11 A We cut off most of the oil. We are still producing
12 oil. As I told you, since we squeezed those perforations
13 we have produced over eighty-six thousand barrels of oil
14 from the perforations you see on our water source well
15 Number 4. It's the third well from A, it's the third well
16 from your left.

17 Q Now, maybe I misunderstood you, did I understand
18 you to say that well had been shut in for a year and a half?

19 A Yes, it has.

20 Q It's a good oil well and will make its allowable
21 and it is still shut in?

22 A It was when we had to shut it in because of
23 mechanical conditions. It was still a good oil well.

24 Q Well, is this Exxon's policy to shut in a good oil
25 well for a year and a half?

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1 A. Can I refer you to our engineer. This will be
2 brought out, what happened to this well and why we had to
3 shut it in, in a later testimony.

4 Q. Is there someone here who will answer that question?

5 A. Yes, indeed.

6 Q. Now, referrrring to your exhibit, I think it is
7 that big long thing.

8 A. Are you talking about my conversation, or my
9 exhibit?

10 Q. No, your exhibit, I believe it was Two. I notice
11 that on all of the wells, maybe I'm not seeing right, but
12 where you have the dark colors, is that the perforations?

13 A. Let me ask you this: Are you talking about
14 the dark bars, the vertical bars in the well bore?

15 Q. Yes.

16 A. Yes, those are the present producing perforations.

17 Q. And then I look at the Warren Petroleum Company
18 well, does it not have any perforations, or any producing --

19 A. That well has no perforations in it. It is open
20 hole, therefore, I didn't show any perforations. I showed
21 a casing seat at forty-one thirty one.

22 Q. Then to get a true picture, where would the dark
23 lines start in that well?

24 A. In which well?

25 Q. In the Warren well.

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1 A. Forty-one thirty-one. That's where the casing seat
2 is.

3 Q. And then it would start where the line in the
4 Agua well does and go completely -- it would be dark only
5 farther down in the Agua well?

6 A. It would go to total depth, as a matter of fact.

7 Q. Then if we are getting a true picture of it, then
8 that should have a line, of course, this is just perforations
9 I take it, on the Agua?

10 A. Yes, that is right, exactly.

11 Q. But then the rest of it is open hole, and you don't
12 show open hole anyplace?

13 A. What you are getting at counselor, is that you
14 would have an injection base from forty-one thirty-one to
15 total depth, that's what you would like to hear and see,
16 that's true.

17 Q. Yes.

18 A. That's true, but I was showing perforations only
19 here.

20 Q. I see. Referring to the Agua well, and I think
21 we had in our application, I don't know the total perfora-
22 tions, but we didn't seek to perforate the zone from thirty-
23 one twenty to forty-three twenty, it was just different
24 areas in there, was it not?

25 A. Well, it wasn't thirty-one twenty as you said, it

1 was forty-one twenty and that was brcken down into two sets
2 of perforations.

3 Q Yes.

4 A I consider this whole band that you wanted to
5 inject into, one interval, which I think it will eventually
6 be if you inject water into this system.

7 Q But you didn't consider that in any of the other
8 wells?

9 A I don't understand.

10 Q Well, you show in the Exxon picture, whatever
11 you might have, it's not a continuous line?

12 A Which one?

13 Q That is Exxon State S, Number 4 WS.

14 A All right.

15 Q The line is not solid, is what I'm asking, but
16 in the Agua well you made it solid like the whole area was
17 perforated, and then in the Exxon --

18 A The Exxon is producing two sets of perforations
19 within this interval that Agua proposes to perforate. Is
20 that what you mean?

21 Q Yes.

22 A I show two sets in that interval, yes.

23 Q Even though it is the same interval you didn't
24 make a solid line?

25 A That's where we were perforated. At the time we

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1 got this, you weren't even perforated in there so I put
2 in the whole thing. I also don't show the zones above it
3 that are all productive that fall within this zone either.

4 Q Now, we have just referred to the Warren well and
5 you explained what, in your opinion, what effect the Agua
6 injection into this zone would have on your production. What
7 effect, if any, would the injection by Warren into the open
8 hole below forty-one thirty-one have on your production?

9 A I'm not sure what the effect would be, but I feel
10 there must be some effect, but we don't have enough data
11 to say what the effect is right now.

12 Q Well, is it more or less or the same as Agua?

13 A I can't tell you. Now, you are talking about two
14 different areas.

15 Q Well, maybe I am, but as I look at the map they
16 are about equidistant from your well where you have some
17 production.

18 A Are you talking about a specific Exxon well on
19 the Exxon lease or are you talking about the area where
20 Exxon is proposing to inject?

21 Q Yes.

22 A Make me a line from that well to some area so
23 I'll know what you are talking about.

24 Q I don't know where to take it other than to your
25 producing well, which is --

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1 A. Water source well 4?

2 Q. No, that isn't producing anything, as I take it.

3 A. Not at this minute, no.

4 Q. Take your well 104, I guess, or maybe I'm not
5 reading it right, or 43. It is the one and only producing
6 well that you have in Section 2, is it not?

7 A. Yes, at this time.

8 Q. That is the only well?

9 A. At this time.

10 Q. At this time? Well, do you have plans to further
11 develop that?

12 A. Our engineer is going to get into our plan of
13 development and possibilities for development.

14 Q. Can you answer me, yes or no?

15 A. Do we have plans for additional development in
16 the area of our 104?

17 Q. Well, on your lease?

18 A. Yes, we do have additional plans, we most certainly
19 do.

20 Q. To what depth?

21 A. Counselor, we have in effect, on this lease at
22 this time a Paddock Unit water flood, and we hope that in
23 the not too distant future we may be able to use some of
24 those Paddock well bores for recompletion in the San Andres.
25 At this time we don't know exactly to what depth we will be

1 recompleting.

2 Q Do I understand you that you propose to recomplete
3 in the San Andres?

4 A Yes. Yes, we are very definitely considering this.

5 Q When was your well Number 44 which is in Unit P,
6 I guess, southeast quarter southeast quarter of Section 2,
7 when was this shut in?

8 A July of 1974.

9 Q In 1974? Once again, are you equipped to tell me
10 why it was shut in?

11 A No, I'm not.

12 Q Do you have any plans for that well?

13 A Our engineer is going to show the data on each
14 specific well, what happened to it and what its present
15 status is and why it is that way, and I'm sure that the
16 information that you are seeking will be available to you
17 at that time. I know that we have plans to rework that
18 well also, we are working on it now.

19 Q Well, do you think that the Warren well located
20 in Section 3 will affect any wells that you might drill in
21 Section 2?

22 A At the present time we don't have any plans for
23 drilling. We are talking about recompleting in the old
24 well bores, and, yes, this is possible that it could affect
25 it. There is no way to say it couldn't affect it, counselor.

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1 Q Are you familiar with the Walden well, I believe
2 it is an injection well in Section 15?

3 A What township and range, sir?

4 Q The same one, 22, 37.

5 A Section 15?

6 Q Yes.

7 A No, I'm not. Whose well is that?

8 Q Well, I couldn't tell you. The map shows
9 Amerada.

10 A Is it an Amerada injection well?

11 Q Well, I don't know. That's what I'm asking you.
12 It's somebody's injection well and I was wondering if you
13 were familiar with it.

14 A Well, I don't show an injection well on my map,
15 therefore, I'm not familiar with it.

16 Q If someone is injecting water in that you are not
17 familiar with it?

18 A That's right. And it looks like that is what,
19 some two miles south and west of the Humble lease, is
20 that the area you are talking about?

21 Q Yes, south and west.

22 A South and west approximately two miles?

23 Q South and west. It might be an Ambassador
24 Anadarko well.

25 A I don't know, and I haven't looked that far south.

1 I don't believe a well down there is going to affect us,
2 being two miles away from us. It will affect some other
3 people a lot sooner than it will affect us.

4 Q On your S-26, I believe, that is the second well --

5 A The second from the left.

6 Q Yes. Why was this not completed in the San Andres?

7 MR. NUTTER: Which well is that, Mr. Jennings?

8 MR. JENNINGS: S-26.

9 A Counselor, we were not equipped to handle the
10 amount of water we would have had to handle at this time,
11 so we decided to try to make that an injection well rather
12 than to dispose of all of the water that it would have been
13 necessary for us to handle. This is a problem out there
14 with these wells, they do make a large water cut, therefore,
15 we decided to D & A the well, and at a later date to try
16 and make an injection well out of it.

17 As we drill these wells and as we recomplete old
18 wells we are learning a little bit more and a little bit
19 more about this reservoir, and I'm sure as we increase our
20 knowledge, we will be better equipped to handle these
21 situations as they come up, but at that time we felt like
22 we did the best thing.

23 Q When was that well completed?

24 A It was dry and abandoned, nine, eighteen, sixty-nine.

25 Q Well, 1969, that's six years ago, why haven't you

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1 ever used it, do you have water in the area that you need
 2 to dispose of?

3 A. We have disposed of some water in it, yes.

4 Q. How come you didn't convert that well to an
 5 injection well?

6 A. We didn't need an injection well except for water
 7 disposal. Are you talking about a water flood?

8 Q. No, to get rid of the water, a disposal?

9 A. We did try to and we did dispose of water in it
 10 for awhile.

11 Q. At what interval?

12 A. I don't know. I'm going to let you talk to our
 13 engineer about our disposal program, if you will. I came
 14 here to testify about the geology and not so much on the
 15 engineering. That information is available and our testimony
 16 if you would like to ask him that and we will be happy to
 17 answer any questions along those line, we don't have anything
 18 to hide.

19 Q. Well, one other question, your salt water, the
 20 well that you were going to -- 4 WSW well, what interval
 21 did you complete that in for water production purposes, do
 22 you recall?

23 A. Yes, we completed it in the interval that you see
 24 with the black bars in the well bore on cross section
 25 AA prime which is Exhibit Number Two. You see it start just

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1 below forty-two thirty or so, forty-two thirty-five, somewhere
2 in there. I can't read these logs too well from the cross
3 section, but the black bar indicates the top of the
4 perforation and the black bar just below forty-five hundred
5 indicates the base of our perforations.

6 Q And that was where you were going to take water?

7 A That was where we were taking water from and that
8 is where we produced our oil from, eighty-six thousand
9 barrels.

10 Q And that is the same basic interval that Agua has
11 since perforated in its well and in which they now propose
12 to inject water, is that right?

13 A The lower set of perforations, that you have
14 suggested apparently, we have gone ahead and perforated and
15 acidized and are now injecting into from forty-two thirty
16 to forty-three, covers the upper two sets of perforations
17 in this well bore which produced the eighty-six thousand
18 barrels of oil.

19 MR. JENNINGS: I believe that's all.

20 CROSS EXAMINATION

21 BY MR. NUTTER:

22 Q Mr. Jordan, some mention was made of this
23 Number 4 WS, I heard earlier this morning that perhaps the
24 casing collapsed, is that correct?

25 A We have a mechanical problem with that well, I'm

1 not sure whether it is a casing problem or tubing problem
2 or what it is, but I believe Mr. Rose is going to be able
3 to bring you up to date on all of the facts on WSW Number 4.

4 Q It has not been abandoned?

5 A No, it has not been abandoned, just shut in.

6 Q Just shut in?

7 A Yes, indeed.

8 Q Now, you saw the exhibit that Mr. Janica had
9 prepared. Now, he drew a line across his exhibit and the
10 top of the line would be right at the top of the lowermost
11 set of perforations that they are proposing in the Agua C-2
12 well. In other words, the line that he drew across his
13 exhibit would be the same as the line you drew across your
14 exhibit, except that you drew your line at the top of the
15 uppermost perforations, is that right?

16 A Yes, Mr. Nutter, when we got the hearing order we
17 used what was on the hearing order and we placed our top
18 line at the top of the perforations that were given us in
19 this hearing order.

20 Q Of the entire new proposed interval?

21 A Yes, that's right, and as I understand it, Agua
22 plans to use this at a later date and they will use it if
23 they need it. Therefore, I think we are justified in
24 putting that line up there.

25 MR. NUTTER: Are there any further questions of

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1 this witness?

2 MR. SPERLING: I would like to ask just one
3 question.

4 Mr. Jordan, was the water supply well that we have
5 been talking about here most recently, I think Unit M,
6 Section 2, was that carried on the Oil Conservation
7 Commission's proration schedule as both a water supply well
8 and an oil well?

9 MR. JORDAN: It was carried on the proration
10 schedule as an oil well and a water source well.

11 MR. JENNINGS: One question about that well, if
12 you don't mind.

13 FURTHER CROSS EXAMINATION

14 BY MR. JENNINGS:

15 Q Do you have any idea where the oil is coming from
16 in that well?

17 A We are not sure whether it is coming from the
18 entire section or a portion of the section, the lower
19 section or the upper section. As far as we are concerned
20 there has been no oil-water contact established for this
21 field.

22 I believe in the long run you are going to find
23 there is more than one oil-water contact, that there are
24 going to be several zones of production within this large
25 stratigraphic section here.

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1 Q You just don't know where it is coming from then?

2 A Like I told you, we are not sure whether it is
3 coming out of the upper perforations or the lower perforation,
4 or both, but eighty-six thousand barrels has come out of
5 this section somewhere, and that is the business we are
6 in, producing oil.

7 Q Do you recall, or would it have been your prerogative
8 to approve the Warren salt water disposal well when it
9 was drilled?

10 A It wouldn't have been my prerogative, it would
11 have gone through management. I would have made a suggestion
12 possibly, but we didn't see any waivers and as I understand
13 it there was a hearing on the matter and Exxon did not
14 attend or did not debate the matter because at that time
15 we didn't know there was a Eunice San Andres South oil pool.
16 We didn't know that until we completed our well.

17 Q You don't know whether it was approved or not?

18 A Approved by whom?

19 Q Exxon, or Humble then, whether that well was
20 approved?

21 A I don't know that we approved it. As I understand
22 it we didn't attend the hearing because we didn't know
23 anything about an oil field at that time. If we had
24 known that there was an oil pool under our lease in this
25 interval, I'm sure we would have been objecting to it, but

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1 we didn't know that at the time because we hadn't completed
2 our oil well, which was the discovery well.

3 Q Well, I'm confused. Which is the discovery well,
4 the one that you are now producing or the water supply well?

5 A Well, there is no confusion. The discovery well
6 for this pool was Exxon's State S Number 4 water source well.
7 That was the discovery well. It was completed after the
8 Warren well. They drilled their well and started injecting
9 water and we completed later on for an oil well.

10 MR. JENNINGS: I believe that's all.

11 FURTHER CROSS EXAMINATION

12 BY MR. NUTTER:

13 Q Mr. Jordan, this Number 4 WS of yours had an upper
14 set of perforations originally that was squeezed, doesn't
15 it?

16 A Yes.

17 Q What was that perforated interval?

18 A I can get that for you.

19 Q We can get that in a minute.

20 A All right.

21 Q Now, on your exhibit, Mr. Jordan, you show that
22 the interval forty-two thirty-eight to forty-six eighty-three
23 what are you depicting by those numbers?

24 A Those are the perforations from which we produced
25 the water for the Paddock Unit water flood.

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1 Q So there were perforations on down off of this
2 exhibit, is that right?

3 A Yes, but we had to break the thing off somewhere
4 because it might have been as long vertically as it was
5 horizontally, so we just broke them off across here.

6 Q I see, but there would be additional perfs?

7 A Yes.

8 Q But this is the uppermost perforation?

9 A These are the perforations that we are concerned
10 with at this hearing, I think.

11 Q And the old squeezed perforations would be above
12 those?

13 A Yes.

14 Q How soon after the original completion were the
15 upper perforations squeezed?

16 A Would it be all right with you if Mr. Rose answered
17 that one, the testimony on this well, he has all of that
18 information.

19 MR. NUTTER: Are there any further questions of
20 Mr. Jordan? He may be excused.

21 KENNETH STEVEN ROSE

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

24 DIRECT EXAMINATION

25 BY MR. SPERLING:

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1 Q Would you state your name, please, your place of
2 residence, your employer and the capacity in which you are
3 employed?

4 A My name is Steve Rose, I live in Andrews, Texas,
5 I'm employed by Exxon Company, U.S.A. as a petroleum engineer.

6 Q How long have you been employed by Exxon?

7 A I've been employed by Exxon since June of 1974.

8 Q Have you on any previous occasions testified before
9 the Commission so that your qualifications as a petroleum
10 engineer are a matter of record?

11 A No, sir.

12 Q Would you give the Examiner and the record a short
13 resume of your background educationally and experience-wise?

14 A I graduated from Texas A & M University with a
15 B.S. degree in electrical engineering in May of 1974. At
16 that time I went to work for Exxon Company U.S.A. in Andrews,
17 Texas and my property assignments were the State of New
18 Mexico for all of Exxon's property of which this Eunice
19 San Andres pool for Lea County was concerned.

20 I've attended two schools for Exxon, one a well
21 logging school and another a reservoir engineering school.

22 Q Has your experience been primarily in the field of
23 reservoir engineering, or associated problems as a reservoir
24 engineer?

25 A Yes, sir, in fact that is my title, I'm a reservoir

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1 engineer. I deal only with reservoir information.

2 Q In that capacity have you done extensive work in
3 the Eunice San Andres South Pool in Lea County, New Mexico?

4 A Yes, sir, we have.

5 MR. SPERLING: Are Mr. Rose's qualifications
6 acceptable?

7 MR. NUTTER: Yes, sir.

8 Q (Mr. Sperling continuing.) Mr. Rose, would you
9 please refer to what has been marked for identification as
10 Exhibit Four on behalf of Exxon in this matter and explain
11 what that exhibit is and what it is designed to show?

12 A Exhibit Four which uses the same base map as
13 Exhibit One shows the Eunice San Andres South Pool in Lea
14 County, New Mexico and Exxon's New Mexico S State lease
15 which comprises of Section 2, Township 22 South, Range 37
16 East located or bounded by yellow. On this plat the
17 Eunice San Andres South completions are denoted by red
18 triangles and it is stated on the legend the completion date
19 for each well and the initial potential in barrels of oil
20 per day and barrels of water per day is listed beside each
21 well.

22 Q That is primarily informational, is that right?

23 A Yes, sir, it is.

24 Q Will you refer to Exhibit Five and indicate what
25 that exhibit is supposed to show?

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1 A Exhibit Five again uses the same base map as the
2 previous exhibits so Exxon's lease is denoted by the yellow
3 bound. Again the Eunice San Andres completions are denoted
4 by red triangles. The numbers in the legend this time beside
5 each well indicate current date, San Andres production for
6 each well.

7 Q And current status of each well?

8 A Current status, yes, sir. If there is no production
9 we have listed the shut in.

10 Q The question has been asked Mr. Jordan as to the
11 status and the reason for the present status of water
12 supply well Number 4 in Unit M of Section 2, would you please
13 discuss that well?

14 A Exxon's New Mexico S State Number 4 water source
15 well was drilled specifically for the purpose of water source
16 At the time that we drilled the well we were anticipating
17 the well to provide water production for our Paddock San Angelo
18 flood of which we are the operators. At the time we drilled
19 the well we ran into extensive oil production and we spent
20 some twenty thousand dollars squeezing upper said perforations
21 to eliminate this oil production.

22 Q Can you indicate the perforated interval that was
23 squeezed?

24 A I'll indicate those at this time. The squeezed
25 intervals were forty sixty to forty seventy-four, forty-one

1 twenty to forty-one forty-nine.

2 MR. NUTTER: Just a minute until I get these
3 copied down. What was the first one again?

4 A. Forty sixty to forty seventy-four. The next set
5 is forty one twenty to forty-one forty-nine. The next set
6 is forty-one seventy-one through forty-two hundred, and that
7 represents the last squeezed interval we used to eliminate
8 oil production.

9 When we originally completed the well we tested
10 the well with a Reda pump from all perforations and tested
11 two hundred and ninety-nine barrels of oil per day, plus
12 four thousand two hundred and twenty barrels of water per
13 day.

14 Some six days later we ran an entry survey and
15 found the oil entry coming from the top perforations that
16 are shown squeezed. At that time we squeezed those perfora-
17 tions to eliminate oil production so that we would not have
18 to curtail the water production.

19 Going on a little bit later with that well we
20 had a case, we went to the Commission and got a dual status
21 for that well and the case number was 4065 and the order
22 was R-3706, which designated this well as a dual well, both
23 an oil well and a water supply well.

24 At the same time we asked for field rules for
25 the Eunice San Andres South Pool because the water source

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1 well 4 was the discovery well for the Eunice San Andres
2 South Pool.

3 Going on further in history, we produced this
4 well for the purpose of water until August of 1974 as
5 stated and at that time we produced eighty-seven thousand
6 barrels of oil and some three million barrels of water. We
7 found that we had a pressure communication between the tubing
8 casing and we shut the well in to make sure that we did not
9 damage any fresh water sand. The well was making seventeen
10 barrels of oil per day at the time we shut the well in,
11 and let me give you the corresponding rate of water. Seventeen
12 barrels of oil and seven hundred and fifty barrels of water.

13 At that time we undertook the evaluation of the
14 Paddock Unit to determine the need for the water. We have
15 only instigated a pilot water flood in the Paddock and to
16 date this has not been very successful so we were in the
17 interim time, between when it was shut in and now, we have
18 been evaluating the need for the water from the water source
19 well, Number 4.

20 This well was drilled as a unit venture with the
21 Paddock Unit and we went to considerable time and expense to
22 include this well's San Andres production in the Paddock
23 Unit. If we decide that the Paddock Unit flood is not
24 going to work we will go down and eliminate the water
25 production and perforate the intervals that we squeezed to

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1 eliminate oil production and convert that to a sole San Andres
2 oil producer.

3 MR. NUTTER: At the present time are you conducting
4 injections in the Paddock Unit?

5 THE WITNESS: Yes, sir.

6 MR. NUTTER: Where are you getting your water?

7 THE WITNESS: Produced water. Whatever we produce
8 we just turn back to it.

9 MR. NUTTER: Then you don't have any supply well
10 as such?

11 THE WITNESS: No, sir, we do not.

12 Q (Mr. Sperling continuing.) The produced water is
13 adequate for the needs of the Unit as of the present time?

14 A At this time we have had premature water break
15 through in the Paddock San Angelo flood and we have seen
16 very little success at flooding. We cycle a lot of water
17 and we're evaluating the present production from the Paddock
18 and the situation whether we can flood it or not and just
19 use an injection well to take care of the water from the
20 San Angelo.

