

Case Number
4789

Application

Transcripts

Small Exhibits

ETC.

dearnley, meier & associates

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BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
CONFERENCE ROOM, STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO
August 9, 1973

EXAMINER HEARING

IN THE MATTER OF:

Case No. 4789

Reopening of case pursuant to
Order No. R-4375, establishing
special rules and regulations
for the Many Gates-Abo Pool,
Chaves County, New Mexico.

BEFORE: ELVIS A. UTZ,
Examiner.

TRANSCRIPT OF HEARING

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1 MR. UTZ: Case 4789.

2 MR. CARR: In the matter of Case No. 4789 being
3 reopened pursuant to the provisions of Order No. R-4375,
4 which order established special rules and regulations
5 for the Mang Sabra-Ald Pool, Chaves County, New Mexico,
6 including a provision for 80-acre proration units. All
7 interested parties may appear and show cause why said
8 pool should not be developed on 40-acre spacing.

9 MR. HINKLE: Clarence Hinkle, Hinkle, Bondurant
10 and Christy, of Roswell, appearing on behalf of Exxon.
11 We have two witnesses I'd like to have sworn.

12 (Whereupon, the witnesses were sworn by Mr. Carr.)

13 MR. HINKLE: Here's the official marked exhibits.
14 Here's an extra copy.

15 MR. UTZ: You may proceed.

16 *****

17 W. R. JORDAN,

18 called as a witness, after having been first duly sworn
19 according to law, testified as follows:

20 DIRECT EXAMINATION

21 BY MR. HINKLE:

22 Q State your name, your residence and by whom you are
23 employed.

24 A I'm W. R. Jordan, Andrews, Texas, Exxon Corporation.

25 Q You mentioned Exxon Corporation, being employed by Exxon.

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1 Was it formerly Humble Oil and Refining Company?

2 A Yes, that's true.

3 Q And were you a witness in the original case under the
4 application of Humble Oil and Refining Company?

5 A That's correct.

6 Q And is Humble now being merged into Exxon?

7 A That's true.

8 Q As of January 1?

9 A Yes.

10 Q Your qualifications as a petroleum geologist are a
11 matter of record with the Commission, having previously
12 testified?

13 A That's correct.

14 Q Have you kept up with the development in the Many Gates -
15 Abo Pool?

16 A Yes, I have.

17 Q Have you prepared or has there been prepared under your
18 direction certain exhibits for introduction in this case?

19 A That's correct.

20 Q And the ones that you've prepared or had prepared under
21 your direction are exhibits that have been marked from
22 One to Five, inclusive?

23 A This is correct.

24 Q Refer to Exhibit One and explain what this is and what
25 it shows.

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- 1 A Exhibit One is a regional pool location map, showing the
2 location of the Many Gates-Abo Pool with respect to
3 surrounding pools. Many Gates-Abo will lie about six
4 miles south of the Chaveroo-San Andres Pool and about
5 twenty miles west of Flying M - Abo Pool, the nearest
6 Abo production.
- 7 Q All right. Refer to Exhibit Two and explain what this
8 shows.
- 9 A Exhibit Two is a lease and well location plat indicating
10 oil wells within a two mile radius of the pool. It shows
11 the two producing wells, two dry holes, and the dry hole
12 later converted to a salt water disposal well which Exxon
13 operates.
- 14 Q Which one is that?
- 15 A That's the CR No. 2 in the southwest corner of Section 32.
- 16 Q Which was the first well drilled?
- 17 A The first well was drilled by Phillips, that is now
18 Exxon No. 21 Isler Federal.
- 19 Q Exxon has taken over that well since it's been built?
- 20 A Exxon now operates that well.
- 21 Q When did that occur?
- 22 A This month.
- 23 Q Recently?
- 24 A This month.
- 25 Q In fact, it's in the process of being approved by USGS:

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1 isn't it?

2 A That's correct.

3 Q What do the yellow boundary lines indicate?

4 A The acreage bound by yellow is operated by Exxon
5 Corporation.

6 Q Now, turn to Exhibit Three and explain what this shows.

7 A Exhibit Three is a regional structure map, the subsea
8 map point. The top of the pay contour interval is
9 100 feet and the scale is one inch equals 4000 feet.
10 The depth in the area is approximately 90 feet per mile
11 or one degree to the southeast. It's very regional. It
12 shows a slight structural node, but very little.

13 Q Is this substantially the same structural map or plat
14 that was introduced in the original hearing?

15 A It's very close to the same map.

16 Q Changed a little bit on account of the additional two
17 wells that have been drilled since the original hearing?

18 A That's correct.

19 Q I'll turn to Exhibit Four. Explain what this is.

20 A Exhibit Four is a four-well cross section in the lower
21 right hand side portion. There is an index map showing
22 the line of section extending from Exxon's New Mexico
23 CR State No. 2 on the south to the Exxon No. 1 Isler
24 Federal on the north. The cross section shows the
25 oil-water contact at minus 3242 as determined from core

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1 analysis. The top and the base of the pay zone and the
2 upper and lower correlation line are separated interval
3 and well test completion dates are all shown.