21 Q What about the well designated as the 44 well in
22 the southeast southeast of Section 2?

23 A This is a Paddock Unit well bore that we took,
24 that Exxon Company U.S.A. took from the Paddock Unit and
25 tried a Eunice San Andres South completion. At the time that

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1 we took it we did not have -- well, a log that would tell
2 you where oil-water entry survey, you know, oil-water locator
3 plug behind pipe and we perforated intervals based on the
4 104. We directly correlated and shot the same intervals.
5 At the time that we did that we found that we produced a
6 great deal more water than we wanted, than we could handle,
7 and we tested ten barrels of oil and five hundred and sixteen
8 barrels of water in that well and the fluid level at that
9 time in the well bore was some seven hundred feet from
10 surface so we feel like we do not have a complete evaluation
11 of that well because we never reached the pumped-off condition.

12 Again disposal of the produced water is going to
13 be a problem and until we get this problem or this situation
14 with Agua taken care of as to how we will dispose our water,
15 we will not attempt to produce that well. It is just shut
16 in right now.

17 Q Well, you feel that it has potential as a producing
18 oil well in the San Andres?

19 A Oh, yes, sir, we certainly do. Like I say, it
20 produced ten barrels of oil and five hundred and sixteen
21 barrels of water and that with the fluid level at some
22 seven hundred feet and that's three thousand feet of head
23 against the formation, and we feel that would be primarily
24 oil blocked from entry.

25 Q Now, would you refer to what has been marked as

1 Exhibit Six for Exxon and explain that exhibit?

2 A Exhibit Six again uses the same base map as all of
3 the previous exhibits. Exxon's New Mexico S State lease is
4 designated by the yellow bound. The Eunice San Andres South
5 completions are denoted by red triangles. The numbers located
6 beside each well are cumulative oil production in thousands
7 of barrels as of July 1st, 1975.

8 Q Do you have a figure of cumulative production for
9 all wells?

10 A Cumulative production for the Eunice San Andres
11 South Pool at seven, one, seventy-five is four hundred and
12 sixteen thousand barrels.

13 Q Is there anything else of significance about
14 Exhibit Six?

15 A Exhibit Six has a few more of significance in that
16 the high cumulative wells that you see plotted had the
17 longest production time. Anadarko's Lou Worthem C Number 2,
18 located in Unit letter G of Section 11, Township 22 South,
19 Range 37 East is a recent recompleat and the cumulative is
20 affected only by the time that Anadarko has had the well on
21 stream.

22 Anadarko's Lou Worthem Number 6 located in Unit
23 letter E of Section 11, Township 22 South, Range 37 East, has
24 the same situation as well as the Gulf Eaves Number 4 which
25 is located in Unit letter H, Section 10, Township 22 South,

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1 Range 37 East. This field is just now beginning to be
2 developed and the reservoir description is not complete
3 enough yet to determine how much oil is down there or the
4 interval from where it is coming from.

5 Q Have you done enough work on the reservoir to
6 reach any conclusions or opinion as to the type of reservoir
7 it is, with reference to uniformity of porosity, and
8 permeability across at least the Exxon lease and the other
9 leases in the immediate area?

10 A The cross sections drawn through the New Mexico S
11 State lease by our geologist show that the Eunice San Andres
12 South Pool is uniform porosity development, the upper
13 San Andres is a little bit more stratified than the lower
14 San Andres as evidenced by our ability to squeeze off some
15 oil production from water source well Number 4. We do
16 believe that it is one big, uniform and continuous reservoir
17 that does contain a -- referring to Exhibit Number Seven
18 which denotes Exxon's New Mexico S State lease bounded by
19 yellow, Section 2, Township 22 South, Range 37 East. Again
20 the Eunice San Andres completions are noted by red triangles
21 and in this plat we have shown Paddock Unit well bores that
22 will be available in the near future for recompletion into
23 the Eunice San Andres South Pool. Timing and development of
24 the field will be based upon our ability to define oil-water
25 and further reservoir description.

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1 Q And as Mr. Jordan testified, you do expect to
2 utilize these well bores for San Andres production where
3 your experience and work shows it to be justified?

4 A Yes, sir, we do.

5 Q Is there anything else you would like to say about
6 Exhibit Seven?

7 A Not at this time.

8 Q Now, refer to what has been marked Exhibit Eight,
9 A through H I think?

10 A Yes, sir.

11 Q Which consists of a number of charts which I take
12 to be production information graphically depicted?

13 A Yes, sir.

14 Q Would you explain that exhibit?

15 A Exhibit Eight-A through Eight-H are production
16 plots for every Eunice San Andres South completion, water
17 production in barrels per month, oil production in barrels
18 per month, and gas-oil ratio in cubic feet per barrel is
19 plotted for each well.

20 I think it is significant to see that on all of
21 the plots all Eunice San Andres South completions have been
22 accompanied by large volumes of water, and as such, a
23 defined oil-water contact has not been located by any
24 operator in the pool yet, and oil production has been
25 significant and remaining recoveries will be significant as

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1 you can tell by the current day production plot and the
2 accumulative production of four hundred and sixteen thousand
3 barrels.

4 Q Now with specific reference, Mr. Rose, to the
5 proposal of the applicant here, Agua, Inc., do you have any
6 recommendation to the Commission with reference to the
7 treatment of the well bore as it presently exists. I
8 understood the testimony to be that on oral permission, is
9 that right, to inject?

10 MR. JENNINGS: No, there was an application. It
11 is Exhibit One.

12 MR. SPERLING: I understand there has been no order
13 entered authorizing injection into the perforation, that the
14 permission was oral. Is that correct? Maybe I heard wrong.

15 MR. JENNINGS: I think they were authorized to
16 perforate it.

17 MR. SPERLING: Well, I understood Mr. Abbott to
18 say, and he can correct me if I'm wrong, that there was
19 injection into those perforations on a test basis based on
20 oral permission granted by the Hobbs office, is that right?

21 MR. ABBOTT: That's right.

22 MR. SPERLING: Who extended the oral permission?

23 MR. ABBOTT: Santa Fe.

24 Q (Mr. Sperling continuing.) Well, assuming that
25 injection is occurring into the zone, I assume pending the

1 the outcome of this hearing, do you have any mechanical
2 recommendations as to what should and could be accomplished
3 with reference to both the application as it was filed and
4 the condition as we understand it to exist presently is?

5 A. Exxon's position upon both the current injections
6 into the perforations and continued injection presents a
7 damage to our correlative rights and I have in front of me
8 right here a recommended squeeze procedure that would call
9 for squeezing all of the perforations that are presently
10 perforated in the casing and a detailed squeeze procedure
11 here that was written by our production engineers in the
12 Andrews District. I also have a recommended operation plan
13 by where we would require that Agua would set an injection
14 packer at approximately the casing shoe depth, forty-three
15 hundred and eighty feet and would load the tubing casing
16 annulus with inhibited brine, apply a positive surface
17 pressure and monitor that pressure to see if any leaks are
18 occurring into the Upper San Andres. We would like to have
19 this injection shut down immediately.

20 MR. SPERLING: That's all.

21 MR. NUTTER: Are there any questions of this
22 witness?

23 MR. JENNINGS: I have a few.

24 CROSS EXAMINATION

25 BY MR. JENNINGS:

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1 Q Do you remember all of the questions that the
2 previous witness passed on to you? If you do, start answering
3 them.

4 A I don't think I can do that, but I will attempt
5 anything you ask.

6 Q First of all, I believe you stated that your 4 SWS
7 well indicated extensive oil production?

8 A Yes, it does.

9 Q What do you consider extensive oil production?

10 A Extensive oil production? We tested that well
11 like I mentioned, producing two hundred and ninety-nine
12 barrels of oil per day upon initial completion, and it has
13 accumulated eighty-seven thousand barrels.

14 Q But as against how much water?

15 A It has three million barrels of water.

16 Q My calculation is that is in the neighborhood of
17 three percent of the volume is oil?

18 A Three percent of the volume is oil in the interval
19 that we now have open. If you will look at the interval
20 or the test that we have on the well from the whole interval
21 it is considerably more than three percent. The two hundred
22 and ninety-nine over four thousand is considerably more than
23 three percent oil. We are talking about three percent oil
24 in the interval that we completed for the purpose of
25 water. We have purposely made it that ratio.

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1 Q And at the time you shut it in what percentage of
2 oil were you --

3 A From the interval that we were using to supply
4 water we were making seventeen barrels of oil per day and
5 seven hundred and fifty barrels of water per day.

6 Q Is that economical?

7 A Yes, sir, at stripped oil prices it surely is.

8 Q Two percent or two and a half percent?

9 You have mentioned this squeeze, that you squeezed
10 the oil off?

11 A Yes, sir.

12 Q Was that ever successful?

13 A Yes, sir, it was.

14 Q Did you shut the oil off?

15 A Yes, sir, we did, in the interval that we could
16 shut the oil off.

17 Q What interval was that?

18 A The interval that I told Mr. Nutter we shut off
19 was from forty sixty to forty-two hundred feet. And that
20 correlates to the injection interval that Agua would like
21 to have.

22 Q Was it successful in the other areas?

23 A We have never squeezed to eliminate oil before, sir.

24 Q What pressure did you use in your squeezing?

25 A I don't have that information with me, sir. I can

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1 give you the rates before and after if you would like to
2 know those?

3 Q Well, we might have them.

4 A Okay. A Reda pump test on the eighth, eighteenth
5 in sixty-eight showed two hundred and ninety-nine barrels
6 of oil and four thousand, two hundred and twenty barrels of
7 water. The test that we had produced the nine, ten, sixty-
8 eight, showed six thousand one hundred and seventy barrels
9 of water and two percent oil.

10 Q What was that in barrels; you don't have the
11 barrels?

12 A I don't have the barrels. Well, we can tell by
13 the production plot, it's listed. The initial production
14 for water source well Number 4 shown in 1969 when we
15 finally got the interval squeezed was some eight hundred
16 and ninety barrels a month, which correlates to what --
17 twenty-seven or twenty-eight barrels a day, something of
18 that nature. And at the time we were producing, the water
19 production from the well was fifty-six thousand -- fifty-four
20 thousand barrels of water, which stays in the range of two
21 or three percent oil.

22 Q Now, when 44 well was shut in, I understand it
23 was just producing ten barrels of oil and five hundred and
24 twenty-six barrels of water?

25 A That is correct, sir, with the fluid level at

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1 seven hundred feet.

2 Q If I'm calculating right, that was probably less
3 than two percent, is that correct?

4 A That's two percent in the interval with the fluid
5 level at seven hundred feet. The pressure against the
6 formation could affectively eliminate a lot of oil production
7 from that interval. We need to pump the well off to see
8 what the percentage of oil would be.

9 Q And why didn't you pump it off?

10 A Because we have no present way to dispose of the
11 water.

12 Q And the Paddock wells --

13 A We do not have permission to use that water to
14 dispose into the Paddock Unit.

15 Q Did you seek that permission?

16 A No, sir, we did not because the Paddock Unit is
17 being evaluated for continuation.

18 Q In referring to Exhibit Six, maybe I misunderstand
19 it, again referring to Well 44, is that the accumulative
20 production?

21 A Eighty-seven thousand barrels?

22 Q No, Well 44.

23 A Oh, excuse me, zero, yes, sir. We have never
24 produced the well so the accumulative would be zero.

25 Q When was that well completed?

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1 A. In July of 1974.

2 Q. And you never produced it?

3 A. No, sir.

4 Q. What other wells have you drilled in the area?

5 A. We drilled New Mexico S State 26, and that would
6 be the only other well we have drilled.

7 Q. When was that drilled?

8 A. That was drilled in 1969. I can give you the
9 date here. Nine, eighteen, sixty-nine.

10 Q. Why was that abandoned?

11 A. The well was abandoned because we encountered
12 significant water production and we could not dispose of
13 the water at that time.

14 Q. What oil did you --

15 A. We tested seventeen barrels of oil along with
16 eight hundred and fifty-one barrels of water.

17 Q. Why was it not converted into a salt water disposal
18 well?

19 A. Again, we could not handle the water disposal
20 from that well.

21 Q. And you didn't consider using the water from
22 that well in lieu of obtaining additional water from your
23 water supply well?

24 A. The water supply well was drilled as a joint
25 venture with the Paddock Unit. That New Mexico S State

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1 26 was drilled solely as an Exxon project. We would, therefore,
 2 have to go to the Paddock Unit and ask them to buy the well.
 3 At that time we had water sufficient for the Paddock flood.

4 Q But you had to drill a well to get it?

5 A We drilled the water source well first.

6 Q Now, you spoke of your proposed development?

7 A Yes, sir.

8 Q What have you done toward the development since
 9 the middle of 1974?

10 A Since the middle of 1974?

11 Q Yes.

12 A We are on an evaluation of the Paddock San Angelo
 13 flood which must be completed prior to any San Andres
 14 completions.

15 Q How long do you anticipate that will take?

16 A The San Angelo flood is of a very complex nature
 17 and we tried a pilot flood without any back up in the
 18 injection and the pilot flood response is difficult to
 19 evaluate. I cannot put a date on that for you.

20 Q Now, on your recompletions, referring to your
 21 Exhibit Seven, you contemplate recompleting all of those
 22 wells?

23 A Those are well bores that will be available. The
 24 San Andres is prorated on eighty acres and we will need to
 25 evaluate the formation in each one of those well bores. All

1 that plat depicts is the well bores that will be available
2 to Exxon for that type of work.

3 Q Would it be economical to drill a new well to the
4 San Andres formation, in your opinion?

5 A That depends on our ability to correctly define
6 the oil and water entry. If you drilled a new well and
7 you ran open-hole logs and you were able to run something like
8 a carbon-oxygen ratio log which is used to determine oil
9 zones and water zones we could certainly complete a well in
10 that area.

11 Q Have you ever determined the water-oil entry?

12 A No, sir, we have not.

13 Q Where do you --

14 A We have various instances where we stopped like on
15 the New Mexico water source well Number 4, we shut oil off at
16 a certain depth, but in the Paddock Unit 44 completion we
17 struck water where we thought oil was. And if you will look
18 at the Anadarko completions to the south of you, the same
19 completion intervals yield different productions of water
20 which indicates that no defined oil-water contact can
21 be obtained.

22 Q Is the method you have been describing proven?

23 A The carbon-oxygen ratio log, yes, sir.

24 Q In Lea County?

25 A Not in Lea County, no, sir.

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1 Q Well, where in Texas?

2 A Well, mostly in the sand-shale sequence in the
3 central part of Texas and we have tried it. We haven't tried
4 any of the carbon-oxygen ratio logs yet. We have another
5 workover pending which is going to be Paddock Unit Number 42
6 that you see denoted right next to water source well 4,
7 and management is now looking at that to see if we can
8 afford a carbon-oxygen ratio log on that thing.

9 Q Was this in a similar formation in Texas or was
10 it in an entirely different type of formation?

11 A The formations there are sand-shale, this is
12 primarily dolomite. The tool should not be affected merely
13 by formation. It is mostly an indicator of hydro-carbons
14 and hydrogen.

15 Q What was your water zone that you determined in
16 your water source well?

17 A The perforated interval shown on Bill Jordan's
18 cross section and I can list those for you.

19 Q Would it be fair to say that is what was shown on
20 your C-105, from forty-two thirty-eight to forty-six eighty-
21 two?

22 A That's correct.

23 MR. JENNINGS: I thinks that is all.

24 MR. NUTTER: Let's take a fifteen minute recess.

25 (THEREUPON, a short recess was taken.)

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1 MR. NUTTER: The Hearing will come to order.

2 CROSS EXAMINATION

3 BY MR. NUTTER:

4 Q Mr. Rose, I had a couple of questions I wanted to
5 ask you about the time sequence when the 4 WS was originally
6 completed. What was the date of the original perforations?
7 That would be from the forty sixty clear on down.

8 A The seventh month, the eighteenth day of 1968,
9 July 18th, 1968.

10 Q Okay, and then before the squeeze you had a test
11 on the well which was eight, eighteen of sixty-eight?

12 A Yes.

13 Q And it made two hundred and ninety-nine barrels
14 of oil and forty-two twenty barrels of water, correct?

15 A That is correct, sir.

16 Q All right, then, what was the date of the squeezing
17 of the three intervals from forty sixty to forty-two
18 hundred?

19 A August 27th of 1968, eight, twenty-seven, sixty-
20 eight. We did these in a sequence. Let me clarify that,
21 Mr. Nutter. We squeezed the interval forty sixty to forty-one
22 forty-nine on August 27th.

23 Q Okay, that was eight, twenty-seven?

24 A Yes, sir. On the nine, sixth and sixty-eight, we
25 went in and squeezed forty-one seventy-one through forty-two

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1 hundred.

2 Q That was nine, eight, sixty-eight?

3 A Right.

4 Q And then you had another test after those three
5 intervals had been squeezed and it was dated nine, ten,
6 wasn't it?

7 A Yes, sir.

8 Q And I never did get the full potential on the
9 well at that time.

10 A Okay, Reda pump tests as I read here was six
11 thousand, one hundred and seventy barrels of water and two
12 percent oil. It didn't have a number for oil volume. I
13 think that figures out to be something like twelve barrels
14 of oil a day. One hundred and twenty, excuse me.

15 Q Then what is this figure down at the bottom of
16 Jordan's exhibit where he says sixty-one seventy barrels of
17 water and one hundred and two barrels of oil?

18 A I'm not sure. Which exhibit are you referring to?

19 Q I'm talking to the notation at the bottom of the
20 log for this well on Exhibit Number Two, the big cross
21 section.

22 A Okay, I'll need to see. That is probably the
23 potential after we got through with the squeezing of the
24 interval.

25 Q That was what this Reda test was on nine, ten,

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1 sixty-eight, wasn't it?

2 A Yeah, let's see -- what does it say. Yeah, that's
3 percentage of oil. There's the number right there, one
4 hundred and two barrels of oil.

5 Q Roughly two percent?

6 A Yes, that is correct, not twelve, one hundred and
7 two. It's the same number.

8 MR. NUTTER: Okay, are there any further questions
9 of Mr. Rose? He may be excused.

10 Do you have anything further, Mr. Jennings?

11 MR. JENNINGS: No, sir.

12 MR. NUTTER: Mr. Sperling, do you have anything
13 further? I don't think we got your exhibits in.

14 MR. SPERLING: No, sir. I need to offer Exxon's
15 exhibits One through Eight, which consists of several parts.

16 MR. NUTTER: Was Eight the --

17 MR. SPERLING: The production curves.

18 MR. NUTTER: Exxon's Exhibits One through Eight
19 will be admitted into evidence.

20 Did you have anything further, Mr. Sperling?
21 Does anyone have anything they wish to offer in Case Number
22 5562?

23 Before taking the Case under advisement I would
24 like to make a couple of comments. In the first place we
25 have here, Exhibit Number Six, which is Permission Form 103,

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1 notice of intention to perform remedial work, filed by
2 Agua, Inc. The exhibit that we have doesn't bear the
3 signature of any Commission representative. However, it is
4 stamped that the original was signed by John Runyon, a
5 geologist. I would like to point out that Mr. Runyon actually
6 did not have authority to approve this C-103 in the form
7 that it was presented to him. The proposed work will start
8 as soon as approval is obtained, the 103 reads. Step one,
9 pull and lay down the tubing. Step two, perforate the
10 casing in two intervals, forty-three twenty to forty-two
11 thirty, and forty-one ninety to forty-one twenty. Treat the
12 intervals from forty-three twenty to forty-two thirty at
13 forty-one ninety to forty-one twenty and the open hole with
14 five thousand gallons. (End of reading.)

15 Now, I have no question as to Mr. Runyon's authority
16 through step three. Step four, however, (Reading) resume
17 salt water disposal under gravity conditions. (End of reading.)
18 I believe when he approved this form he was going beyond
19 the authority because the Commission has authorized the
20 injection of water for disposal purposes into a given
21 interval in this well and he couldn't go beyond what the
22 Commission had previously approved. For test purposes maybe
23 this is true, he could, but this doesn't say for test purposes.

24 And step five is (Reading) load the casing tubing
25 annulus with inhibited oil.

1 Now, my notes on this case indicate to me that on
2 September 15th I talked to Bill Abbott who is the manager of
3 Agua, Inc. My notes say, talked to Bill Abbott, told him
4 of Exxon's objection to disposal above forty-four hundred
5 and said they will oppose him at hearing. Made it clear
6 that he is proceeding at his own risk and that our approval
7 to do the work does not mean that it will be approved after
8 hearing. He said he understood and would perforate forty-two
9 thirty, forty-three twenty Wednesday nine, seventeen.

10 Now, when we approved this for test purposes, to
11 go ahead and dispose, I think that is all it is for is to
12 get a maximum injectivity on the well. I don't think
13 continued disposal pending amendment of the existing order
14 is in line. So I don't really think there is any approval
15 to be disposing into the new interval at this time, because
16 I think it has been established and was established last
17 week that the new zone would take approximately two hundred
18 and fifty barrels, or that the well would now take approxi-
19 mately two hundred and fifty barrels per hour more than the
20 two hundred and forty barrels per hour that it was capable
21 of before the new perforations were opened up.

22 In taking this Case under advisement, I'm going to
23 make a recommendation. I know we are under the gun here
24 for time. We've got some four hundred and thirty wells
25 connected to the disposal well. We've also got a disposal

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1 well down in Section 36 that apparently has some serious
2 problems connected to it. An effort is being made to bleed
3 that well off and reduce the pressure in the formation
4 around the well, and I think that all of these things have
5 to be considered and time is of the essence here.

6 So I'm going to make the following recommendations
7 to the Commission. I'm going to recommend that they permit
8 the disposal of salt water into the C-2 SWD 2 well, or
9 whatever the number of it is, in the open hole interval
10 from forty-four hundred feet on down and in the perforated
11 interval from forty-two thirty to forty-three twenty, but
12 that the disposal into this perforated interval will be
13 permitted for only a period of four months from the present
14 date.

15 I believe that we heard testimony that the site
16 for a new well or a new well could be located within six
17 months. I think perhaps four months would be adequate. We
18 hope so. At the end of the four months period the well
19 could be continued to be used as a disposal well, but not
20 in the new perforated interval.