4 Q This goes through the four wells that have been drilled;
5 is that right?

6 A It goes through the two dry holes and the two completions.

7 Q And that's shown by the little index map on the corner
8 of the plat?

9 A Correct.

10 Q Does this show the continuity of the producing shown
11 between the two producing wells?

12 A It does. The colored-in area, oil is green, water being
13 blue, a cross section shows the porous zone with the Abo
14 formation.

15 Q Also shows the perforated interval?

16 A The perforated intervals are within the colored zone.

17 Q Now, turn to Exhibit Five and explain what that is.

18 A Exhibit Five is a tabulation of completion data, the
19 lease and well numbers, totaled drilled production,
20 casing and perforations, as well as stimulation, initial
21 potential and cumulative production to 7/1/73, and
22 current daily productions are shown. The Exxon No. 1
23 Isler has cumulative production of 38,100 barrels of oil.
24 While the Exxon New Mexico CR State No. 1 has cumulative
25 of 56,000 barrels of oil for the same date.

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1 Q That's done to July 1?

2 A Yes. Current daily production for the CR State well is
3 115 barrels of oil per day plus 111 barrels of water.

4 The No. 1 Isler Federal produces 43 barrels of oil per
5 day and five barrels of water.

6 Q Do you have any further testimony regarding these exhibits?

7 A No.

8 MR. HINKLE: We would like to offer in evidence
9 the exhibits 1 through 5.

10 MR. UTZ: Without objection, Exhibits 1 through 5
11 will be entered into the record of this case.

12 MR. HINKLE: That's all of this witness. We have
13 another witness.

14 MR. UTZ: Is the other witness an engineering witness?

15 MR. HINKLE: Yes, to go into the engineering.

16 MR. UTZ: This witness may be excused.

17 MR. HINKLE: Okay. You want to take the stand?

18

19 HARLEY REAVIS,

20 a witness, after having been first duly sworn according
21 to law, testified as follows:

22 DIRECT EXAMINATION

23 BY MR. HINKLE:

24 Q State your name, residence and by whom you are employed.

25 A My name is Harley Reavis. I'm employed by Exxon Corporation

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1 in Midland, Texas, as a conservation engineer for the
2 Mid-Continent Division.

3 Q Have you previously testified before the Commission?

4 A I have not. I've been here many, many times. I don't
5 believe I've ever made that tour yet.

6 Q Would you state briefly your educational background,
7 experience as a petroleum engineer?

8 A I'm a graduate from petroleum engineering from Texas
9 A & M, BS degree. I've been in petroleum engineering
10 since I graduated in 1940, and have been conservation
11 engineering about twenty three years.

12 Q Have you had a good deal of experience with oil, gas
13 development in New Mexico?

14 A Yes, sir. I have.

15 Q You're familiar with the Exxon operation in New Mexico?

16 A Yes, sir, I am.

17 Q And in the Many Gates Pool?

18 A Yes, sir, I am.

19 Q And you have kept up with the development in that area?

20 A Yes, I have.

21 MR. HINKLE: Qualifications sufficient?

22 MR. UTZ: Yes, they are.

23 Q (By Mr. Hinkle) Have you prepared or has there been
24 prepared under your direction the exhibits six through
25 ten?

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1 A Yes, they have.

2 Q Refer to Exhibit Six and explain what this is and what
3 it shows.

4 A Exhibit Six is a reservoir data tabulation over the
5 Many Gates-Abb pool. This pool is a dolomite formation.
6 Stratigraphic porosity is about sixteen percent. The
7 oil-water contact which has been established since the
8 last hearing is 3242 feet. The average feet payoff of
9 the oil-water contact is twelve feet. The rhythm of
10 stress or pressure is 2424 pounds. The oil- gas is 43.
11 The solution oil-gas ratio is some 690 cubic feet per
12 barrel. There are two producing wells, both of them
13 pumping. This field is developed on 80-acre spacing.
14 It is past the mid-primary stage of depletion. At the
15 bottom of this exhibit is the cumulative production and
16 oil barrels as of 7-1-73, of 94,100 barrels. The gas
17 production and water production is for Exxon's State
18 CR No. 1 only. We did not have the production of gas
19 or water from the Phillips operated Isler Federal well.
20 That is not noted on this exhibit and I would like to
21 point that out.

22 Q Now, you mentioned two producing wells. Have two wells
23 been drilled since the original hearing in this case?

24 A Yes, sir. There have been two wells drilled since the
25 previous hearing on this particular case.

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1 Q Which wells were there and where are they drilled?

2 A The Exxon CR State No. 2 in the southwest corner of
3 Section 32 was drilled as a third well in the field and
4 was dry and abandoned. The Isler Federal No. 2 was the
5 fourth well drilled in the field. It was drilled through
6 the pay formation and was dry and abandoned.

7 Q Were any tests, any cross section perforation tests made
8 in connection with these wells?

9 A Yes, sir, during the tests we set up pipe and completed
10 the No. 2 CR State well, and at that time we obtained
11 a pressure of some 140 pounds. I shut in the bottom
12 hole pressure, built up pressure of 140 pounds below
13 the original pressure of 2420 pounds. This indicates
14 some drainage of -- if we draw a circle around that well
15 on the nearest producing well, we would be some 460 or
16 70 acres.

17 Q All right. Refer to Exhibit Seven and explain that.

18 A Exhibit Seven is a decline curve based on the item.
19 I mean, monthly production from the Isler Federal No. 1,
20 as you can see, this curve was taken down to ten barrels
21 per day, economic limit, and the estimated ultimate
22 recovery would be some 70.7 thousand barrels.

23 Q Now, refer to Exhibit Eight and explain that.

24 A Exhibit Eight is a similar production decline curve with
25 the production plotted in barrels per month, on semi-log

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1 paper and it's declined as though an ultimate recovery
2 of 133.2 thousand barrels taken to an economic limit
3 of ten barrels per day.

4 Q Now, refer to Exhibit Nine and explain what that shows.

5 A Exhibit nine is a volumetric curve. It shows the cost
6 of an average well. This tabulation also shows the
7 decline curve estimated recovery, on the far right hand
8 tabulation. This tabulation is by wells, showing the
9 Isler Federal No. 1 and 2, New Mexico CR State No. 1
10 and 2, and then the average for all wells, an average
11 of two producing wells. We can see that the ultimate
12 recovery from average of two producing wells for forty
13 acres at a volumetric basis is some 79,000 barrels,
14 Eighty acres of 158,000, while the decline curve gives
15 104,000. Now, on your costs to drill and complete a
16 well with the related facets, it's estimated at
17 \$164,000.

18 Q What is your conclusion as to the economics of drilling
19 and completing wells on a 40-acre basis rather than
20 80 acres?

21 A These figures show that 40 acres a well would hardly
22 pay out, while it takes almost 80 acres to make a well
23 making quantity to pay out a well in this particular
24 field.

25 Q Now, turn to Exhibit Ten and explain what that is and

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1 what it shows.

2 A Exhibit Ten is a pressure history. It lists the wells,
3 whereby pressures have been measured, daily pressures
4 are measured. The pressures were 7290 feet. The
5 cumulative production on the date that the pressure was
6 measured. The Isler Federal No. 1 which had been
7 operated by Phillips, had the last pressure measured
8 in January of 1972 of 1299 pounds, which is almost half
9 pressure gone and it had produced some 11,000 barrels
10 at that time. The New Mexico CR State No. 1 had a
11 pressure measured the second day of this month of 971
12 pounds, which is about sixty percent pressure gone, and it
13 produced at that time some 58,700 cumulative barrels of
14 oil. The New Mexico CR State No. 2 on 10-6-72 had a
15 pressure of 2280 pounds and it had not produced any fluid
16 at that time.

17 Q That's what you call a dry hole?

18 A That was a dry hole. It showed a pressure of 140 pounds,
19 even though it was dry, indicating it is connected to
20 the reservoir that these other two wells are completed
21 in. Now, the rapid pressure decline that is shown in
22 most of these wells and if we take the pressure decline
23 versus the cumulative production, our reserves would be
24 even less than shown on the decline curve.

25 Q Does this again show that the area that the producing wells

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1 are draining, does this show drainage?

2 A It shows the drainage from all of these wells, very
3 clearly, particularly the New Mexico CR State No. 2.
4 And having a 140 pound drop in this reservoir is relatively
5 tight, over a long condition. But some of the conditions
6 that we had here, it did bring the pressure down some
7 140 pounds.

8 Q So, in your opinion, these wells are effectively and
9 efficiently draining more than 80 acres?

10 A Yes, sir. I believe these wells are draining more than
11 80 acres.

12 Q What is your recommendation to the Commission with
13 respect to the rules that have been heretofore adopted?

14 A I recommend that the temporary rules that have been
15 adopted at the previous hearing by the Commission be
16 adopted as permanent rules for this field.

17 Q In your opinion, will the continuation of these rules,
18 making them permanent, be in the interest of conservation
19 and prevention of waste and tend to protect correlative
20 rights?

21 A Yes, sir, I do.

22 Q Do you have anything further you would like to present?

23 A No, sir, I believe that is all.

24 MR. HINKLE: We'd like to offer into evidence
25 Exhibits Six through Ten.

1 MR. UTZ: Without objection, Exhibits Six through
2 Ten will be entered into the record of this case.

3 MR. HINKLE: That's all we have on direct.
4

5 CROSS-EXAMINATION

6 BY MR. UTZ:

7 Q I note that the initial pressure on the Isler Federal
8 No. 1, 10-16-71 is 2420. The initial pressure of the
9 CR State No. 1, 5-20-72 is 2311. What do you attribute
10 that to?

11 A This reservoir is relatively tight, so we did not get
12 a large pressure draw down over this, but we did get
13 a pressure draw down from the Isler Federal No. 1 to
14 the CR State No. 1 of about 100 pounds. This does
15 indicate drainage on the base that it exists.

16 Q Would you consider the initial pressure on 10-16-71 on
17 the CR State was probably near 2400 pounds?

18 A Yes, sir. We took that pressure ourselves. For evidence
19 for this hearing, we knew it would be coming up.

20 MR. UTZ: Are there other questions?

21 (No response.)