21 I'm also going to recommend that the Commission
22 enter an emergency order as soon as an emergency order can
23 be prepared and a quorum of the Commission made available
24 to sign the order, if they accept my recommendations. I
25 don't know if they will. If they accept my recommendations

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1 that an emergency order be entered, pending the issuance of
2 a regular order, which can't be done before next Tuesday
3 under the State open meeting laws. I think we can probably
4 get an emergency order issued this afternoon if I can get
5 the Commission, a couple members of the Commission together,
6 we can get an emergency order and this would cover the
7 operations until over the weekend anyway. We don't want to
8 see four hundred and thirty wells shut down for the weekend.

9 And with those observations the Hearing is
10 adjourned.
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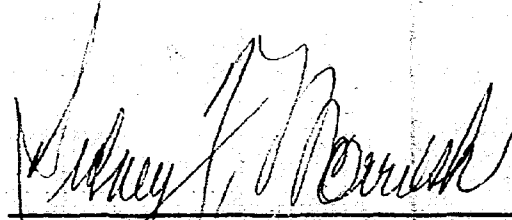
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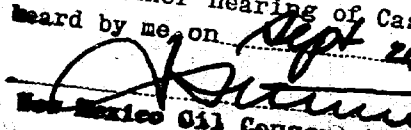
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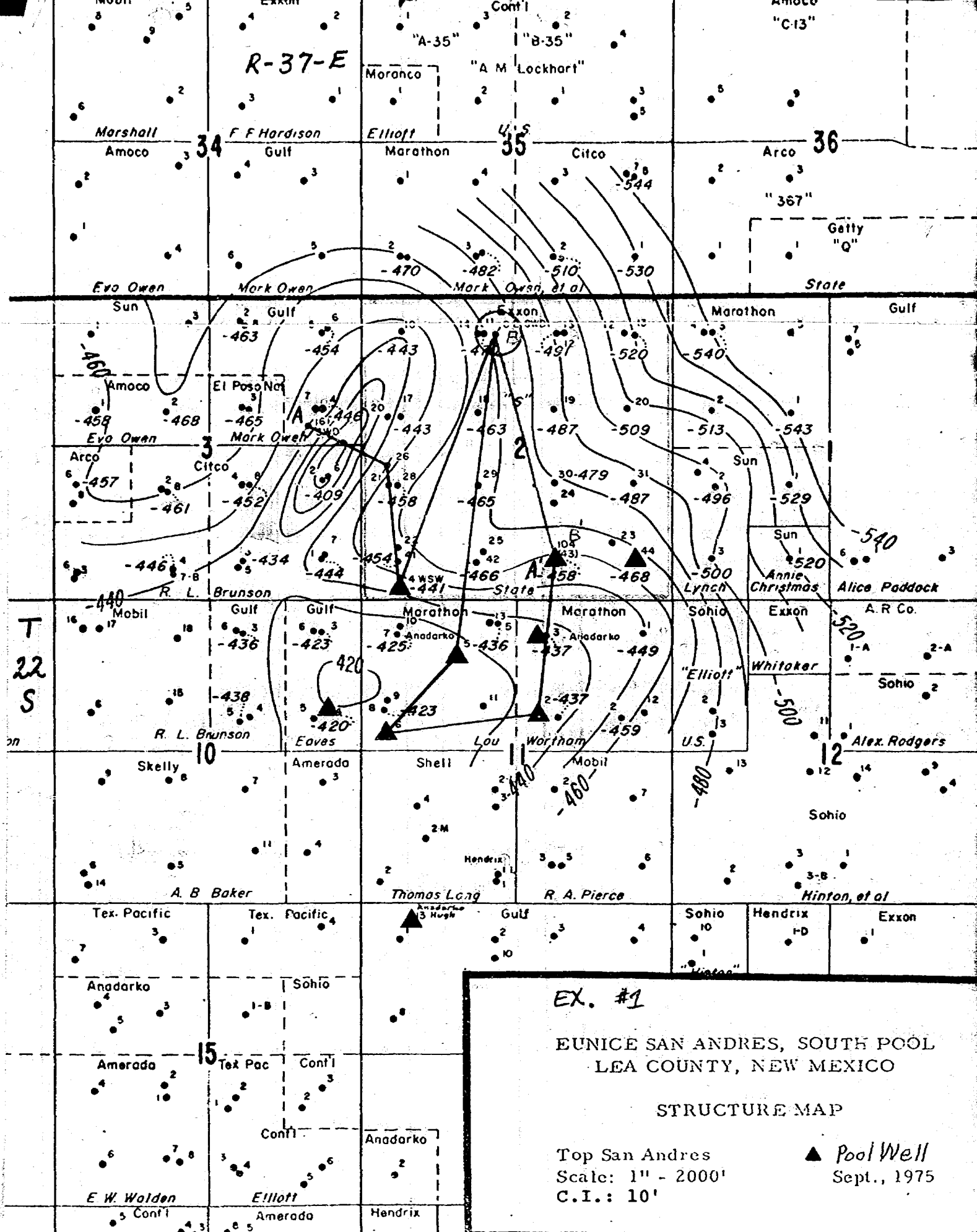
State of New Mexico)
County of Santa Fe) ss.

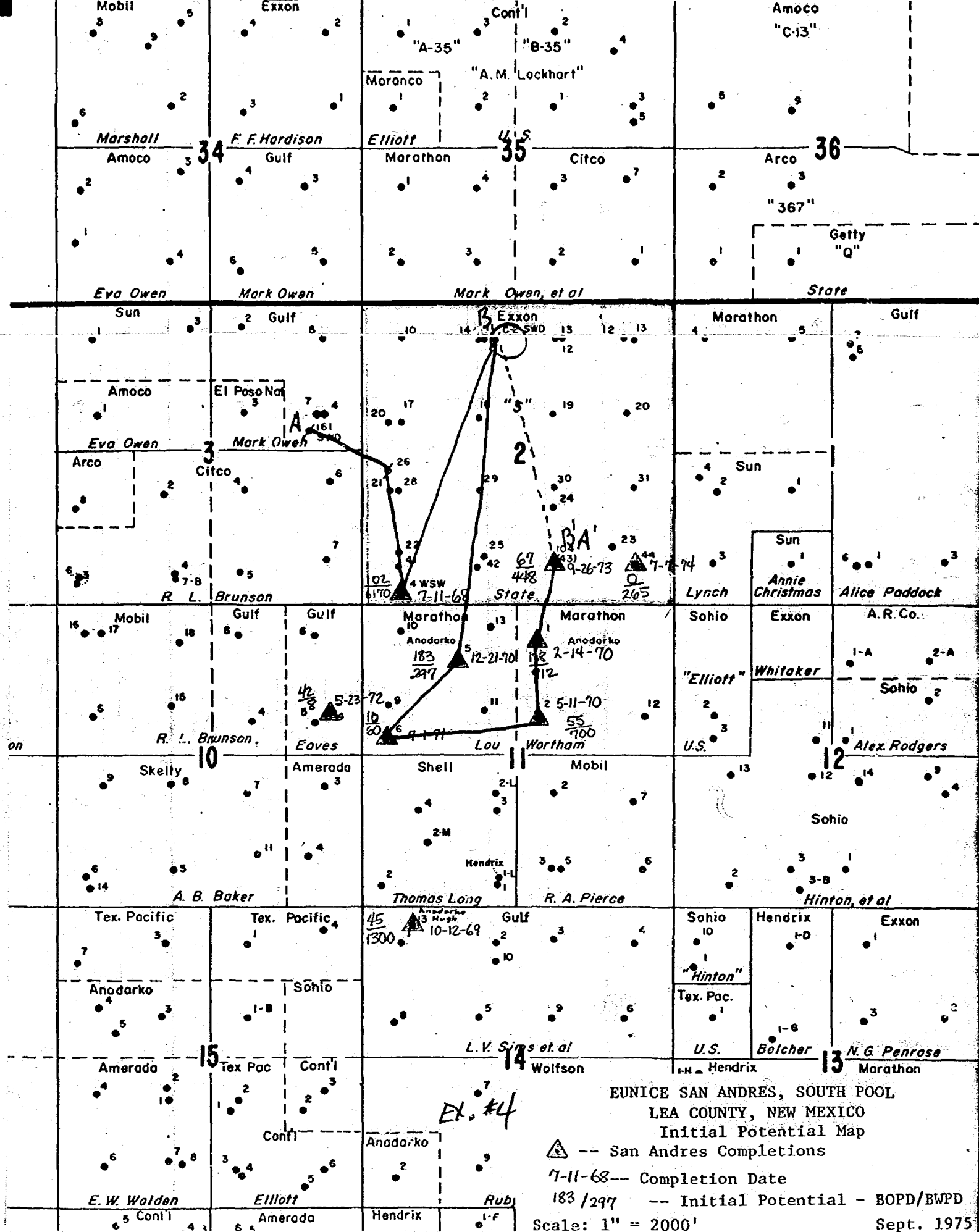
I, SIDNEY F. MORRISH, a court reporter, do hereby
certify that the foregoing and attached Transcript of Hearing
before the New Mexico Oil Conservation Commission was reported
by me, and the same is a true and correct record of the said
proceedings to the best of my knowledge, skill and ability.


Sidney F. Morrish, Court Reporter

I do hereby certify that the foregoing is
a complete record of the proceedings in
the Examiner hearing of Case No. 5562
heard by me on Sept 24, 1975

New Mexico Oil Conservation Commission

sid morrish reporting service
General Court Reporting Service
825 Calle Mejia, No. 122, Santa Fe, New Mexico 87501
Phone (505) 982-9212





AGUA, INC.

POST OFFICE BOX 1978
HOBBS, NEW MEXICO
88240

TELEPHONE: 505 393-6188

TABULATION OF EXHIBITS

CASE 5562

- ✓ 1. Letter from Joe Ramey dated 8/22/75
- ✓ 2. Map of System showing SWD Well No. H-35 and SWD Well No. C-2
- ✓ 3. Minutes of Committee Meeting of Blinbry-Drinkard SWD System
- ✓ 4. AFE-147 dated 9/2/75
5. Letter to Exxon requesting additional perforations ~~NOT OFFERED~~
- ✓ 6. C-103 to Commission
7. Answer from Exxon on SWD Well No. C-2 ~~NOT OFFERED~~
- ✓ 8. Diagram of SWD Well No. C-2
- ✓ 9. Log of SWD Well No. C-2
- ⑩ Structure map drawn on top of San Andres
- ⑪ X-Section thru Well No. C-2
- ⑫ Well status map: producing wells, injection well, shut-in wells
- ⑬ Production map
- ⑭ Tabulation of Eunice San Andres, South wells in area

✓ Abbot

○ Janica



OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO
P. O. BOX 2088 - SANTA FE

87501
August 22, 1975

Agua Inc.
Box 1978
Hobbs, New Mexico

Attention: Mr. W. G. Abbott

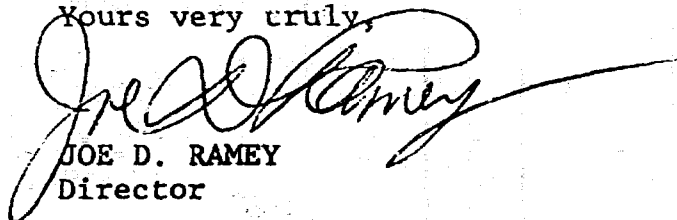
Dear Mr. Abbott:

This will confirm our conversation of August 21, 1975, in Hobbs concerning the shutting in of your 35-H disposal well located in Unit H, Section 35, T22S, R37E.

It is the Commission's opinion that there is communication between tubing and casing strings in this well and the pressure on the surface string constitutes an immediate hazard to fresh water in the area.

You are therefore directed to cease injection into this well at a time no later than 8:00 a.m. September 26, 1975.

Yours very truly,


JOE D. RAMEY
Director

JDR/fd

cc: Mr. Phil R. Lucero
Mr. Emery C. Arnold

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
Agua EXHIBIT NO. 1
CASE NO. 5562

AGUA, INC.

POST OFFICE BOX 1978
HOBBS, NEW MEXICO
88240

TELEPHONE: 505 393-6100

August 25, 1975

BEFORE EXAMINER NUTTER	
OIL CONSERVATION COMMISSION	
<i>Agua</i>	EXHIBIT NO. <u>3</u>
CASE NO.	<u>5562</u>

To: All Parties
Blinebry-Drinkard Salt Water Disposal System

Gentlemen:

A called meeting of All Parties to the System convened at 10:00 A.M. (MDT) on Monday, August 25, 1975, at the VIP Room of the Holiday Inn at Hobbs, New Mexico. The attached roster represents the attendance at this meeting.

The meeting was to advise and recommend action to be taken in response to the New Mexico Oil Conservation Commission directive that injection into the Blinebry-Drinkard Salt Water Disposal Well No. H-35 cease at a time no later than September 26, 1975. It is the Commission's opinion that there is communication between tubing and casing strings in Disposal Well No. H-35 and the pressure on the surface string constitutes an immediate hazard to fresh water in the area.

AGUA, INC., as Operator of the System made the following recommendations:

- (a) Lay a temporary 6" PVC 160 plastic line on the surface of the ground from Disposal Well No. H-35 to Disposal Well No. C-2. Waste waters from terminal storage at Well No. H-35 will be pumped to Well No. C-2.
- (b) Perforate additional section opposite the San Andres in Disposal Well No. C-2.
- (c) Backflow Disposal Well No. H-35 to reduce pressure.
- (d) Run radioactive tracer survey in Disposal Well No. H-35.
- (e) Research and acquire surface lease in area of developed porosity and permeability conducive to accepting water by gravity. Drill and equip a new disposal well.

All Parties
Blinebry-Drinkard Salt Water Disposal System
August 25, 1975
Page 2

(f) Re-route waste water collection lines to new disposal well.

(g) Salvage temporary 6" PVC plastic line.

R. M. Moran, MORANCO, made a motion that the above recommendations be adopted and the motion was seconded by Cletus Samples, Mobil Oil Corporation. The motion was carried by acclamation; Petro-Lewis Corporation and Cities Service Oil Company abstained from voting.

AGUA, INC. will prepare and circulate the required AFE's for approval by All Parties to the System.

Yours very truly,

AGUA, INC.

W. G. Abbott

W. G. Abbott
Manager

JVR/jo
Attachment

BLINEBRY-DRINKARD SWD SYSTEMCOMMITTEE MEETING

August 25, 1975

<u>NAME</u>	<u>COMPANY</u>	<u>ADDRESS</u>
W. G. Abbott	AGUA, INC.	Hobbs
J. V. Ryan, Jr.	AGUA, INC.	Hobbs
James T. Jennings	Jennings, Christy & Copple	Roswell
J. T. Janica	AGUA, INC.	Hobbs
J. Z. Jennings	Jennings, Christy & Copple	Roswell
✓A. W. Cecil	Exxon Co., U.S.A.	Andrews
✓J. C. Sherrill	Exxon Co., U. S. A.	Hobbs
J. J. Waller	Texas Pacific Oil Co.	Midland
L. A. Wright	Texas Pacific Oil Co.	Midland
H. L. Honea	Atlantic Richfield	Hobbs
Elmer Startz	Cities Service Oil Co.	Midland
A. J. Alcott	Mobil	Midland
Cletus Samples	Mobil	Midland
R. H. Cummins	Mobil	Lovington
Les Clements	N.M.O.C.C. - Buckeye	Hobbs
C. S. Hilton, Jr.	Marathon Oil Co.	Hobbs
Lester Duke	Aztec Oil & Gas	Hobbs
Dale R. Crockett	Skelly Oil Co.	Hobbs
Bill Thomas	Skelly Oil Co.	Hobbs
Lavele Frantz	Phillips Petr. Co.	Odessa
H. G. Starling	Shell	Hobbs
Eugene Miller	Getty Oil Co.	Hobbs
C. R. Korzekwa	Gulf Oil	Hobbs
D. F. Berlin	Gulf Oil	Hobbs
C. D. Borland	Gulf Oil	Hobbs
V. T. Lyon	Conoco	Hobbs
Bob Moran	MORANCO	Hobbs
Ken McPeters	MORANCO	Hobbs
Edward J. Snook	Amoco Production Co.	Andrews
Wayne C. Pierce	TEXACO INC.	Hobbs
Paul Thompson	Conoco	Hobbs
R. D. Wilkes	Amerada Hess	Monument

AGUA, INC.

POST OFFICE BOX 1978
HOBBS, NEW MEXICO
88240

TELEPHONE: 505 393-6100

September 2, 1975

To: All Parties
Blinebry-Drinkard Salt Water Disposal System

Gentlemen:

At the August 25, 1975 called meeting of All Parties to the Blinebry-Drinkard Salt Water Disposal System, AGUA, INC., as Operator of the System, advised the representatives of the Operating Committee as to the New Mexico Oil Conservation Commission August 2, 1975 directive that the Blinebry-Drinkard Salt Water Disposal Well No. H-35 cease accepting waste waters for pressure disposal at a time no later than 8:00 A.M., September 26, 1975.

AGUA, INC. recommended that the current waste waters (250 BPH) entering terminal storage facilities at Disposal Well No. H-35 be pumped to Disposal Well C-2 for gravity disposal until such time as a new disposal well can be drilled, equipped and connected to the System. AGUA also recommended that additional intervals of the San Andres formation be exposed to the wellbore by perforating the 7" casing in Disposal Well No. C-2.

AGUA has requested specific approval of Exxon for perforating the 7" casing in Disposal Well No. C-2 to expose additional San Andres formation for accepting waste waters. Disposal Well No. C-2 currently will accept a maximum of 240 BPH waste waters under gravity.

It is estimated that it will cost \$91,250.00 to lay a temporary 6" PVC 160 plastic line on the surface of the ground from Disposal Well No. H-35 to Disposal Well No. C-2 through which waste waters will be pumped from Disposal Well H-35 to Disposal Well C-2, and to perforate additional intervals and treat all exposed intervals of the San Andres formation in Disposal Well No. C-2 with acid.

BEFORE EXAMINER NOTED
OIL CONSERVATION COMMISSION
Agua EXHIBIT NO. 4
CASE NO. 5562

All Parties
Blinebry-Drinkard Salt Water Disposal System
September 2, 1975
Page 2

This construction cost will be borne by All Parties to the System.

Please process the attached AFE No. 147 in the amount of \$91,250.00 and return one copy for our files.

Yours very truly,

AGUA, INC.



W. G. Abbott
Manager

JVR/jo
Attachment

AGUA, INC.

POST OFFICE BOX 1978
HOBBS, NEW MEXICO
88240

TELEPHONE: 505 393-6100

September 2, 1975

BLINEBRY-DRINKARD SALT WATER DISPOSAL SYSTEM

AFE No. 147

Authority is requested to lay a temporary line from Disposal Well No. H-35 located in the SE/4 NE/4 of Section 35, T22S, R37E to Disposal Well No. C-2 located in the NE/4 NW/4 of Section 2, T22S, R37E, to perforate the 7" casing in Disposal Well No. C-2, and to pump waste waters from Disposal Well No. H-35 to Disposal Well No. C-2 utilizing the existing triplex pumps.

Lines

<u>Size</u>	<u>Unit Price</u>	<u>Quantity</u>	<u>Est. Cost</u>
6" PVC	\$1.7522	31,000'	\$54,320.00
6" line	4.30	1,000'	4,300.00

Valves, fittings, contract labor, surveying and miscellaneous	21,100.00
--	-----------

Right-of-Way and damage, engineering, design, bill of materials, supervision, placing in operation.	<u>11,530.00</u>
---	------------------

AFE No. 147 TOTAL	\$91,250.00
-------------------	-------------

APPROVED:

COMPANY: _____

BY: _____

TITLE: _____

DATE: _____

AFE No. 147
9/2/75

PARTY	No. Wells	APPROVAL
Amoco	3	✓
Amoco	19	✓
Amoco	39	✓
Amoco	1	✓
Campbell Electric	✓	
Citgo	27	
Colo. Corp	1	
Conoco	20	✓
Deale	1	
El Paso	1	✓
Exxon	6	No
Getty	26	
Gulf	118	✓
Imperial Amer	17	✓
Macdonald	1	✓
Marathon	7	✓
Mark	1	
Mobil	8	✓
MOERANCO	8	✓
Perry	3	✓
Petroleum & Zachary	1	✓
Petro-Lewis	26	
Phillips	3	✓
Power Mgmt.	3	✓
Shell	2	✓
Stell	7	✓
Exxon	1	✓
Union	26	
Tenneco	1	
Union	14	✓
Union	12	
Union	1	
Union	3	
Union	2	✓

9/4/75	2 wells	0.47%
9/5/75	12	✓ 87%
9/8/75	133 wells	31.81%
9/9/75	152	36.36%
9/10/75	191	45.69%
9/11/75	190	47.60%
9/12/75	221	52.87%
9/13/75	232	55.50%
9/14/75	253	60.5%
9/15/75	255	61.00
9/17/75	269	64.35
9/18/75	278	66.50
9/19/75	280	66.98

73.68% - approval
of AFE

AGUA, INC.

POST OFFICE BOX 1978
HOBBS, NEW MEXICO
88240

August 26, 1975

TELEPHONE: 505 393-6100

Exxon Company, U. S. A.
1700 West Broadway
Andrews, Texas 79714

Attn: Mr. A. W. Cecil

Gentlemen:

Blinebry-Drinkard Salt Water Disposal Well No. C-2 was completed in accordance with a Waiver of Objection from Exxon in that 7" casing was set at a depth of 4400' and the disposal of waste waters was limited to the open-hole interval 4400 - 4950'.

At an August 25, 1975 called meeting of All Parties to the System, a weighted majority approval was given AGUA, INC., as Operator, to immediately proceed with the construction of a temporary line to move waste waters from terminal storage at Disposal Well No. H-35 to Disposal Well No. C-2 for subsurface disposal.

An AFE for the above construction work will be circulated for approval of the Operating Committee. Prior to circulation of the said AFE, AGUA respectfully requests the specific approval of Exxon for perforating the 7" casing in Disposal Well No. C-2 in the intervals 4120 - 90' and 4230 - 4320' to increase the acceptance of an additional 250 BPH of waste waters from Disposal Well No. H-35.

Thank you for your cooperation in this matter.

Yours very truly,

AGUA, INC.