22 MR. UTZ: The witness may be excused.

23 MR. HINKLE: Thank you.

24 MR. UTZ: Statements in the case?

25 (No response.)

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MR. UTZ: The case will be taken under advisement.

REPORTER'S CERTIFICATE

I, CLAUDIA FAHRENTHOLD, a Court Reporter, in and for the County of Bernalillo, State of New Mexico, do hereby certify that the foregoing and attached Transcript of Hearing before the New Mexico Oil Conservation Commission was reported by me; and that the same is a true and correct record of the said proceedings to the best of my knowledge, skill and ability.

Claudia Fahrenthold
COURT REPORTER

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 4789, heard by me on Aug 8, 1973.
[Signature] Examiner
New Mexico Oil Conservation Commission

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Direct Examination by Mr. Hinkle

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3WITNESS,HARLEY REAVIS

Direct Examination by Mr. Hinkle

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Cross-Examination by Mr. Utz

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Exhibits One through Five

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Exhibits Six through Ten

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BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
CONFERENCE ROOM, STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO

August 9, 1972

EXAMINER HEARING

IN THE MATTER OF:

Application of Humble Oil & Refining
Company for special pool rules,
Chaves County, New Mexico.

Case No. 4789

BEFORE: Elvis a. Utz,
Examiner.

TRANSCRIPT OF HEARING

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1 MR. UTZ: Case 4789.

2 MR. HATCH: Case 4789: Application of Humble Oil
3 and Refining Company for special pool rules, Chaves County,
4 New Mexico.

5 MR. HINKLE: Clarence Hinkle, of Hinkle, Bondurant,
6 and Christy, Roswell, appearing on behalf of Humble Oil and
7 Refining Company. We have two witnesses and six exhibits.
8 I would like to have both witnesses stand and be sworn.

9 (Whereupon the witnesses were sworn simultaneously
10 by Mr. Hatch.)

11 W. L. JORDON,
12 was called as a witness, and having been already duly sworn,
13 testified as follows:

14 DIRECT EXAMINATION

15 BY MR. HINKLE:

16 Q Would you state your name, your residence, and by whom
17 you are employed?

18 A I am a geologist for the Humble Oil and Refining Company,
19 and I live in Andrews, Texas.

20 Q And your name?

21 A W. L. Jordon.

22 Q Have you previously testified before the Commission?

23 A No, I have not.

24 Q State briefly your educational background and experience
25 as a petroleum geologist.

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1 A I graduated from the University of Texas with a
2 bachelor of science degree in geology, and I have worked
3 for Humble for twenty-two years, nine of these years
4 in New Mexico. I am presently employed in Southeastern
5 New Mexico.

6 Q Are you familiar with Humble's operations in New Mexico?

7 A Yes.

8 Q And in particular with the area involved in this case?

9 A Yes.

10 Q Have you made a study of the wells that have been drilled?

11 A I have.

12 Q Have you prepared or have there been prepared under
13 your direction certain exhibits for introduction in
14 this case?

15 A I have prepared the first four exhibits.

16 MR. HINKLE: Are the witness's qualifications
17 acceptable?

18 MR. UTZ: They are.

19 Q (By Mr. Hinkle) Are you familiar with the application
20 of Humble in this case?

21 A I am.

22 Q What is Humble seeking to accomplish?

23 A Humble is seeking special rules for the Many Gates-
24 Abo Pool, Chaves County, New Mexico, including provisions
25 for 80-acre spacing units and wells to be located

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1 in the approximate center of the Northeast quarter
2 of the Southwest quarter of each quarter section. It
3 is also requested that standard proration units be
4 assigned of 80 acres. Also that an allowable factor
5 of 3.33 for allowable purposes be assigned.

6 Q Mr. Jordon, referring you to Exhibit Number One, would
7 you explain what this is and what it shows?

8 A Exhibit One is a regional plat showing the location of
9 the Many Gates-Abo Pool with respect to the other pools
10 in the area. It is in Sections 31 and 32, Township
11 9 South, Range 30 East, and is indicated by the green
12 circle on the exhibit. This pool is four and a half
13 miles south of the San Andres Pool and the nearest Abo
14 producing pool is twenty miles to the east.

15 Q Now, referring you to Exhibit Number Two, will you
16 explain what this shows?

17 A Exhibit Two is a lease ownership and well location plat
18 showing the locations of the Phillips Federal Number 1,
19 the discovery well, in the Northeast quarter of the
20 Northeast quarter of Section 31, Township 9 South,
21 Range 30 East. It also shows the Humble Confirmation
22 Well, the New Mexico State Number 1 in the Southwest
23 quarter of the Northwest quarter of Section 32. Also
24 shown is the proposed Humble location for its CR State
25 Number 2 located in the Southwest quarter of the

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- 1 Southwest quarter of Section 32.
- 2 Q What do the yellow lines denote?
- 3 A That's acreage which Humble has a majority interest in
- 4 and would be the operator of.
- 5 Q Now, referring you to Exhibit Number Three, can you
- 6 explain what that shows?
- 7 A Exhibit Three is a regional structure map of the general
- 8 vicinity of the Many Gates-Abo Pool. The top of the
- 9 pay zone of the pool area is circled in red, and the
- 10 original dip is approximately 100 feet per mile to the
- 11 Southeast.
- 12 Q Does this show any appreciable structure in connection
- 13 with the Phillips Well or the Humble Well in Section 32?
- 14 A No, sir.
- 15 Q It simply shows the regional dip?
- 16 A Yes, sir, the entire area shows a normal regional dip.
- 17 Q So these wells then are not based on structure, but
- 18 what?
- 19 A This is a stratigraphic trap.
- 20 Q Referring you to Exhibit Number Four, would you explain
- 21 what that shows?
- 22 A Exhibit Four is a structural cross section including
- 23 the Phillips Federal Number 1 in the Northwest and the
- 24 Humble-New Mexico CR State Number 1 to the Southeast.
- 25 Included on the cross section are the pay sections

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1 colored in green.

2 Q The little insert on the plat shows where the cross
3 sections are located?

4 A Yes, sir.

5 Q Do you have anything further that you would like to
6 state with respect to any of these exhibits?

7 A No, sir.

8 MR. HINKLE: That's all we have on direct. We will
9 have a petroleum engineer as our next witness.

10 * * * *

11 CROSS EXAMINATION

12 BY MR. UTZ:

13 Q This is a designated pool undoubtedly, do you know what
14 the horizontal delineation is for the pool?

15 A The Northeast quarter of Section 31, and I do not know
16 that the Commission has designated anything else.

17 MR. UTZ: Any other questions?

18 * * * *

19 CROSS EXAMINATION

20 BY MR. STAMETS:

21 Q Is this similar to the pay in the Flying "M", or what
22 relationship would this be to the formation at Abo Reef?

23 A I can see no resemblance to the Abo Reef, and since it
24 is twenty miles away from the Flying A Pool, I didn't
25 work that pool up to check similarities.

1 MR. STAMETS: That's the only question I have.

2 MR. UTZ: Any other questions?

3 (No response)

4 MR. UTZ: The witness may be excused.

5 (Witness excused.)

6 * * * *

7 R. L. FRASIER,

8 was called as a witness, and having been already duly sworn,
9 testified as follows:

10 DIRECT EXAMINATION

11 BY MR. HINKLE:

12 Q Will you state your name, your residence, and by whom
13 you are employed?

14 A R. L. Frasier, project engineer with Humble.

15 Q Have you previously testified before the Commission?

16 A No, sir.

17 Q Briefly describe your educational background and your
18 experience as a petroleum engineer.

19 A I attended Texas Tech in Lubbock, and was graduated in
20 1967 with a B.S. in mechanical engineering. I was
21 employed by Humble in July of 1967 as a petroleum
22 production engineer, and in May, 1969, became a petroleum
23 reservoir engineer.

24 Q Have you made a study of the Many Gates-Abo Pool?

25 A Yes, sir.

dearnley, meier & mc cormick

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dearnley, meier & mc cormick

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1 Q Have you prepared, or has there been prepared under
2 your direction, exhibits that have been marked as
3 Exhibits Five and Six?

4 A Yes, sir.

5 MR. HINKLE: Are the witness's qualifications
6 acceptable?

7 MR. UTZ: Yes, they are.

8 Q (By Mr. Hinkle) Referring you to Exhibit Number Five,
9 would you explain what this shows?

10 A This shows completion data for the two wells in the
11 Many Gates-Abo Pool. The Federal Well Number 1 which
12 was drilled to an original depth of 10,200 feet with
13 four and a half inch casing was cemented at 9,884. There
14 was stimulation treatment of 9,500 gallons of acid and
15 an accumulative production of 15,793 barrels of oil.
16 On the second well, the Humble-New Mexico CR State
17 Number 1 was drilled to a depth of 9,450 feet and set
18 with five and a half inch casing and cemented at 7,432.
19 It was treated with 5,000 barrels of acid and its
20 initial potential in May of 1971 was 16 barrels of oil
21 per day. The accumulative production is 9,421 barrels
22 of oil for that well.

23 Q Referring you to Exhibit Number Six, will you explain
24 this exhibit?

25 A The first page of Exhibit Six is reservoir data of the

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1 Many Gates-Abo Pool. The formation is a stratigraphic
2 trap with sixteen percent porosity and twenty miladarcies.
3 The dip of the formation is approximately 100 feet per
4 mile, and the oil-water contact is unknown. The average
5 net pay is thirty-five feet for the two wells. The
6 original reservoir pressure was 2,420 PSI. There are
7 currently two wells producing, and there are no wells
8 being drilled currently. The spacing of the active
9 wells is 80 acres per well, which is consistent with
10 the special pool rules. The pool is in its initial
11 stage of depletion.