W. G. Abbott
W. G. Abbott
Manager

BEFORE EXAMINER NUTTE
OIL CONSERVATION COMMISSION
EXHIBIT NO. <u>5</u>
CASE NO. <u>5562</u>

JVR/jo
Attachment: C-2 log

WAIVER OF OBJECTION

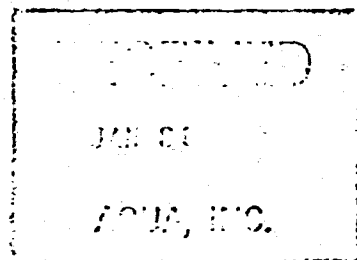
We, the undersigned, do hereby waive our objection to the application of AGUA, INC. for authority to drill and dispose of oilfield brines in their Blinebry-Drinkard SWD Well No. C-2, located 660' FNL and 2,305' FWL of Section 2, Township 22 South, Range 37 East, Lea County, New Mexico. It is understood that this disposal will be into the lower San Andres formation which to AGUA's knowledge is not productive of oil or gas within two miles of said subject well. Injection will be at a depth below 4400'.

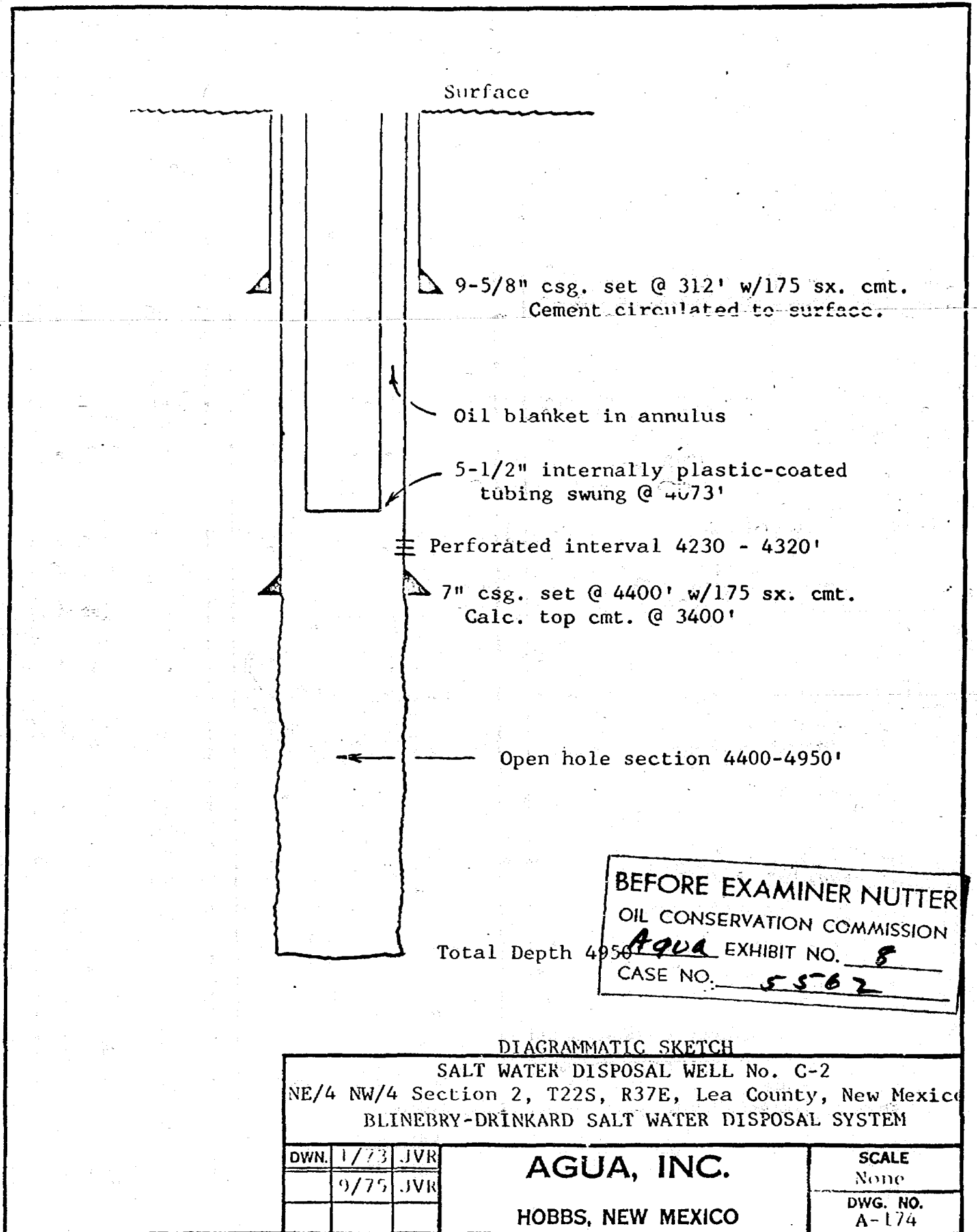
COMPANY: Exxon Company, U.S.A.