12 Q Attached to Exhibit Six are pages A, B, and C, explain
13 each of those.

14 A Page A shows the volumetric reserve estimates for the
15 two wells. The Federal Number 1 has forty-feet of net
16 pay with seventeen percent porosity, with an estimated
17 thirty-five percent water saturation. This gives
18 26,900 stock tank barrels per acre. For 40 acres, this
19 would be 161,000 stock tank barrels, and on 80 acres,
20 323,000 barrels of stock tank. The Humble-New Mexico
21 CR State Number 1 Well has only twenty-six feet of net
22 pay with fifteen percent porosity. On 80 acres, there
23 would be 168,000 barrels, so the average of the two
24 wells would be 121,000 barrels of stock tank oil for
25 40-acre development and 242,000 for 80-acre development.

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1 Q Page B?

2 A Page B shows the pressure history of the two wells.
 3 The initial reservoir pressure was 2,420 PSI. On the
 4 Federal Number 1 by the time 8,672 barrels of oil had
 5 been produced, the pressure had dropped over 1,000 PSI
 6 to 1,308 PSI. With an additional 250 barrels produced,
 7 the reservoir pressure dropped to 1,299, which was a
 8 total of 1,121 PSI drop on the Federal Number 1 with
 9 a little over 11,000 barrels of production. On the
 10 Humble-New Mexico CR State Number 1, the original
 11 pressure was 2,300 PSI, this is 100 pounds lower than
 12 the original pressure on the Federal Well, and is
 13 indicative of drainage between wells. The pressure
 14 dropped down to 2,059 PSI with only 5,850 barrels of
 15 accumulative production.

16 Q You say the drop in pressure in the drilling of the
 17 second well indicates drainage. What area would you
 18 say was drained?

19 A If a circle was drawn around the Federal Well, in excess
 20 of 250 acres would be included in the circle.

21 Q So you concluded from that that one well effectively
 22 drained 80 acres or more?

23 A Yes, I believe so.

24 Q Explain Page C.

25 A Page C is a comparison of 40-acre versus 80-acre

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1 development based on the result of the Humble-New Mexico
2 CR State Number 1. On this well, there were 84,000
3 barrels for 40 acres and 168,000 barrels for 80 acres.
4 The actual volume before income tax would be about
5 \$2.15 per barrel. So on 40 acres, the pay would be
6 around \$181,000, and the cost to drill and complete
7 the average well would be approximately \$164,000. So
8 on 80-acre spacing, the recovered oil would little more
9 than pay for the drilling of the well.

10 Q You mean on 40 acres?

11 A Yes, sir. On 80 acres, however, the value of the
12 recoverable oil we believe would provide an adequate
13 return.

14 Q Now, does Humble contemplate the drilling of any
15 additional wells in the area?

16 A There is a location a half a mile to the South of the
17 Humble-New Mexico CR State Number 1 which is expected
18 in production in a couple of weeks. Depending on the
19 result of that well then, we may come back and drill
20 a well a half a mile to the South of the Federal Number
21 1 Well.

22 Q And this would be on the 80-acre pattern?

23 A Yes, it would.

24 Q That you are requesting taking in the fact that each
25 well would be located either Northeast or Southwest of

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1 each quarter section?

2 A Yes, sir.

3 Q And you are asking for temporary field rules?

4 A Yes, we are.

5 Q And a year from now, if approved, you should have
6 considerable more information due to the production
7 history and drilling of these additional wells, is that
8 correct?

9 A That's correct.

10 Q What recommendation do you have to make to the Commission
11 with respect to the adoption of special pool rules?

12 A I do recommend special pool rules be adopted to allow
13 development of this field on 80-acre spacing with wells
14 to be drilled within 150 feet of the center of either
15 the Northeast or the Southwest quarter of the quarter
16 section and that the allowable be set based on the
17 3.33 factor, which is consistent with the development
18 of this field for 80 acres.

19 Q Have any similar rules been recently adopted by the
20 Commission?

21 A Yes, in the Mesa-Verde Oil Pool, similar rules were
22 adopted in January of this year.

23 Q If the Commission approved the application in this case,
24 in your opinion, would it be in the interest of
25 conservation and the prevention of waste?

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1 A I believe so.

2 Q And protect correlative rights?

3 A Yes, sir.

4 MR. HINKLE: We offer Exhibits One through Six in
5 evidence.

6 MR. UTZ: Without objection, Applicant's Exhibits
7 One through Six will be entered into the record of this case.

8 (Whereupon Applicant's Exhibits One through Six
9 were entered in evidence.)

10 MR. HINKLE: That's all we have.

11 * * * *

12 CROSS EXAMINATION

13 BY MR. UTZ:

14 Q What was the order number on the Mesa-Verde Pool?

15 A R-4246.

16 MR. PORTER: How do you arrive at the fifteen
17 percent recovery factor?

18 THE WITNESS: Based on the pressure depletion of
19 the reservoir we have seen so far, it is my estimation
20 that this is a solution gas-oil drive reservoir.

21 Q (By Mr. Utz) It appeared to me it might be a little high.

22 A It quite well could be, we have a limited amount of
23 data to work with at this time.

24 Q You don't have much production, but you do have a lot
25 of pressure drop?

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1 A Yes, indeed.

2 Q Do you know whether any other owners in the area have
3 plans to drill in the near future or are any of them
4 drilling at the present time?