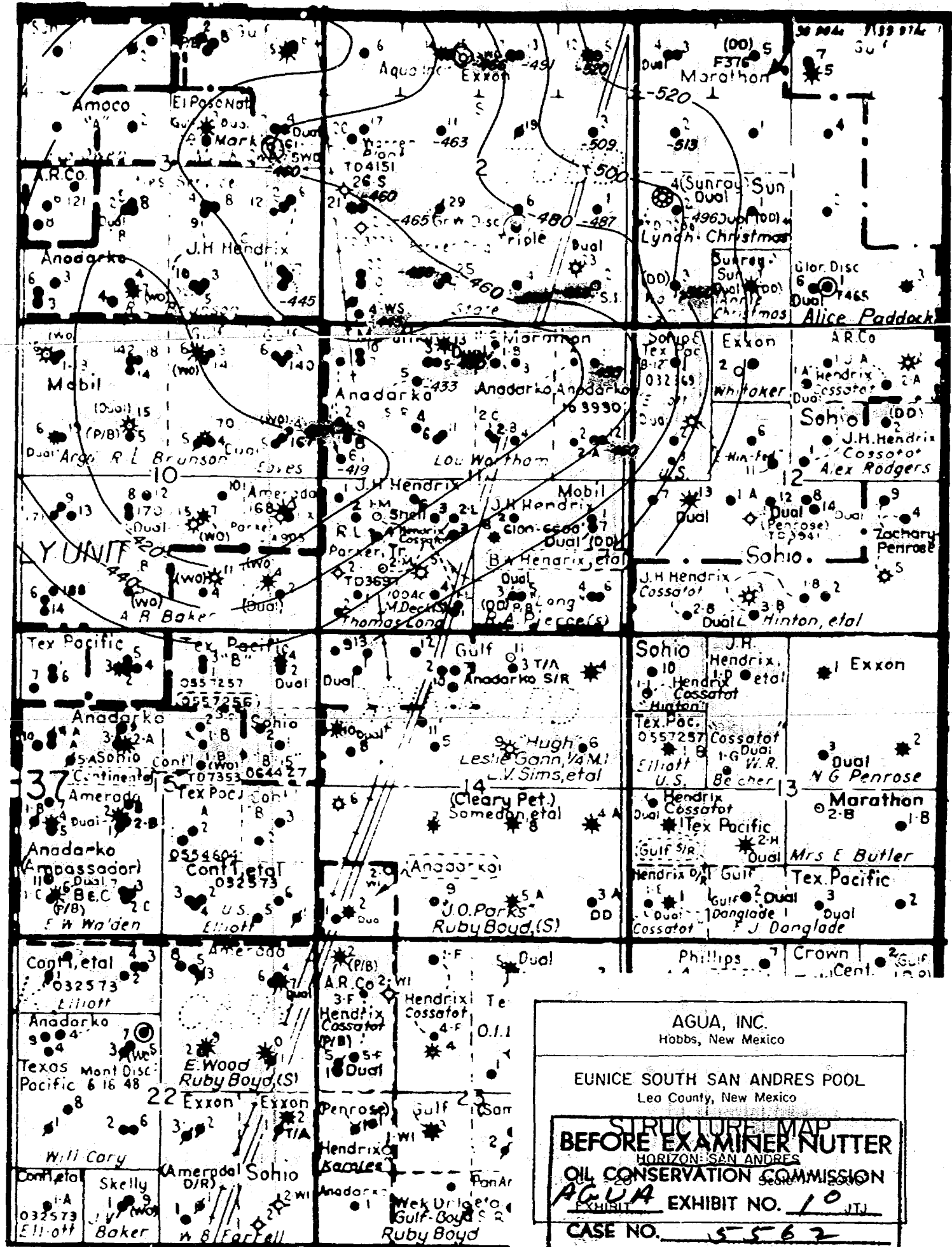
BY: *B. J. Bradley*

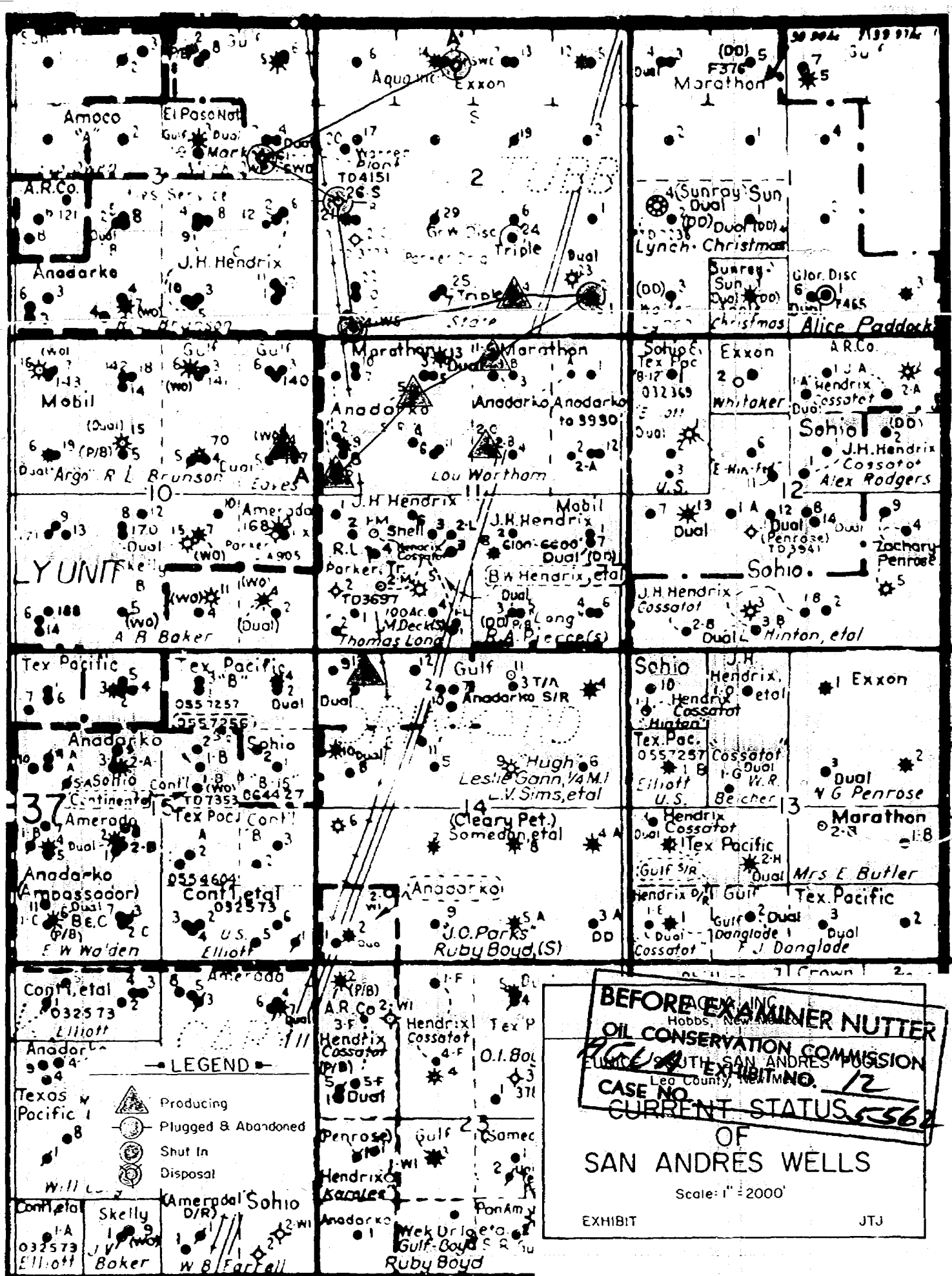
TITLE: District Superintendent

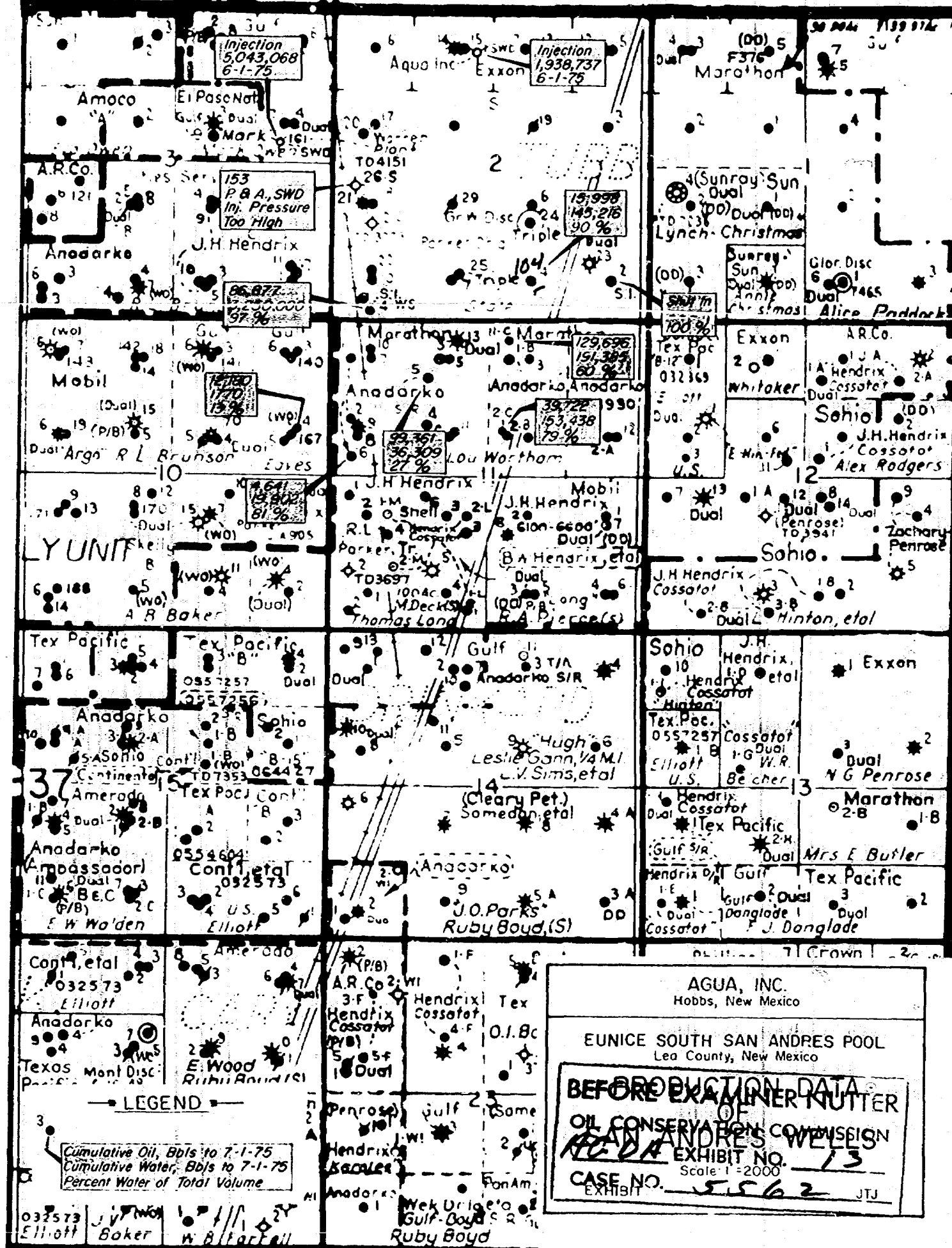
DATE: January 30, 1973

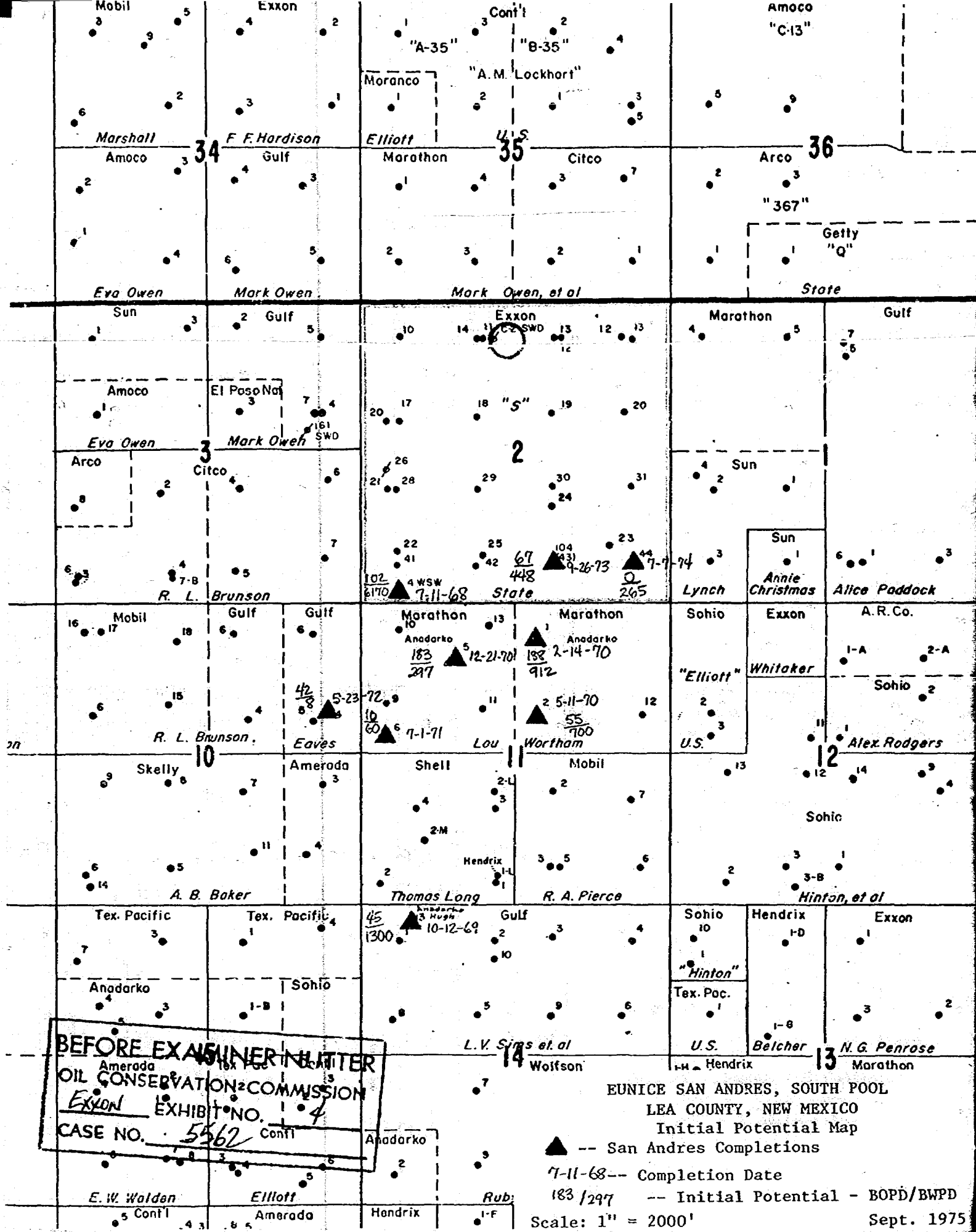


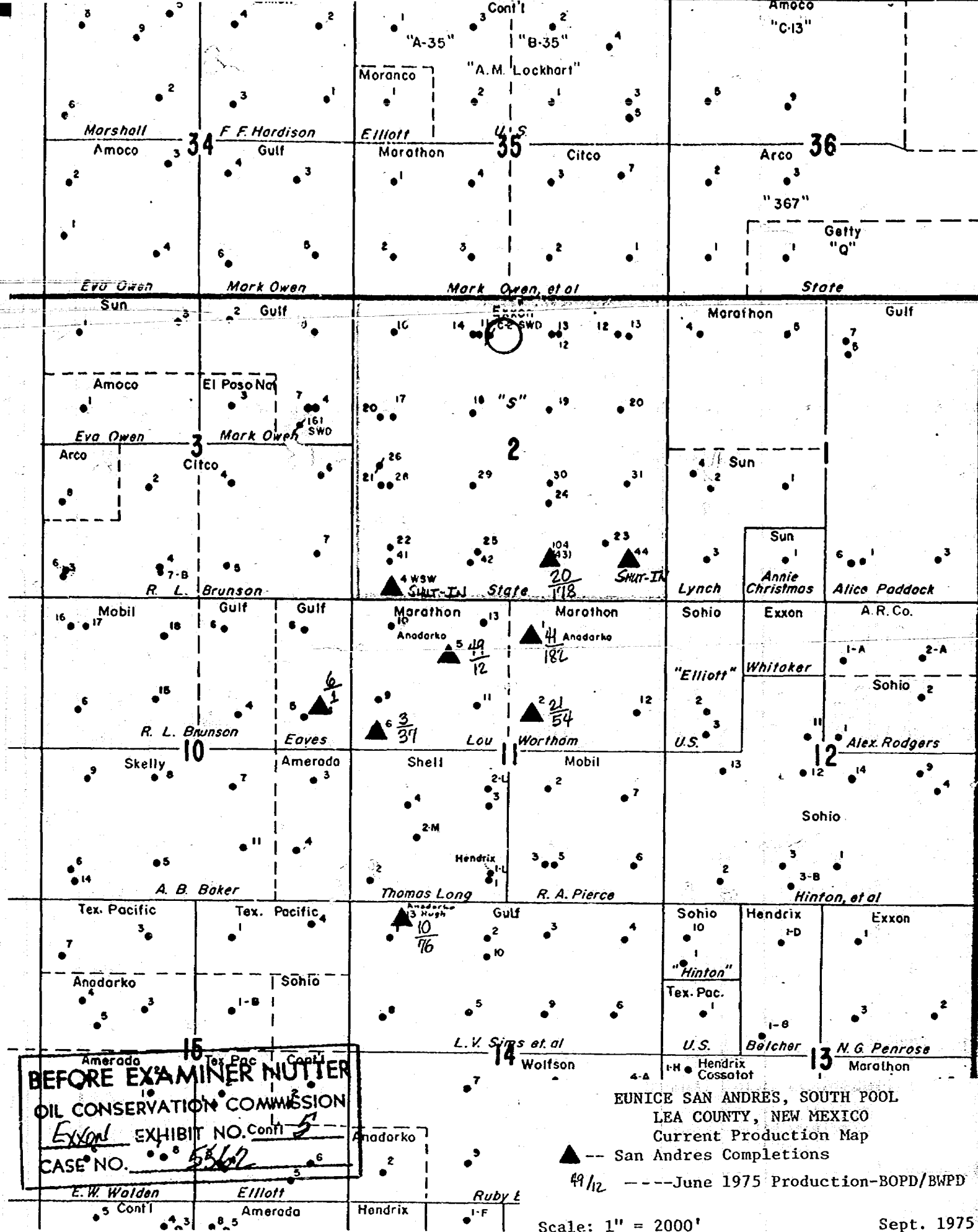


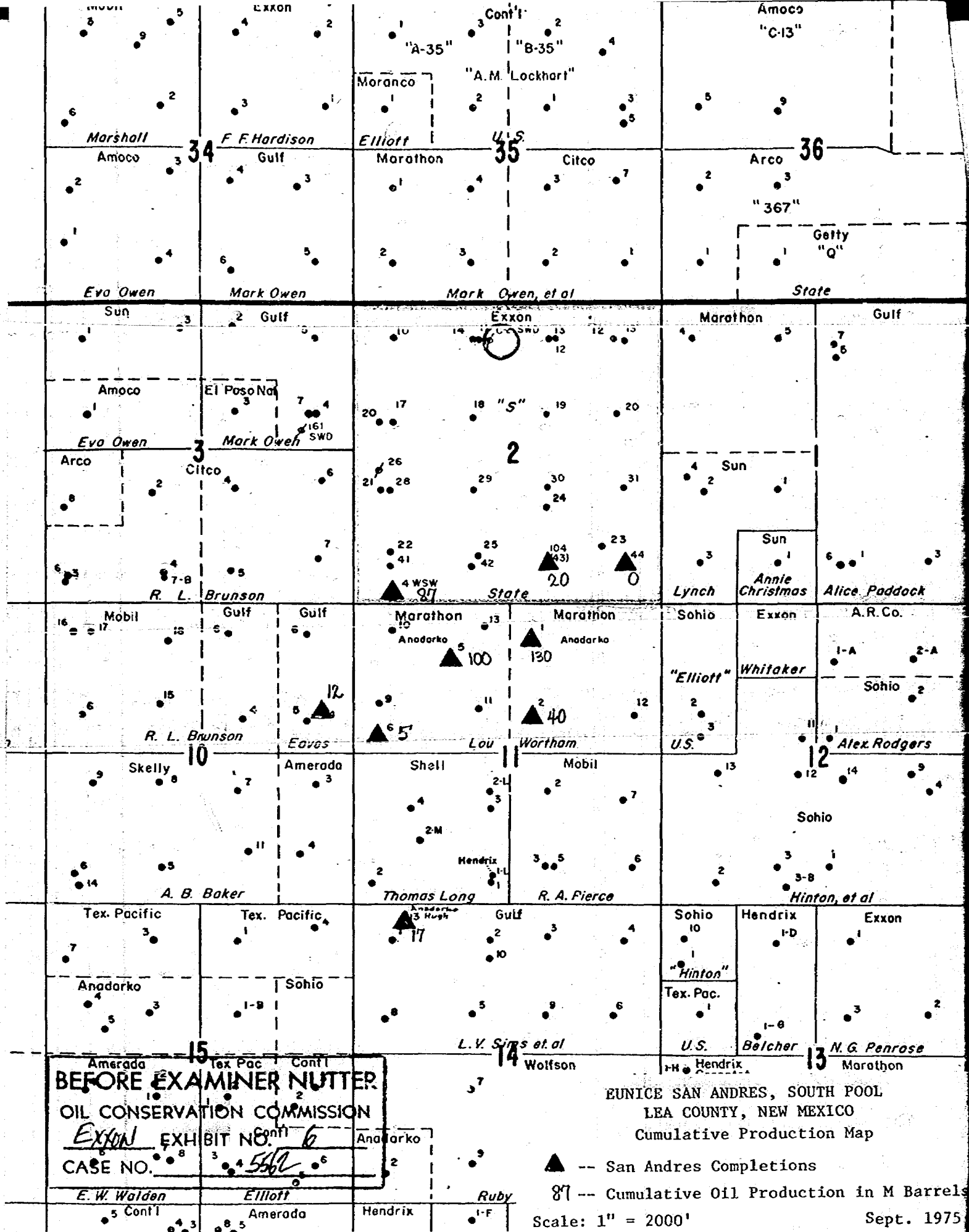


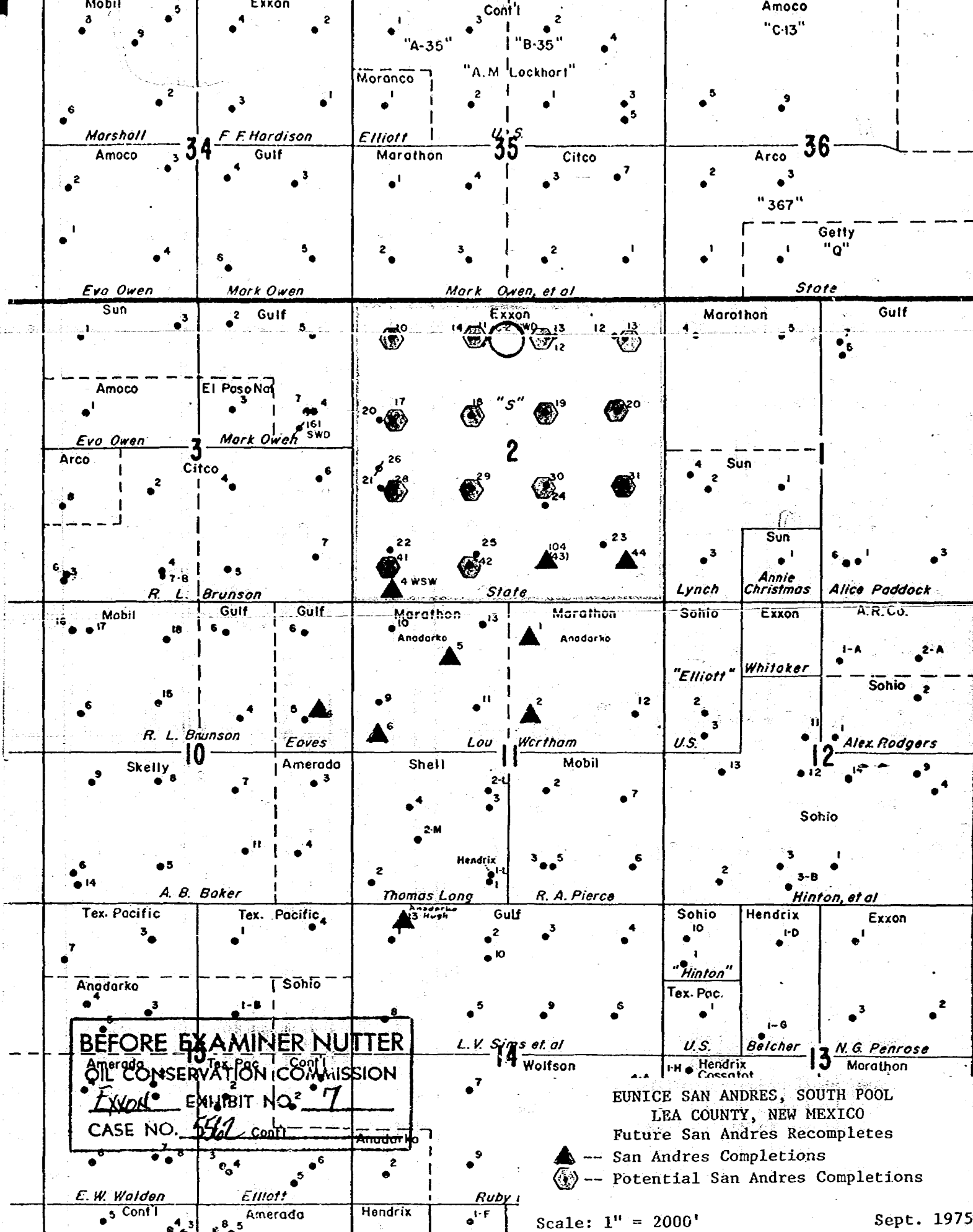


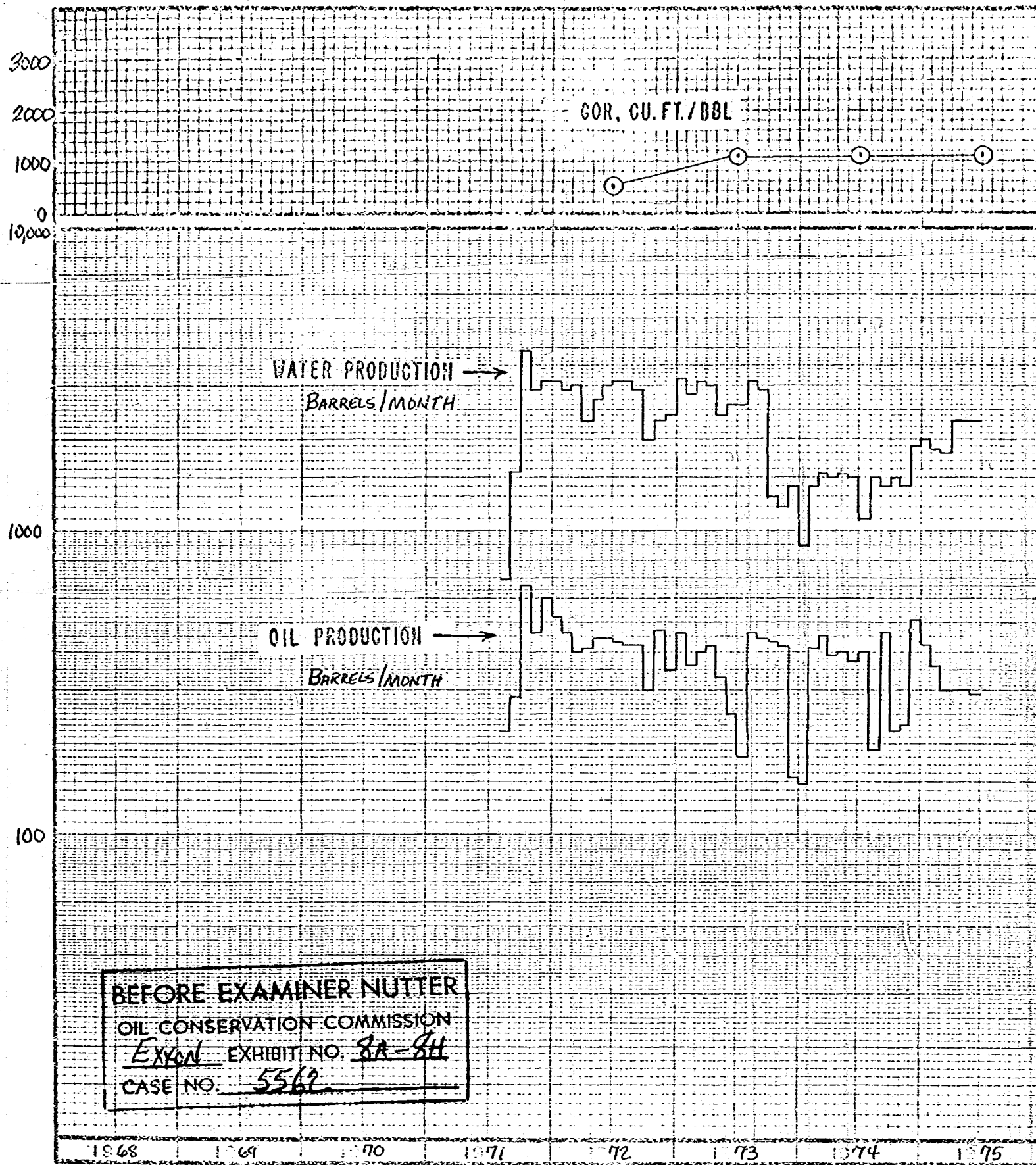




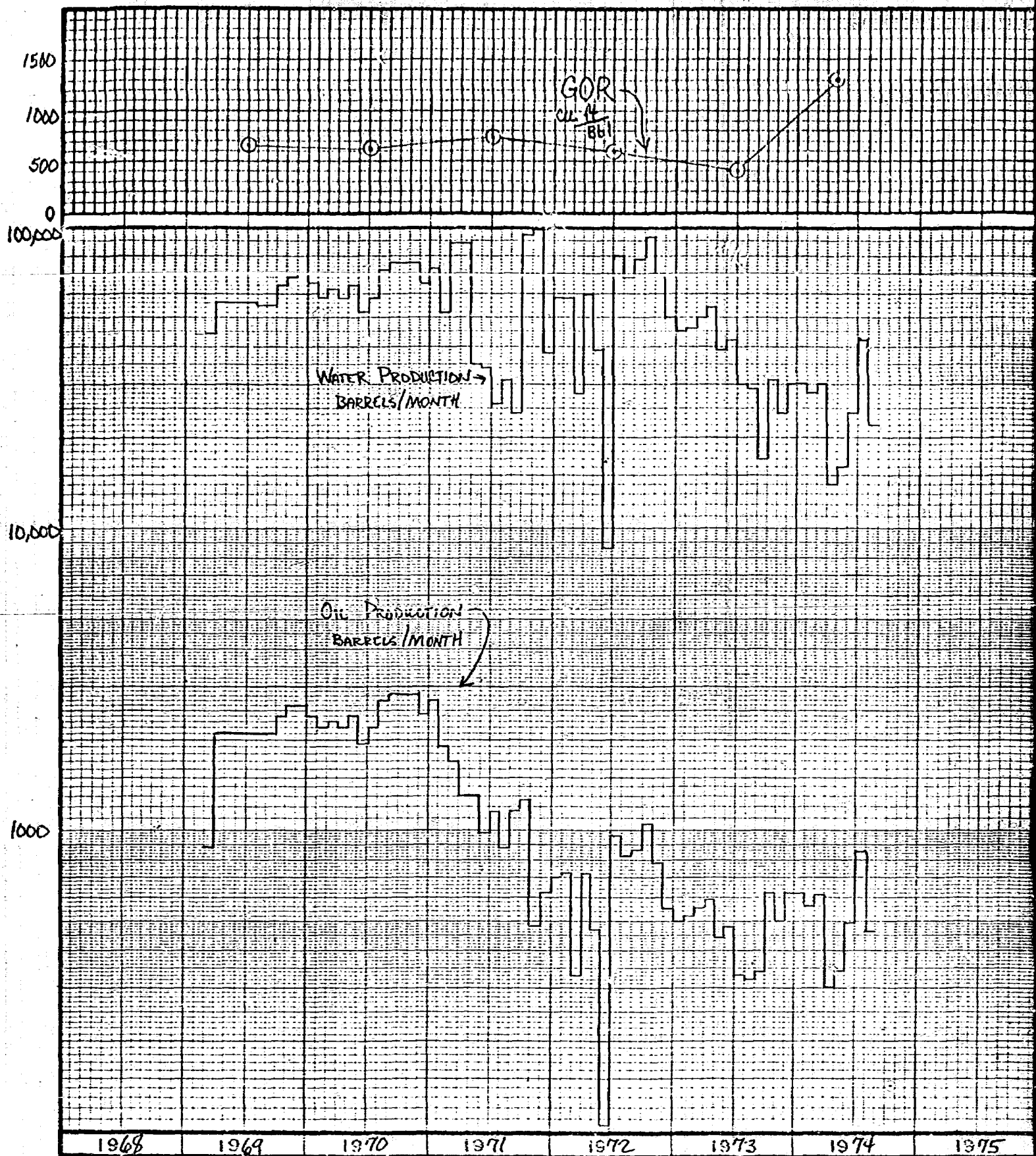




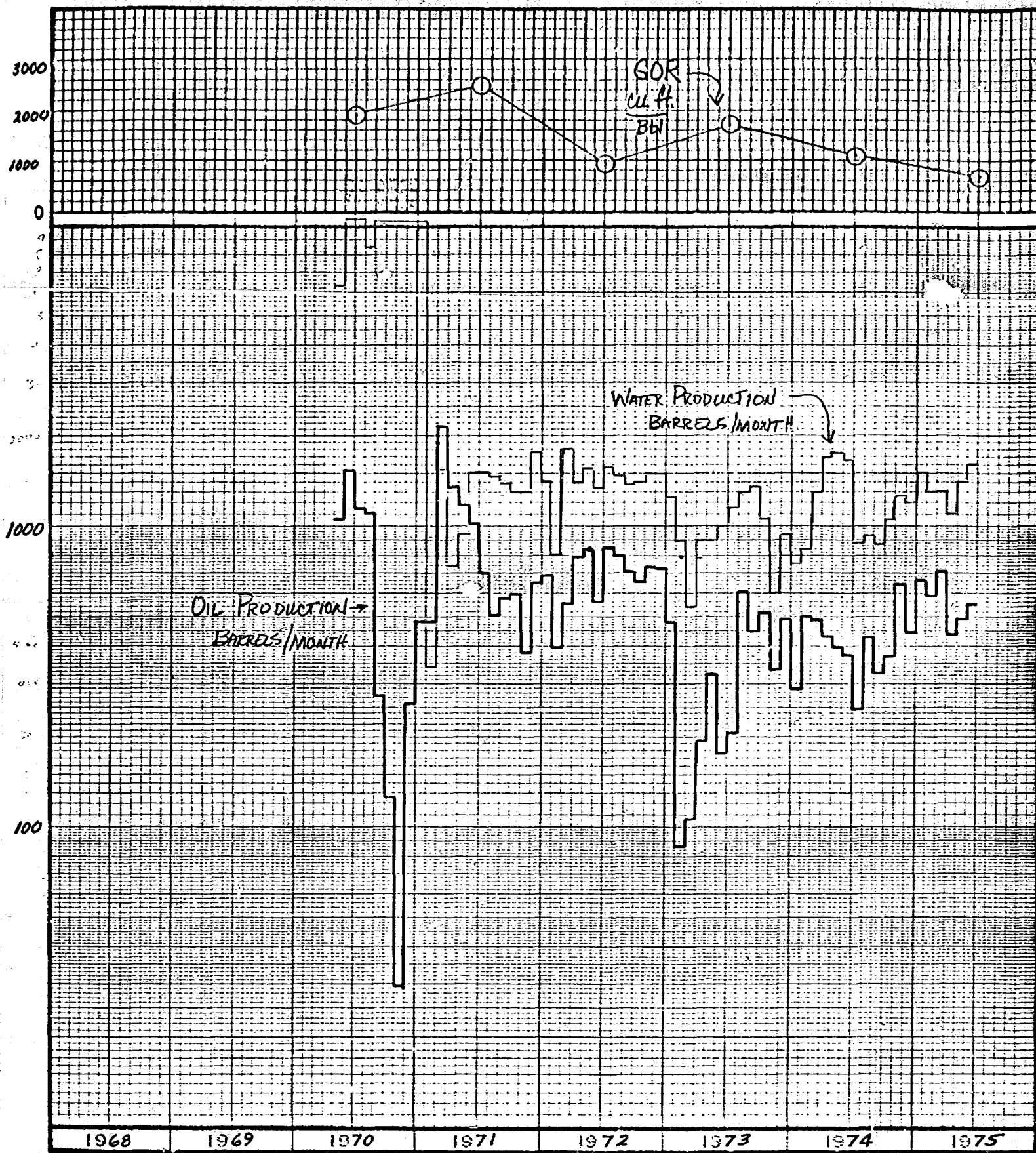




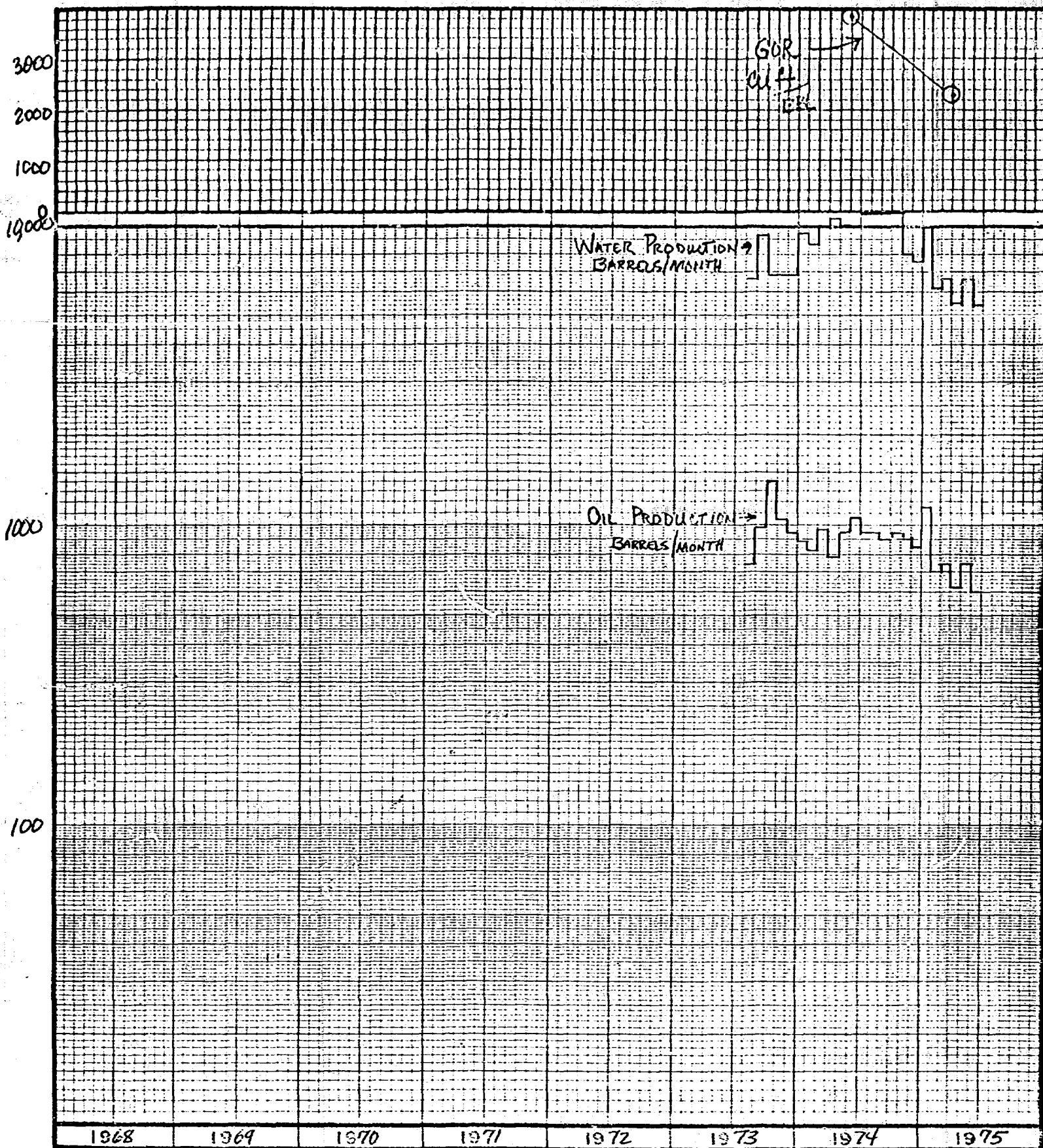
FIELD EUNICE SAN ANDRES, SOUTH WELL ANADARKO HUGH #13



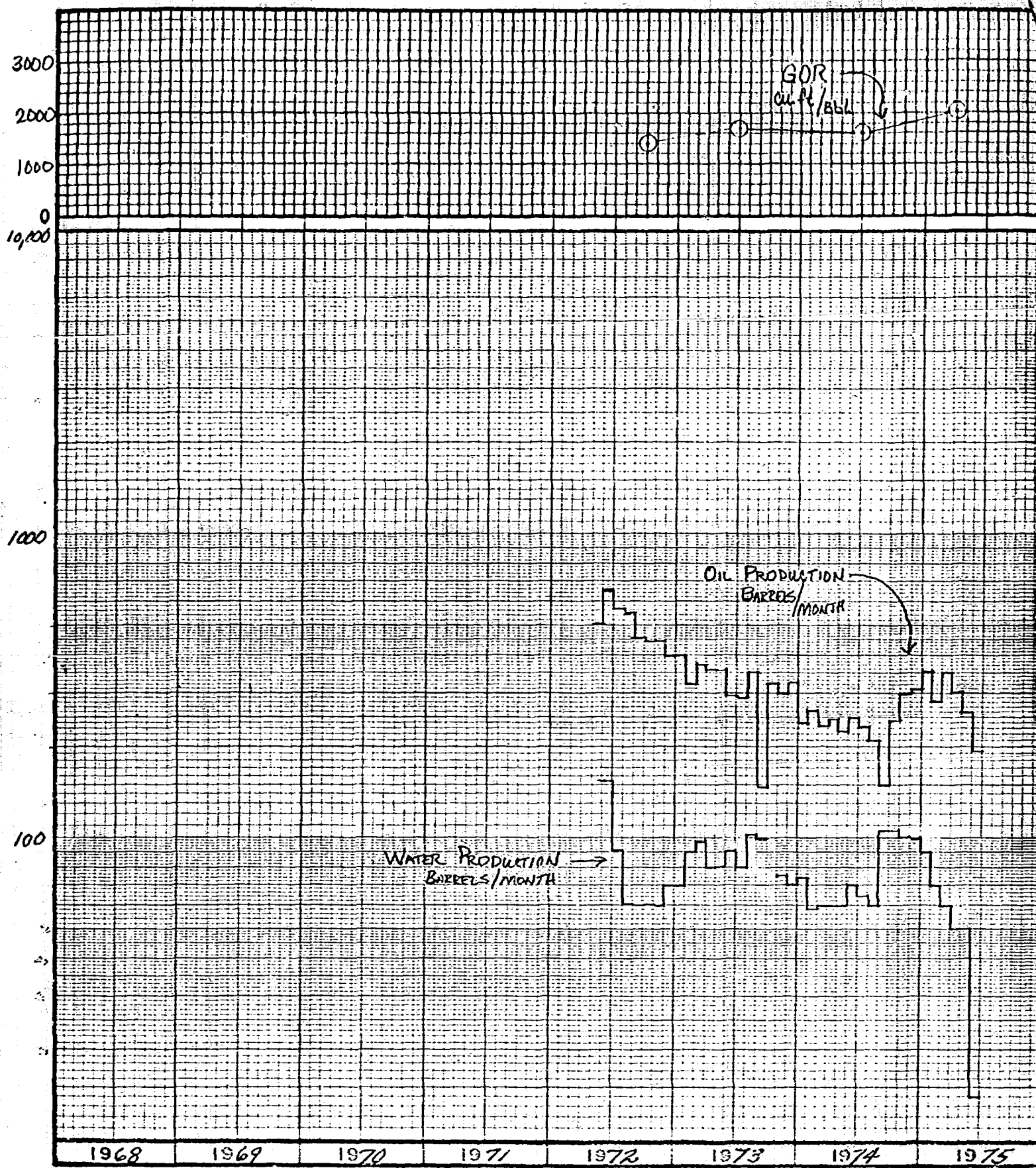
FIELD EUNICE SANI ANDRES, SOUTH WELL EXXON NEW MEXICO "S" #4 (WSW#4)



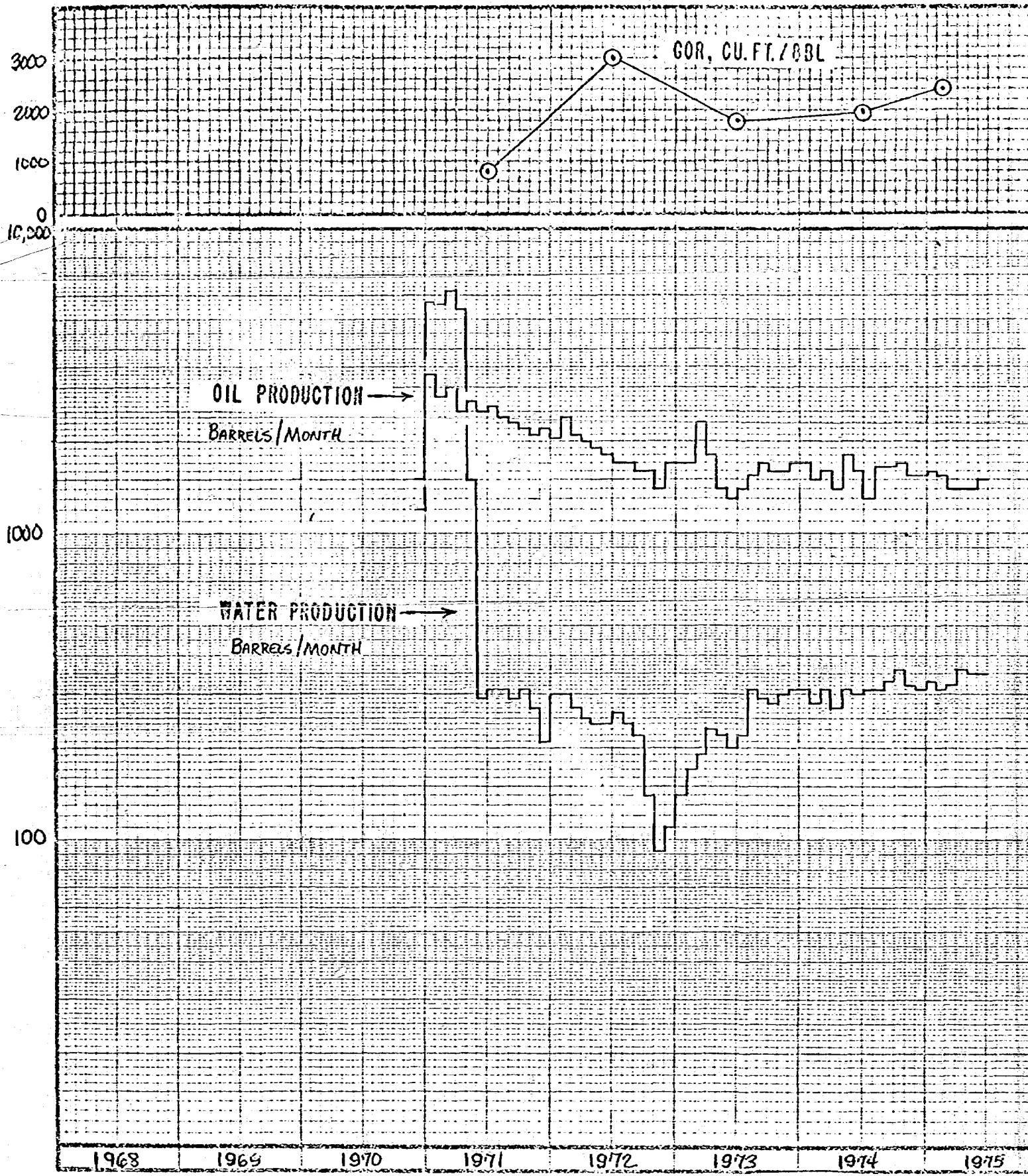
FIELD Eunice San Andres, WELL Anadarko Lou Wortham "C" #2



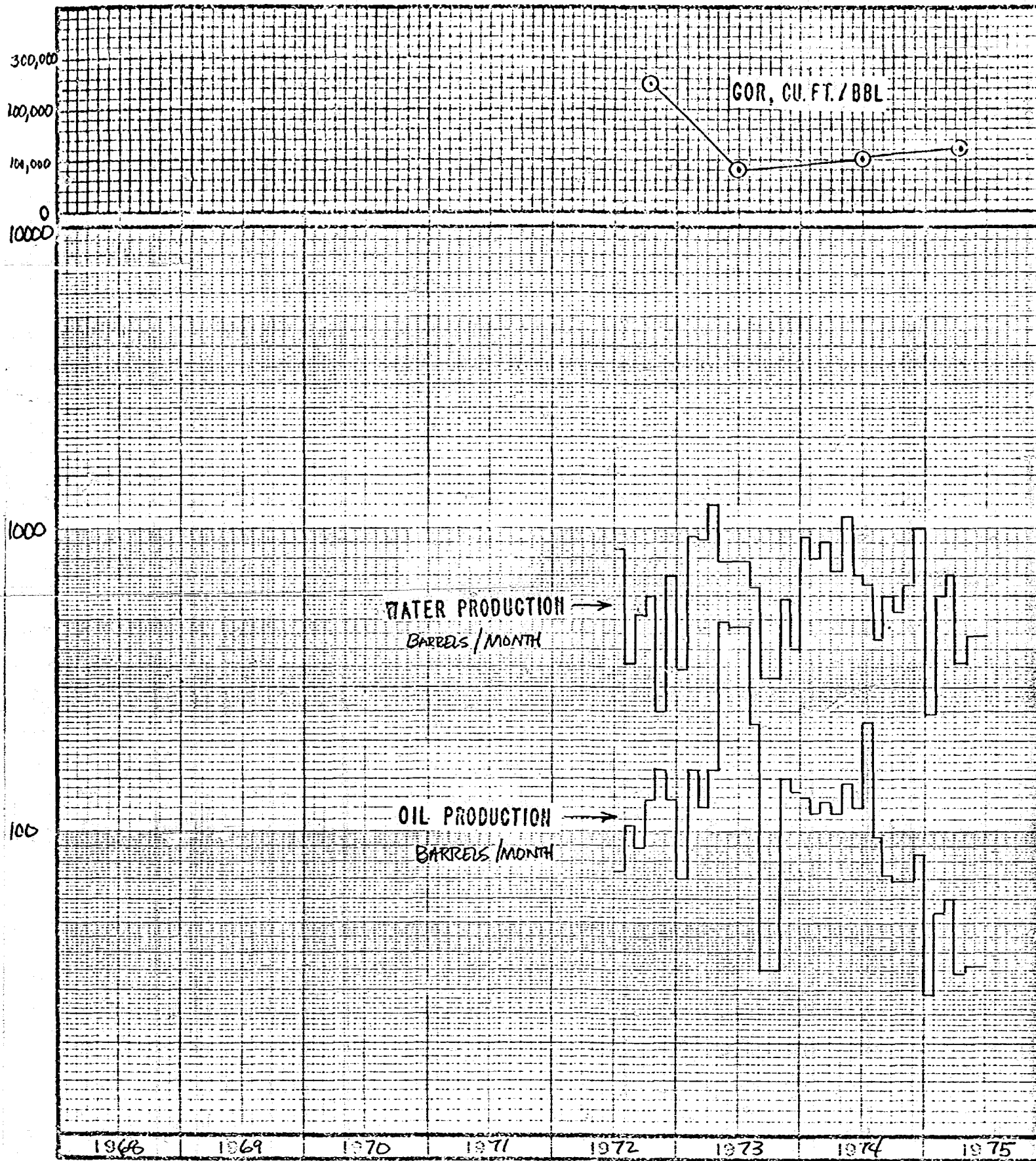
FIELD EUNICE SPAN ANDRES, SOUTH WELL EXXON NEW MEXICO "S" #104



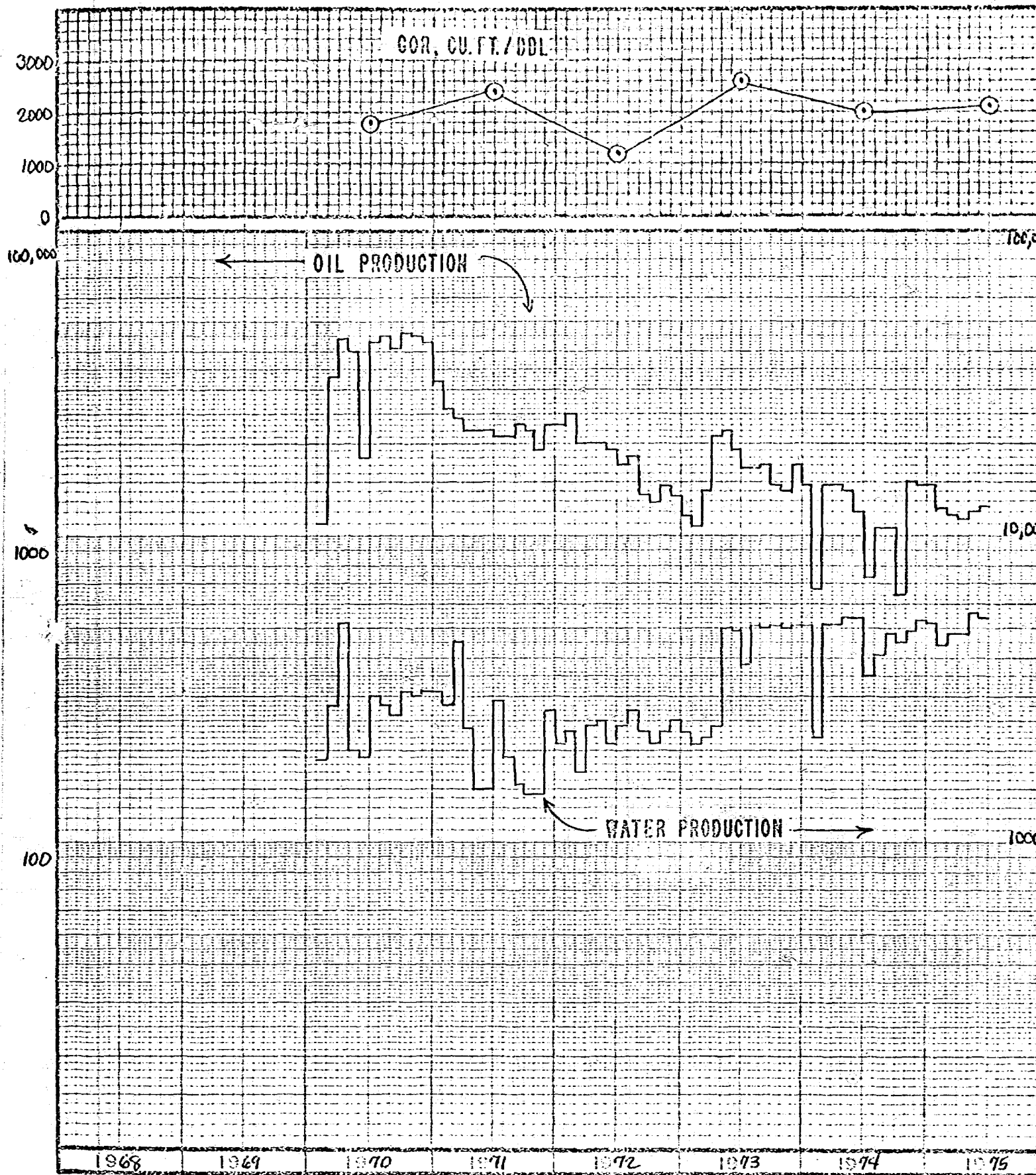
FIELD EUNICE SAN ANDRES, SOUTH WELL GULF EAVES #4



FIELD EUNICE SAN ANDRES, SOUTH WELL ANADARKO LOU WORTHAM #5

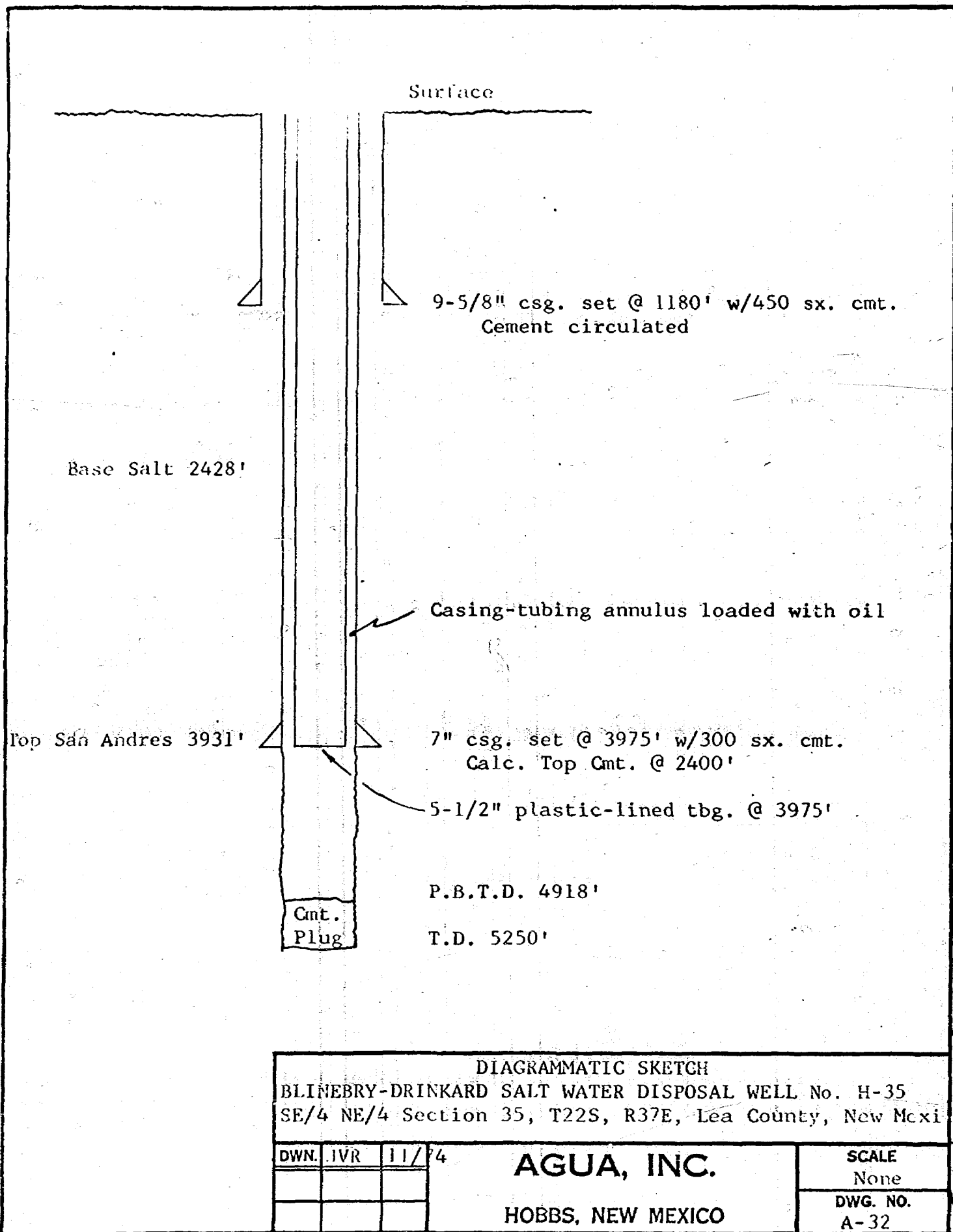


FIELD EUNICE SAN ANDRES, SOUTH WELL ANADARKO LOU WORTHAM #6



FIELD EUNICE SAN ANDRES, SOUTH

WELL ANADARKO LOU WORTHAM "C" #1



EX #2 AGUA

EXXON COMPANY, U.S.A.
1700 WEST BROADWAY • ANDREWS, TEXAS 79714

September 8, 1975

PRODUCTION DEPARTMENT
ANDREWS DISTRICT

B. J. INGRAM
DISTRICT MANAGER

22-3: Blinebry-Drinkard SWD
System Disposal Well C-2.

Agua, Inc.
P. O. Box 1978
Hobbs, New Mexico 88240

Attention: Mr. W. G. Abbott

Dear Mr. Abbott:

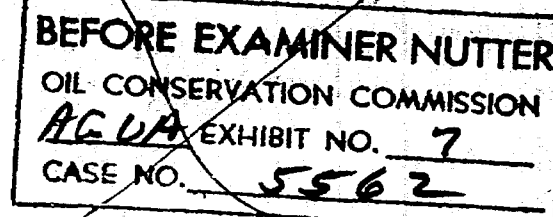
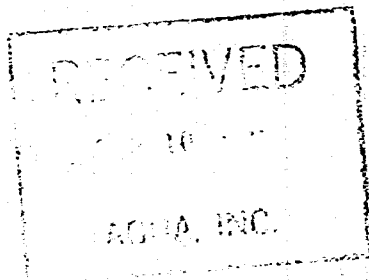
After reviewing disposal well C-2, we find that we must maintain the qualification that injection will be at a depth below 4400 feet, as stated in our Waiver of Objection dated January 30, 1973.