5 A No, sir, to my knowledge, none of them are drilling or
6 have immediate plans to drill.

7 MR. UTZ: That's all I have.

8 * * * *

9 CROSS EXAMINATION

10 BY MR. HATCH:

11 Q You have requested that the wells be in the Northeast
12 quarter or the Southwest quarter, and I don't think
13 you have given the Examiner any reason for that.

14 A We think that will allow for the orderly development
15 of the pool.

16 Q Is casing head gas being sold?

17 A No, it is currently being flared.

18 Q Is there potential for the sale of casing head gas in
19 the area?

20 A Negotiations are going on right now for that.

21 MR. UTZ: What allowable factor are you asking for?

22 THE WITNESS: An 80-acre allowable factor.

23 MR. UTZ: Would twice this much gas be vented as
24 compared to 40 acres?

25 THE WITNESS: If the wells were making their full

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1 allowable, yes.

2 MR. UTZ: What are the capabilities of the wells
3 at the present time?

4 THE WITNESS: Currently, they are both producing,
5 and production is about 350 barrels a day for the two wells.
6 Fairly recently, we put our well on pump, and I believe right
7 now, it is capable of making slightly in excess of 200
8 barrels a day. The Federal Well has been on pump for some
9 time, and it's capability is 150 barrels a day.

10 MR. UTZ: It would appear that the 80-acre allowable
11 would be somewhat higher than the 40-acre allowable.

12 THE WITNESS: Yes, I believe so.

13 MR. UTZ: Would Humble have any objections to
14 maintaining the 40-acre allowable in there until such time
15 as there is a casing head gas connection in the field?

16 THE WITNESS: In view of the economics for the
17 wells in the field, we think it would hinder our development
18 of the field if we were to be cut back to a 40-acre allowable.
19 It is going to be nip and tuck whether we make any money
20 out of the reservoir as we stand right now.

21 MR. STAMETS: Humble would make a little more money
22 if it could sell the casing head gas, wouldn't it?

23 THE WITNESS: Yes.

24 MR. STAMETS: And this would add to your income
25 and pay-out, and the wells are not going to lose anything if

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1 the gas is still in the ground. What is the status
2 of getting a casing head gas connection, do you
3 anticipate it will be relatively soon?

4 THE WITNESS: I honestly don't know. There is
5 an El Paso line a mile and a half north of the field, and
6 the estimated cost for connection would be approximately
7 \$30,000.

8 MR. STAMETS: If you drilled the other well and
9 got a good well there, then probably you could get the
10 connection pretty fast.

11 THE WITNESS: That would certainly help, yes.

12 MR. STAMETS: That's all I have.

13 MR. UTZ: Are there any other questions?

14 (No response)

15 MR. UTZ: If not, the witness may be excused.

16 (Witness excused.)

17 MR. UTZ: Are there any statements in this case?

18 MR. MALLOY: I would like to make a statement.

19 I am Thomas Malloy, with Amoco. Amoco holds the leases for
20 a considerable amount of acreage in the immediate vicinity
21 of the Many Gates-Abo Pool. We offer no objection to the
22 proposal to adopt 80-acre units, however, Amoco does object
23 to the rigid spacing requirements and urge that the order
24 allow for the drilling of initial wells on either quarter-
25 quarter section. With only two wells completed in the

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1 pool, it is too early in the history of the pool to
2 develop rules so rigid.

3 MR. UTZ: Thank you. Are there any other statements?

4 (No response)

5 MR. UTZ: Case 4789 will be taken under advisement.
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1 STATE OF NEW MEXICO)
 2 COUNTY OF BERNALILLO) SS

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I, RICHARD E. McCORMICK, a Certified Shorthand Reporter, in and for the County of Bernalillo, State of New Mexico, do hereby certify that the foregoing and attached Transcript of Hearing before the New Mexico Oil Conservation Commission was reported by me; and that the same is a true and correct record of the said proceedings to the best of my knowledge, skill and ability.

Richard E. McCormick
 CERTIFIED SHORTHAND REPORTER

I do hereby certify that the foregoing is a complete record of the proceedings in the Bernalillo hearing of Case No. 4789 heard by me Aug. 9 - 22, 19...
[Signature] Examiner
 New Mexico Oil Conservation Commission

dearnley, meier & mc cormick

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1216 FIRST NATIONAL BANK BLDG. EAST • ALBUQUERQUE, NEW MEXICO 87108I N D E XWITNESSPAGE

W. L. JORDON

Direct Examination by Mr. Hinkle

3

Cross Examination by Mr. Utz

7

Cross Examination by Mr. Stamets

7

R. L. FRASIER

Direct Examination by Mr. Hinkle

8

Cross Examination by Mr. Utz

14

Cross Examination by Mr. Hatch

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E X H I B I T SAPPLICANT'SADMITTEDOFFERED

Exhibit #1 Regional plat

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Exhibit #2 Lease ownership

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Exhibit #3 Regional structure map

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Exhibit #4 Structural cross section