Yours very truly,

B. J. Ingram
B. J. Ingram

MJH:gc

non-exhibit



A DIVISION OF EXXON CORPORATION

AGUA, INC.

POST OFFICE BOX 1078
HOBBS, NEW MEXICO
88240

TELEPHONE 505 393-6100

August 26, 1975

Exxon Company, U. S. A.
1700 West Broadway
Andrews, Texas 79714

Attn: Mr. A. W. Cecil

Gentlemen:

Blinebry-Drinkard Salt Water Disposal Well No. C-2 was completed in accordance with a Waiver of Objection from Exxon in that 7" casing was set at a depth of 4400' and the disposal of waste waters was limited to the open-hole interval 4400 - 4950'.

At an August 25, 1975 called meeting of All Parties to the System, a weighted majority approval was given AGUA, INC., as Operator, to immediately proceed with the construction of a temporary line to move waste waters from terminal storage at Disposal Well No. H-35 to Disposal Well No. C-2 for subsurface disposal.

An AFE for the above construction work will be circulated for approval of the Operating Committee. Prior to circulation of the said AFE, AGUA respectfully requests the specific approval of Exxon for perforating the 7" casing in Disposal Well No. C-2 in the intervals 4120 - 90' and 4230 - 4320' to increase the acceptance of an additional 250 BPH of waste waters from Disposal Well No. H-35.

Thank you for your cooperation in this matter.

Yours very truly,

AGUA, INC.

W. G. Abbott
W. G. Abbott
Manager

JVR/jo
Attachment: C-2 log

non-exhibit

BEFORE EXAMINER NUTTER	
OIL CONSERVATION COMMISSION	
<i>Agua</i>	EXHIBIT NO. <u>5</u>
CASE NO.	<u>5562</u>

WAIVER OF OBJECTION

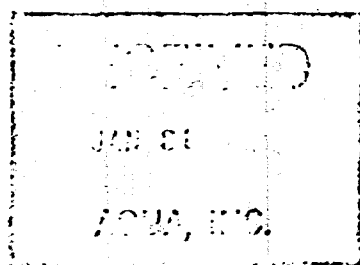
We, the undersigned, do hereby waive our objection to the application of AGUA, INC. for authority to drill and dispose of oilfield brines in their Blinebry-Drinkard SWD Well No. C-2, located 660' FNL and 2,305' FWL of Section 2, Township 22 South, Range 37 East, Lea County, New Mexico. It is understood that this disposal will be into the lower San Andres formation which to AGUA's knowledge is not productive of oil or gas within two miles of said subject well. Injection will be at a depth below 4400'.

COMPANY: Exxon Company, U.S.A.

BY: *Paul Bralley*

TITLE: District Superintendent

DATE: January 30, 1973





OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO
P. O. BOX 2088 - SANTA FE
87501



DIRECTOR
JOE D. RAMEY

LAND COMMISSIONER
PHIL R. LUCERO
December 30, 1975

STATE GEOLOGIST
EMERY C. ARNOLD

Mr. James T. Jennings
Jennings, Christy & Copple
Attorneys at Law
Post Office Box 1180
Roswell, New Mexico 88201

Dear Mr. Jennings:

Pursuant to your request of December 29, 1975, I am enclosing herewith a copy of the transcript of the examiner hearing in Case 5592. An examiner hearing will be held on January 20 and the de novo hearing in Case 5592 will be first on the January 21 docket.

If I can be of further assistance, feel free to call on me.

Very truly yours,

WILLIAM F. CARR
General Counsel

WFC/fd
enc.

1-5-76

Bill:

Thanks for loaning me the transcript in the above case. I have asked Sim to personally redeliver it to you.

JTJ/rnb

OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO

P. O. BOX 2088 - SANTA FE

87501

LAND COMMISSIONER

PHIL R. LUCERO

October 8, 1975



STATE GEOLOGIST

EMERY C. ARNOLD

DIRECTOR
JOE D. RAMEY

Mr. James Jennings
Jennings, Christy & Copple
Attorneys at Law
Post Office Box 1180
Roswell, New Mexico 88201

Re: CASE NO. 5562
ORDER NO. R-4495-A

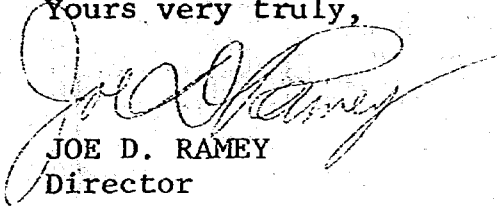
Applicant:

Agua, Inc.

Dear Sir:

Enclosed herewith are two copies of the above-referenced
Commission order recently entered in the subject case.

Yours very truly,


JOE D. RAMEY
Director

JDR/fd

Copy of order also sent to:

Hobbs OCC x
Artesia OCC _____
Aztec OCC _____

Other James E. Sperling

Harley Rivers

Jan 73 Aqua proposed disposal

4150-5000

1-26 Exxon gave waiver to Aqua

4400-5000 and below only

2/9 aqua agreed to 4400 +

8/75 aqua wanted to perf
above 4400

Sept 75 Exxon said no

9/11/88 only Exxon will satisfy Sec 2

producing today SW 1/4 SE 1/4 25/day

Waiver in SE NE 3 (1968)

told Rivers I would talk to Abbott

9/15: talked to Bill Abbott. told him
Exxon objects to disposal above 4400' and
said they will oppose him at hearing.
made it clear that he is proceeding
at his own risk and that our approval to
do the work does not mean it will be
approved after hearing. He said he understood
and would call 4230-4320 Wed 9/17

Memo

From

MELBA CARPENTER

To Nan Y Fetter

The News-Journal
assured me that
this would be run
no later than
Tuesday, and probably
on Monday

OIL CONSERVATION COMMISSION-HOBBS

NOTICE OF PUBLICATION
STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

RECEIVED
SEP 15 1975
OIL CONSERVATION COMM.
Santa Fe

The State of New Mexico by its Oil Conservation Commission hereby gives notice pursuant to law and the Rules and Regulations of said Commission promulgated thereunder of the following public hearing to be held at 10 o'clock a.m. on September 26, 1975, at the Oil Conservation Commission Conference Room, State Land Office Building, Santa Fe, New Mexico, before Daniel S. Nutter, Examiner, or Richard L. Stamets, Alternate Examiner, both duly appointed for said hearing as provided by law.

STATE OF NEW MEXICO TO:

All named parties and persons
having any right, title, interest
or claim in the following case
and notice to the public.

(NOTE: All land descriptions herein refer to the New Mexico Principal Meridian, whether or not so stated.)

CASE 5562:

Application of Agua, Inc. for the
amendment of Order No. R-4495,
Lea County, New Mexico.

Applicant in the above-styled cause, seeks the amendment of Order No. R-4495 which authorized salt water disposal into the San Andres formation through the open-hole interval from 4400 feet to 5000 feet in the applicant's SWD Well No. C-2 located in Unit C of Section 2, Township 22 South, Range 37 East, Lea County, New Mexico. Applicant seeks the vertical extension of the disposal zone to include the perforated interval from 4120 feet to 4320 feet.

*will perf.
Wed. 9/17
4230-4320*

Given under the seal of the New Mexico Oil Conservation Commission at Santa Fe, New Mexico, on this 12th day of September, 1975.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

JOE D. RAMEY, SECRETARY-DIRECTOR

S E A L

OIL CONSERVATION COMMISSION

P. O. BOX 2088

SANTA FE NEW MEXICO 87501

August 22, 1975

C
O
P
Y
Agua Inc.
Box 1978
Hobbs, New Mexico

Attention: Mr. W. G. Abbott

Dear Mr. Abbott:

This will confirm our conversation of August 21, 1975, in Hobbs concerning the shutting in of your 35-H disposal well located in Unit H, Section 35, T22S, R37E.

It is the Commission's opinion that there is communication between tubing and casing strings in this well and the pressure on the surface string constitutes an immediate hazard to fresh water in the area.

You are therefore directed to cease injection into this well at a time no later than 8:00 a.m. September 26, 1975.

Yours very truly,

JOE D. RAMEY
Director

JDR/fd

cc: Mr. Phil R. Lucero
Mr. Emery C. Arnold

SWD 82
5162

JAMES T. JENNINGS
SIM B. CHRISTY IV
ROGER L. COPPLE
BRIAN W. COPPLE

ROBERT G. ARMSTRONG

LAW OFFICES OF
JENNINGS, CHRISTY & COPPLE
1012 SECURITY NATIONAL BANK BUILDING
P. O. BOX 1180
ROSWELL, NEW MEXICO 88201

TELEPHONE 622-8432
AREA CODE 505

August 27, 1975

Oil Conservation Commission
P. O. Box 2088
Santa Fe, New Mexico 87501

Attention: Bill Carr, General Counsel

RE: CASE 5403, ORDER R-5003
BLINEBRY-DRINKARD SWD NO. 35-H, 35-22-37

Dear Bill:

Enclosed herewith you will find a memorandum from Agua, Inc. to the various working interest owners in connection with the remedial work to be performed on the above well, which reflects the action taken by the members of the salt water disposal system at a meeting in Hobbs August 25. You will note that a temporary line is to be laid to another disposal well and as soon as feasible, a new disposal well will be drilled, completed and put in operation.

Agua contemplates running a radioactive tracer survey immediately and as soon as the temporary line is completed contemplates back-flowing the disposal well No. H-35 to reduce the pressure.

Agua has ordered the pipe, engaged a pipeline contractor and is in the process of surveying the line. The only delay at this time is the right-of-way and we have a tentative meeting with the County Commissioners of Lea County in Lovington scheduled for Friday, August 29, and hopefully we will get tentative approval of the right-of-way and will get final approval at the next scheduled meeting of the Commissioners on September 9. When the right-of-way is approved, Agua will be ready to start immediate construction of the line and feel confident that it will be able to complete the line so it can comply with the Director's Order that Agua cease injection into the well no later than 8:00 a.m., September 26, 1975.

For your information I am attaching a list of the parties who attended the meeting in Hobbs on August 25, and on behalf of all of the operators we wish to express our appreciation to the Director for allowing the necessary time to permit a reasonable solution to the problem.

Yours very truly,


JAMES T. JENNINGS

JTJ/mb
Encl.

cc: Agua, Inc.

X

AGUA, INC.

POST OFFICE BOX 1970
HOBBS, NEW MEXICO
88240

August 25, 1975

TELEPHONE 405 393 6100

To: All Parties
Blinebry-Drinkard Salt Water Disposal System

Gentlemen:

A called meeting of All Parties to the System convened at 10:00 A.M. (MDT) on Monday, August 25, 1975, at the VIP Room of the Holiday Inn at Hobbs, New Mexico. The attached roster represents the attendance at this meeting.

The meeting was to advise and recommend action to be taken in response to the New Mexico Oil Conservation Commission directive that injection into the Blinebry-Drinkard Salt Water Disposal Well No. H-35 cease at a time no later than September 26, 1975. It is the Commission's opinion that there is communication between tubing and casing strings in Disposal Well No. H-35 and the pressure on the surface string constitutes an immediate hazard to fresh water in the area.

AGUA, INC., as Operator of the System made the following recommendations:

- (a) Lay a temporary 6" PVC 160 plastic line on the surface of the ground from Disposal Well No. H-35 to Disposal Well No. C-2. Waste waters from terminal storage at Well No. H-35 will be pumped to Well No. C-2.
- (b) Perforate additional section opposite the San Andres in Disposal Well No. C-2.
- (c) Backflow Disposal Well No. H-35 to reduce pressure.
- (d) Run radioactive tracer survey in Disposal Well No. H-35.
- (e) Research and acquire surface lease in area of developed porosity and permeability conducive to accepting water by gravity. Drill and equip a new disposal well.

All Parties
Blinebry-Drinkard Salt Water Disposal System
August 25, 1975
Page 2

(f) Re-route waste water collection lines to new disposal well.

(g) Salvage temporary 6" PVC plastic line.

R. M. Moran, MORANCO, made a motion that the above recommendations be adopted and the motion was seconded by Cletus Samples, Mobil Oil Corporation. The motion was carried by acclamation; Petro-Lewis Corporation and Cities Service Oil Company abstained from voting.

AGUA, INC. will prepare and circulate the required AFE's for approval by All Parties to the System.

Yours very truly,

AGUA, INC.

W. G. Abbott

W. G. Abbott
Manager

JVR/jo
Attachment

BLINEBRY-DRINKARD SWD SYSTEMCOMMITTEE MEETING

August 25, 1975

<u>NAME</u>	<u>COMPANY</u>	<u>ADDRESS</u>
W. G. Abbott	AGUA, INC.	Hobbs
J. V. Ryan, Jr.	AGUA, INC.	Hobbs
James T. Jennings	Jennings, Christy & Copple	Roswell
J. T. Janica	AGUA, INC.	Hobbs
J. Z. Jennings	Jennings, Christy & Copple	Roswell
A. W. Cecil	Exxon Co., U.S.A.	Andrews
J. C. Sherrill	Exxon Co., U. S. A.	Hobbs
J. J. Waller	Texas Pacific Oil Co.	Midland
L. A. Wright	Texas Pacific Oil Co.	Midland
H. L. Honea	Atlantic Richfield	Hobbs
Elmer Startz	Cities Service Oil Co.	Midland
A. J. Alcott	Mobil	Midland
Cletus Samples	Mobil	Midland
R. H. Cummins	Mobil	Lovington
Les Clements	N.M.O.C.C. - Buckeye	Hobbs
C. S. Hilton, Jr.	Marathon Oil Co.	Hobbs
Lester Duke	Aztec Oil & Gas	Hobbs
Dale R. Crockett	Skelly Oil Co.	Hobbs
Bill Thomas	Skelly Oil Co.	Hobbs
Lavele Frantz	Phillips Petr. Co.	Odessa
H. G. Starling	Shell	Hobbs
Eugene Miller	Getty Oil Co.	Hobbs
C. R. Korzekwa	Gulf Oil	Hobbs
D. F. Berlin	Gulf Oil	Hobbs
C. D. Borland	Gulf Oil	Hobbs
V. T. Lyon	Conoco	Hobbs
Bob Moran	MORANCO	Hobbs
Ken McPeters	MORANCO	Hobbs
Edward J. Snook	Amoco Production Co.	Andrews
Wayne C. Pierce	TEXACO INC.	Hobbs
Paul Thompson	Conoco	Hobbs
R. D. Wilkes	Amerada Hess	Monument

AGUA, INC.

POST OFFICE BOX 1978
HOBBS, NEW MEXICO
88240

August 21, 1975

TELEPHONE: 505 393-6188



To: All Parties
Blinebry-Drinkard Salt Water Disposal System

Gentlemen:

Mr. Joe Ramey, Director of the New Mexico Oil Conservation Commission, has ordered AGUA, INC. to shut in the Blinebry-Drinkard Salt Water Disposal Well H-35 located in unit letter "H" of Section 35, Township 22 South, Range 37E, Lea County, New Mexico.

Approximately 130 producing wells are connected to the B-D SWD System in that portion of the System which is accommodated by this subject well. A well diagram of the SWD H-35 is attached to this letter. Also attached is a list of these wells that are affected.

We are notifying all operators today of this action and are calling a meeting of the Parties to the System for 10:00 A.M. MDT, August 25, 1975 at the VIP room of the Holiday Inn in Hobbs. The purpose of the meeting will be to discuss recommendations on the proposed disposal plans for the System.

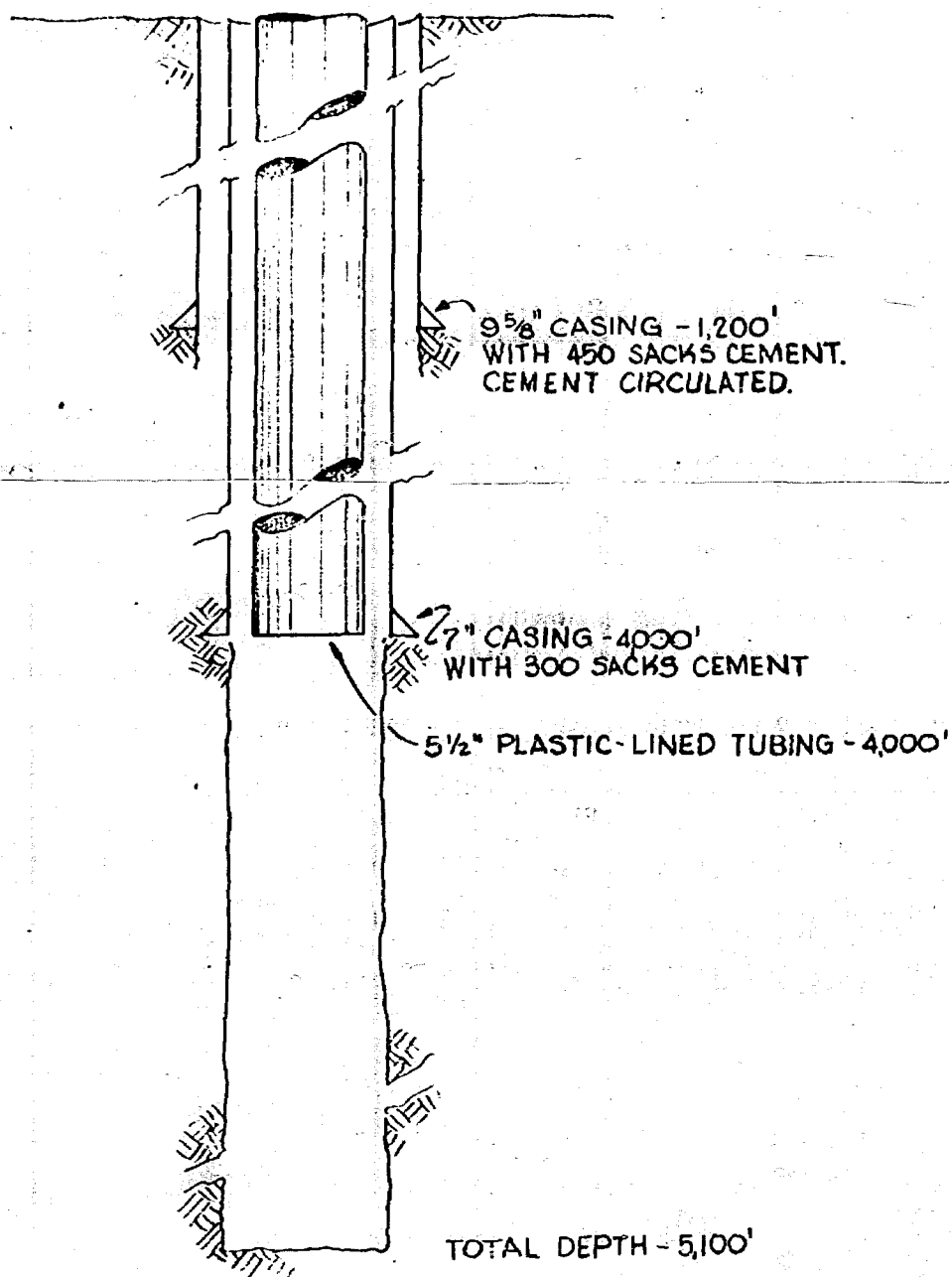
Yours very truly,

AGUA, INC.

W. G. Abbott

W. G. Abbott
Manager

WGA/jo
Attachments



BLINEBRY-DRINKARD SALT WATER DISPOSAL SYSTEM

AGUA WELL H-35

SE/4 NE/4, SEC.35
TOWNSHIP 22 SOUTH, RANGE 37 EAST

PLAT OF WELL

DWN F.B. 10-68

AGUA, INC.

Hobbs, New Mexico

SCALE
"NONE"

DWG. NO.
A-32

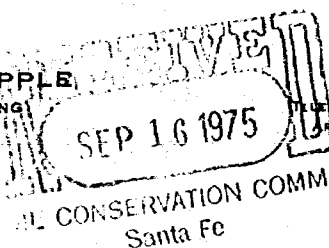
SOURCE OF WASTE WATERS BLINE DRY - DRINKARD SALT WATER DISPOSAL WELL 16.11-35

PARTY	LEASE	LEASE DESCRIPTION	NUMBER OF WELLS
Amoco Prod. Co.	State "PA"	E/4 SW/4 18-22-37	2
Amoco Prod. Co.	Griegel "B"	S/4 NE/4 8-22-37	2
	State "S"	W/4 NW/4, NE/4 NW/4 32-22-38	6 { 2
	State "7"	E/4 SW/4 32-22-38	2
Elliptical Oil Co.	Brownlee	SW/4 25-21-36	1
	Annie L. Christmas	NE/4 SE/4 17-22-37	9 { 1
	State "157-1"	S/4 12-22-37	2
	State "347"	1/4 S/4 SW/4 SW/4 36-21-37	1
Elliptical Oil Co.	State "B"	NE/4 SE/4 36-22-37	1
Amoco Prod. Co.	Christmas	W/4 SE/4 17-22-37	1
Cities Service Oil Co.	State "M"	W/4 SW/4 36-21-36	9 { 2
	State "N"	SW/4 7-22-36	3
	State "P"	SE/4 NW/4 W/4 SW/4 32-22-38	4
Continental Oil Co.	Elliptical "A-15"	S/4 SE/4 15-22-37	19 { 1
	Elliptical "B-20"	S/4 NW/4 & SW/4 NE/4 20-22-37	2
	Lockhart "B-1"	SE/4, S/4 W/4 1-22-36	10
	State "J-2"	N/4, SE/4 2-22-36	6
Elliptical Oil Co.	P.J. State	SE/4 SE/4 17-22-37	1
Elliptical Oil Co.	W. Emma Comp. Sta.	SE/4 SE/4 36-21-36	1
Elliptical Oil Co. - U.S.	Greenwood	S/4 2-22-37	5
Elliptical Oil Co. - U.S.	Andrew's	E/4 32-22-38	5
	Cole "A"	All of 16-22-37	13
	Drinkard "B"	E/4 SW/4, NW/4 SE/4, S/4 SE/4 30-22-38	3
	Higgins	N/4 SE/4 29-22-38	1
	Leonard "C"	N/4, E/4 SW/4 36-21-36	15
	Lineberry	N/4 SW/4 29-22-38	3
	Mattern "D"	NW/4 7-22-37	3
	Mattern "E"	SW/4 1-22-36 & N/4 12-22-36	2
	Scarborough	SE/4 NW/4, S/4 NE/4, NE/4 NE/4, NW/4 32-22-38	8
	Vivian	N/4 30-22-38	5
	Watkins	S/4 SE/4 29-22-38	2
Elliptical Oil Co. - U.S.	"Flat C Sharp"	NE/4 11-23-37	6 { 1
	GPS - Federal	SW/4 SE/4 6-22-38	1
	Martin	All of 5, BLK 10 12-22-38	1
	McCallister	NE/4 NW/4 7-22-38	1
	Peterson - Federal	W/4 NW/4 4-23-38	1
	Sims - Federal	NE/4 7-22-38	1
Elliptical Oil Co. - U.S.	McDonald	All of 13-22-36	3 { 2
	Munsey	S/4 NE/4, SE/4 E/4 SW/4 20-22-37	1
Elliptical Oil Co.	Sundberg	NW/4 17-22-36	1
Elliptical Oil Co.	S.E. Long	SE/4 11-22-37	2
Elliptical Oil Co.	State "36"	NE/4 SW/4 36-22-37	2 { 1
	Sims	SE/4 NE/4 29-22-38	1
Elliptical Oil Co.	Hinton	S/4 SW/4, S/4 12-22-36	1
Elliptical Oil Co.	Gill "A"	SW/4 31-21-37	2
Elliptical Oil Co.	Ann Alex "D"	SE/4 NE/4 20-22-37	3 { 1
	Sims	NW/4, W/4 SW/4 24-22-37	2
Elliptical Oil Co. - U.S.	Patsey "A"	NW/4 NE/4 20-22-37	5 { 1
	Patsey "B"	NE/4 NW/4 22-22-38	1

PARTY	LEASE	LEASE DESCRIPTION	NUMBER OF WELLS
Shell Oil Co.	Long	SW 1/4 11-22-37	2
Shell Oil Co.	Baker	SE 1/4 SW 1/4 22-22-37	1
	Baker "A"	NW 1/4 24-22-37	2
	Baker "C"	N 1/2 NE 1/4, SW 1/4 NE 1/4 26-22-37	1
	Hobbs "M"	NW 1/4 SW 1/4 20-22-37	1
Sun Oil Co.	Christmas	SE 1/4 SW 1/4 1-22-37	2
	Lynch	N 1/2 SW 1/4, SW 1/4 SW 1/4 1-22-37	3
Texaco Inc.	Blinberry "2"	S 1/2 SW 1/4 29-22-38	3
	Blinberry "3"	N 1/2 NW 1/4, SW 1/4 NW 1/4, NW 1/4 NE 1/4 31-22-38	5
Trans Pacific Oil Co.	Elliott "A-15"	N 1/2 SE 1/4 15-22-37	1
	Elliott "B-12"	W 1/2 NW 1/4 12-22-37	1
	Elliott "B-15"	NW 1/4 SE 1/4, N 1/2 NE 1/4 15-22-37	2
	Elliott "B-20"	SE 1/4 NE 1/4 20-22-37	1
	State "A-2"	All of 11-22-36	3
	Walden	N 1/2 NW 1/4 15-22-37	3
Union Texas Petr.	Lee	E 1/2 SE 1/4 23-22-37	1
TOTAL NUMBER OF WELLS			179

JAMES T. JENNINGS
SIM B. CHRISTY IX
ROGER L. COPPLE
BRIAN W. COPPLE
ROBERT G. ARMSTRONG

LAW OFFICES OF
JENNINGS, CHRISTY & COPPLE
1012 SECURITY NATIONAL BANK BUILDING
P. O. BOX 1180
ROSWELL, NEW MEXICO 88201



September 15, 1975

Oil Conservation Commission
P. O. Box 2088
Santa Fe, New Mexico 87501

RE: CASE NO. 5562, APPLICATION OF AGUA, INC.
FOR AMENDMENT TO ORDER NO. R-4495

Gentlemen:

Enclosed herewith you will find Agua, Inc.'s Application to Amend Order R-4495 in duplicate. We understand that this matter has been set down before an Examiner for hearing at 10:00 a.m. on September 26, 1975.

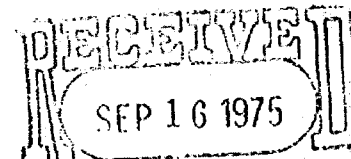
Yours very truly,


JAMES T. JENNINGS

JTJ/db

Encl.

cc: Agua, Inc.



BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

OIL CONSERVATION COMM.
Santa Fe

IN THE MATTER OF THE APPLICATION OF
AGUA, INC. TO AMEND ORDER NO. R-4495
TO EXTEND THE DISPOSAL ZONE IN ITS
SWD WELL NO. C-2 LOCATED IN UNIT C,
SECTION 2, TOWNSHIP 22 SOUTH, RANGE
37 EAST, N.M.P.M., LEA COUNTY, NEW
MEXICO, TO INCLUDE THE INTERVAL FROM
4120' TO 4320' IN THE SAN ANDRES
FORMATION.

APPLICATION TO AMEND ORDER R-4495

Comes now Agua, Inc. and hereby makes Application to Amend Order R-4495 heretofore entered on March 14, 1973 in Case No. 4916 to extend the disposal zone in the San Andres formation in its SWD Well No. C-2, located in Unit C, Section 2, Township 22 South, Range 37 East, N.M.P.M., to include the interval from 4120 feet to 4320 feet below the surface, and in support thereof states:


1. That by Order R-4495 entered in Case No. 4916 on March 14, 1973, the Applicant was authorized to utilize its SWD Well No. C-2 located in Unit C, Section 2, Township 22 South, Range 37 East, N.M.P.M., adjacent to the South Eunice-San Andres Pool to dispose of produced salt water into the San Andres formation from 4400 feet to 5000 feet.
2. That the Oil Conservation Commission has ordered the Applicant to shut in its Blinebry-Drinkard Salt Water Disposal Well H-35 located in Unit H, Section 35, Township 22 South, Range 37 East, N.M.P.M., and it is necessary for Applicant to dispose of the water produced from approximately 130 wells in the Blinebry-Drinkard area into some other disposal well.
3. That Applicant proposes to perforate the 7" casing with two jet shots per foot in the intervals between 4120 feet and 4190 feet and between 4230 feet and 4320 feet below the surface in its SWD Well No. C-2, and to dispose of the water heretofore disposed of in its SWD Well No. H-35.

4. In connection with its Application for Salt Water Disposal heretofore made in Case No. 4916, Applicant filed (a) a plat showing the location of its SWD Well No. C-2 relative to other leases within a two-mile radius and there has been no change in the ownership of the leases in this area since the entry of Order No. R-4495; and (b) diagrammatic sketch of SWD Well No. C-2 showing the top of cement, casing program and area of injection.

5. That the disposal of produced salt water into the zones above described is feasible and will result in increased ultimated recovery of oil and prevent waste.

WHEREFORE, Applicant requests the Commission to set this matter down for hearing before an Examiner at an early date, publish the Notice as required by law and after hearing issue its Order amending Order R-4495 to permit the injection of water into the San Andres formation in the interval of from 4120 feet to 4320 feet in Applicant's SWD Well No. C-2 located in Unit C of Section 2, Township 22 South, Range 37 East, N.M.P.M., adjacent to the South Eunice-San Andres Pool, Lea County, New Mexico.

Respectfully submitted,
AGUA, INC.

By 
For JENNINGS, CHRISTY & COPPLE
Attorneys for Applicant
P. O. Box 1180
Roswell, New Mexico 88201

Dockets Nos. 24-75 and 25-75 are tentatively set for hearing on October 8 and October 15, 1975. Applications for hearing must be filed at least 22 days in advance of hearing date.

DOCKET: EXAMINER HEARING - FRIDAY - SEPTEMBER 26, 1975

10 A.M. - OIL CONSERVATION COMMISSION CONFERENCE ROOM,
STATE LAND OFFICE BUILDING - SANTA FE, NEW MEXICO

The following case will be heard before Daniel S. Nutter, Examiner, or Richard L. Stamets, Alternate Examiner:

Jim Jennings
CASE 5562: Application of Agua, Inc. for the amendment of Order No. R-4495, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the amendment of Order No. R-4495 which authorized salt water disposal into the San Andres formation through the open-hole interval from 4400 feet to 5000 feet in applicant's SWD Well No. C-2 located in Unit C of Section 2, Township 22 South, Range 37 East, Lea County, New Mexico. Applicant seeks the vertical extension of the disposal zone to include the perforated interval from 4120 feet to 4320 feet.

Jim Sperling

CASE 4916: 5562

Newspapers:

APPLICATION OF AGNA, INC.

Santa Fe
Hobbs

FOR THE AMENDMENT OF ORDER NO. R-4495,
Lea County, New Mexico.

Applicant, in the above-styled cause, seeks the amendment of Order No. R-4495 which authorized salt water disposal into the San Andres formation through the open-hole interval from 4400 feet to 5000 feet in applicant's SWD Well No. C-2 located in Unit C of Section 2, Township 22 South, Range 37 East, Lea County, New Mexico. Applicant seeks the vertical extension of the disposal zone to include the perforated interval from 4120 feet to 4320 feet.

seeks the amendment
of Order No. R-4495
which authorized salt
water disposal into the
San Andres formation through the
open-hole interval from
4400 feet to 5000 feet
in applicants SWD well
No C-2 located in
Unit C of Section 2, Township
22 South Range 37 East
Lea County, New Mexico.
Applicant seeks the vertical
extension of the disposal
interval zone to include
the perforated interval
from 4120 feet to 4320
feet

DOCKET: EXAMINER HEARING - WEDNESDAY - MARCH 14, 1973

9 A.M. - OIL CONSERVATION COMMISSION CONFERENCE ROOM,
STATE LAND OFFICE BUILDING - SANTA FE, NEW MEXICO

The following cases will be heard before Richard L. Stamets, Examiner, or Daniel S. Nutter, Alternate Examiner:

- ALLOWABLE: (1) Consideration of the allowable production of gas for April, 1973, from seventeen prorated pools in Lea, Eddy, Roosevelt and Chaves Counties, New Mexico;
- (2) Consideration of the allowable production of gas from nine prorated pools in San Juan, Rio Arriba, and Sandoval Counties, New Mexico, for April, 1973.

CASE 4915: Application of Belco Petroleum Corporation for a dual completion, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the dual completion of its James Ranch Unit Well No. 3 located in Unit J of Section 1, Township 23 South, Range 30 East, Eddy County, New Mexico, in such a manner as to produce gas from the Strawn and Atoka formations, Los Medanos Field Area, through the casing-tubing annulus and through tubing, respectively.

Perforation
CASE 4916: Application of Agua, Inc. for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the San Andres formation through ~~the openhole interval from 4400 feet to 5000 feet in its proposed~~ SWD Well No. C-2 located in Unit C of Section 2, Township 22 South, Range 37 East, adjacent to the South Eunice-San Andres Pool, Lea County, New Mexico.

CASE 4917: Application of Gulf Oil Corporation for a non-standard location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to simultaneously dedicate a 640-acre standard gas proration unit, Eumont Gas Pool, to two wells, the W. A. Ramsay Well No. 17 at a standard location in Unit J, and W. A. Ramsay Well No. 46 at a non-standard location in Unit E, Section 27, Township 21 South, Range 36 East, Lea County, New Mexico.

CASE 4918: Application of Twinlakes Oil Company for a dual completion and salt water injection, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks authority to dually complete its O'Brien "C" Well No. 3 located in Unit K of Section 1, Township 9 South, Range 28 East, in such a manner as to permit the attempted production of oil from the Twinlakes San Andres Pool and the injection of produced salt water into the Devonian formation, Twin Lakes-Devonian Pool, Chaves County, New Mexico, through parallel strings of 2 7/8-inch casing cemented in a common wellbore.

DRAFT

dr/

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. 5562

Order No. R- 4495-A

APPLICATION OF AGUA, INC. FOR THE
AMENDMENT OF ORDER NO. R-4495,
LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at ¹⁰9 a.m. on September 26,
19 75, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this _____ day of October, 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, Agua, Inc., is the operator of ^{the}~~its~~
SWD Well No. C-2, located in Unit C of Section 2, Township 22
South, NMPM, Range 37 East, Lea County, New Mexico.

(3) That by Order No. R-4495, dated March 21, 1973, the
Commission authorized the use of said well for salt water
disposal purposes, provided that disposal ^{would}~~should~~ be into the
San Andres formation through the open-hole interval from 4,400
feet to 5,000 feet.

(4) That the applicant seeks the amendment of said Order No. R-4495 to permit disposal of produced salt water into the aforesaid open-hole interval as well as into ~~the perforated interval~~ ^{perforations between} 4,120 feet ~~and~~ 4,320 feet.

(5) That although said well is not located within the confines of any designated pool producing from the San Andres formation, it is located within one-half mile of the horizontal boundary of the South Eunice-San Andres Pool.

(6) That the evidence presented at the hearing indicates that unrestricted disposal of salt water into the overall perforated interval requested for the subject well for an extended period of time could have an adverse effect on oil production and oil reserves in the vicinity of said well.

(7) That continued disposal of salt water into the previously authorized open-hole interval does not pose a serious threat to the aforesaid oil production and oil reserves and should be permitted.

(8) That disposal of salt water into ~~the perforated interval~~ ^{perforations between} ~~from~~ 4,230 feet ~~to~~ ^{and} 4,320 feet does not pose a serious threat to the aforesaid oil production and oil reserves provided said disposal is not conducted for an extended period of time, but is limited to a reasonable temporary period of time.

(9) That a reasonable temporary period of time during which to conduct salt water disposal into said perforated interval is four months.

(10) That disposal of salt water into perforations above 4,230 feet in the subject well would pose a serious threat to the oil production and oil reserves in the vicinity of said well and should not be permitted.

(11) That disposal of produced salt water into applicant's SWD Well No. C-2 located in Unit C of Section 2, Township 22 South, Range 37 East, NMPM, Lea County, New Mexico, into ~~the perforated interval~~ ^{perforations between} ~~from 4,230 feet to 4,320 feet~~ ^{and} and into the open-hole interval from 4,400 feet to 5,000 feet will not cause waste nor impair correlative rights provided disposal into the aforesaid ~~perforated interval~~ ^{perforations} is limited to four months after the date of this order, and should be approved.

IT IS THEREFORE ORDERED:

(1) That Paragraph (1) of Order No. R-4495-A, dated March 23, 1973, is hereby amended to read in its entirety as follows:

"(1) That the applicant, Agua, Inc., is hereby authorized to utilize its SWD Well No. C-2, located in Unit C of Section 2, Township 22 South, Range 37 East, NMPM, adjacent to the South Eunice-San Andres Pool, Lea County, New Mexico, to dispose of produced salt water into the San Andres formation, injection to be accomplished through 5 1/2-inch tubing into the perforated interval from 4,230 feet to 4,320 feet and into the open-hole interval from 4,400 feet to 5,000 feet;

PROVIDED HOWEVER, that the tubing shall be plastic-lined; that the casing-tubing annulus shall be filled with an oil blanket; and that pressure gauges shall be attached to the tubing and the annulus in order to detect leakage in the casing or tubing; and

PROVIDED FURTHER, that disposal into the aforesaid perforated interval from 4,230 feet to 4,320 feet shall not occur after four months from the date of this order, and proper action shall be taken by the applicant to the satisfaction of the Supervisor of the Hobbs District Office of the Commission to prevent such disposal."

Indent

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Case No. 5562
Order No. R-4495-A

(2) 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.

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER CONCERNING THE
AMENDMENT OF ORDER NO. R-4495,
LEA COUNTY, NEW MEXICO.

EMERGENCY ORDER NO. E-27

NOW, on this 26th day of September, 1975, the New Mexico Oil Conservation Commission, a quorum being present, having considered the application of Agua, Inc. for the amendment of Order No. R-4495, and being fully advised in the premises,

FINDS:

(1) That the applicant, Agua, Inc., pursuant to authority contained in Order No. R-4495, dated March 14, 1973, is disposing of produced salt water into the San Andres formation through the open-hole interval from 4400 feet to 5000 feet in its SWD Well No. C-2 located in Unit C of Section 2, Township 22 South, Range 37 East, Lea County, New Mexico.

(2) That the applicant, pursuant to authority contained in Administrative Order No. SWD-82, dated October 26, 1968, has been disposing of produced salt water into the San Andres formation through its SWD Well No. H-35, located in Unit H of Section 35, Township 22 South, Range 37 East, Lea County, New Mexico.

(3) That by directive dated August 22, 1975, applicant was ordered to cease injection into the aforesaid SWD Well No. H-35 at 8:00 a.m., Mountain Daylight Time, September 26, 1975, because of certain conditions existent in said well.

(4) That the water produced from some 430 producing oil wells in Lea County, New Mexico, up to now has been disposed of into said SWD Well No. H-35.

(5) That the applicant, in order to increase the disposal capacity of the aforesaid SWD Well No. C-2, has perforated the interval from 4230 feet to 4320 feet, and that said well is now capable of receiving for disposal purposes the water previously disposed of in the aforesaid SWD Well No. H-35.

(6) That an emergency exists whereby authorization should be granted to the applicant to dispose of produced salt water in its SWD Well No. C-2 in the perforated interval from 4230 feet to 4320 feet and in the open-hole interval from 4400 feet to 5,000 feet, in order to avoid the shutting in of the above-mentioned 430 producing wells.

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EMERGENCY ORDER NO. E-27

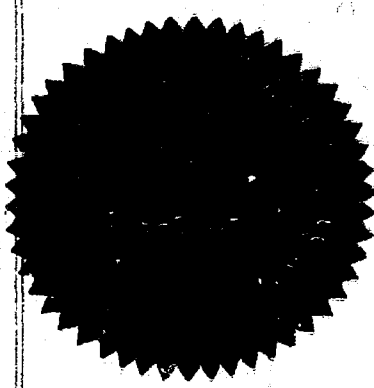
IT IS THEREFORE ORDERED:

(1) That the applicant, Agua, Inc., is hereby authorized to dispose of produced salt water into the San Andres formation through the perforated interval from 4230 feet to 4320 feet in its SWD Well No. C-2, located in Unit C of Section 2, Township 22 South, Range 37 East, Lea County, New Mexico.

(2) That this order shall become effective at 8:00 a.m., Mountain Daylight Time, on September 26, 1975.

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION


Phil R. Lucero
PHIL R. LUCERO, Chairman

Emery C. Arnold
EMERY C. ARNOLD, Member

Joe D. Ramey
JOE D. RAMEY, Member & Secretary

S E A L

dr/

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. 5562
Order No. R-4495-A

APPLICATION OF AGUA, INC. FOR
THE AMENDMENT OF ORDER NO. R-4495,
LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 10 a.m. on September 26, 1975, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 7th day of October, 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, Agua, Inc., is the operator of the SWD Well No. C-2, located in Unit C of Section 2, Township 22 South, Range 37 East, NMPM, Lea County, New Mexico.
- (3) That by Order No. R-4495, dated March 21, 1973, the Commission authorized the use of said well for salt water disposal purposes, provided that disposal would be into the San Andres formation through the open-hole interval from 4,400 feet to 5,000 feet.
- (4) That the applicant seeks the amendment of said Order No. R-4495 to permit disposal of produced salt water into the aforesaid open-hole interval as well as into perforations between 4,120 feet and 4,320 feet.
- (5) That although said well is not located within the confines of any designated pool producing from the San Andres formation, it is located within one-half mile of the horizontal boundary of the South Eunice-San Andres Pool.

(6) That the evidence presented at the hearing indicates that unrestricted disposal of salt water into the overall perforated interval requested for the subject well for an extended period of time could have an adverse effect on oil production and oil reserves in the vicinity of said well.

(7) That continued disposal of salt water into the previously authorized open-hole interval does not pose a serious threat to the aforesaid oil production and oil reserves and should be permitted.

(8) That disposal of salt water into perforations between 4,230 feet and 4,320 feet does not pose a serious threat to the aforesaid oil production and oil reserves provided said disposal is not conducted for an extended period of time, but is limited to a reasonable temporary period of time.

(9) That a reasonable temporary period of time during which to conduct salt water disposal into said perforated interval is four months.

(10) That disposal of salt water into perforations above 4,230 feet in the subject well would pose a serious threat to the oil production and oil reserves in the vicinity of said well and should not be permitted.

(11) That disposal of produced salt water into applicant's SWD Well No. C-2 located in Unit C of Section 2, Township 22 South, Range 37 East, NMPM, Lea County, New Mexico, into perforations between 4,230 feet and 4,320 feet and into the open-hole interval from 4,400 feet to 5,000 feet will not cause waste nor impair correlative rights provided disposal into the aforesaid perforations is limited to four months after the date of this order, and should be approved.

IT IS THEREFORE ORDERED:

(1) That Paragraph (1) of Order No. R-4495, dated March 23, 1973, is hereby amended to read in its entirety as follows:

"(1) That the applicant, Agua, Inc., is hereby authorized to utilize its SWD Well No. C-2, located in Unit C of Section 2, Township 22 South, Range 37 East, NMPM, adjacent to the South Eunice-San Andres Pool, Lea County, New Mexico, to dispose of produced salt water into the San Andres formation, injection to be accomplished through 5 1/2-inch tubing into the perforated interval from 4,230 feet to 4,320 feet and into the open-hole interval from 4,400 feet to 5,000 feet;

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PROVIDED HOWEVER, that the tubing shall be plastic-lined; that the casing-tubing annulus shall be filled with an oil blanket; and that pressure gauges shall be attached to the tubing and the annulus in order to detect leakage in the casing or tubing; and

PROVIDED FURTHER, that disposal into the aforesaid perforated interval from 4,230 feet to 4,320 feet shall not occur after four months from the date of this order, and proper action shall be taken by the applicant to the satisfaction of the Supervisor of the Hobbs District Office of the Commission to prevent such disposal."

(2) 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

PHIL R. LUCERO, Chairman

Emery C. Arnold
EMERY C. ARNOLD, Member

Joe D. Ramey
JOE D. RAMEY, Member & Secretary

S E A L

dr/