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Exhibit #5 Completion data

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Exhibit #6 Reservoir data

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9

10/2/71

10/2/71

Temporary

Many hundreds of Ponds
small Ponds, Chunks

80 are in the
wells in approx. middle
center NE & SW, of
each quarter section.
80 are factor 1.53



OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO

P. O. BOX 2088 - SANTA FE

87501

August 27, 1973

I. R. TRUJILLO

CHAIRMAN

LAND COMMISSIONER

ALEX J. ARMIJO

MEMBER

STATE GEOLOGIST

A. L. PORTER, JR.

SECRETARY - DIRECTOR

Mr. Clarence Hinkle
Hinkle, Bondurant, Cox & Eaton
Attorneys at Law
Post Office Box 10
Roswell, New Mexico 88201

Re: CASE NO. 4789

ORDER NO. R-4375-A

Applicant:

Humble Oil & Refining Co.

Dear Sir:

Enclosed herewith are two copies of the above-referenced Commission order recently entered in the subject case.

Very truly yours,

A. L. Porter, Jr.

A. L. PORTER, Jr.
Secretary-Director

ALP/ir

Copy of order also sent to:

Hobbs OCC	<u>x</u>
Artesia OCC	<u>x</u>
Aztec OCC	

Other

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. 4789
Order No. R-4375-A

IN THE MATTER OF CASE NO. 4789 BEING
REOPENED PURSUANT TO THE PROVISIONS
OF ORDER NO. R-4375, WHICH ORDER
ESTABLISHED SPECIAL RULES AND REGULATIONS
FOR THE MANY GATES-ABO POOL, CHAVES COUNTY,
NEW MEXICO, INCLUDING A PROVISION FOR 80-
ACRE PRORATION UNITS.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on August 9, 1973,
at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

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

FINDS:

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

(2) That by Order No. R-4375, dated August 28, 1972,
temporary special rules and regulations were established for
the Many Gates-Abo Pool, Chaves County, New Mexico, including a
provision for temporary 80-acre spacing and a provision for wells
to be located in the approximate center of the NE/4 or the SW/4
of each quarter section.

(3) That pursuant to the provisions of Order No. R-4375
this case was reopened to allow the operators in the subject
pool to appear and show cause why the Many Gates-Abo Pool should
not be developed on 40-acre spacing units.

(4) That the evidence establishes that one well in the
Many Gates-Abo Pool can efficiently and economically drain and
develop 80 acres.

-2-

Case No. 4789

Order No. R-4375-A

(5) That in order to prevent the economic loss caused by the drilling of unnecessary wells, to avoid the augmentation of risk arising from the drilling of an excessive number of wells, to prevent reduced recovery which might result from the drilling of too few wells and to otherwise prevent waste and protect correlative rights, the Special Rules and Regulations promulgated by Order No. R-4375 should be continued in full force and effect until further order of the Commission.

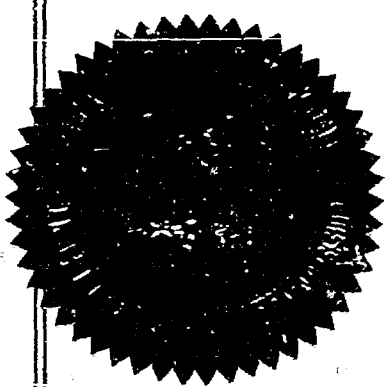
IT IS THEREFORE ORDERED:

(1) That the Special Rules and Regulations governing the Many Gates-Abo Pool, Chaves County, New Mexico, promulgated by Order No. R-4375, are hereby continued in full force and effect until further order of the Commission.

(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


I. R. Trujillo
I. R. TRUJILLO, Chairman

Alex J. Armijo
ALEX J. ARMIJO, Member

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

S E A L

dr/

Case 4789

Rec'd 5-9-73

Rec'd 8-10-73

Grant Egan permanent
N. G. J. & Co. Shipping Sales
Abd. Port Road
Order R-4375

John D. [Signature]



OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO
P. O. BOX 2088 - SANTA FE
87501

August 29, 1972

GOVERNOR
BRUCE KING
CHAIRMAN

**LAND COMMISSIONER
ALEX J. ARMIJO
MEMBER**

**STATE GEOLOGIST
A. L. PORTER, JR.
SECRETARY - DIRECTOR**

Mr. Clarence Hinkle
Hinkle, Bondurant, Cox & Eaton
Attorneys at Law
Post Office Box 10
Roswell, New Mexico 88201

Re: Case No. 4789
Order No. R-4375
Applicant:

Humble Oil & Refining Co.

DOCKET MAILED

Dear Sir:

Date 7-27-73

Enclosed herewith are two copies of the above-referenced Commission order recently entered in the subject case.

Very truly yours,

A. L. Porter, Jr.
Secretary-Director

ALP/ir

Copy of order also sent to:

Hobbs OCC x
Artesia OCC x
Aztec OCC

Other _____

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. 4789
Order No. R-4375

APPLICATION OF HUMBLE OIL &
REFINING COMPANY FOR SPECIAL
POOL RULES, CHAVES COUNTY,
NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on August 9, 1972, at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this 28th day of August, 1972, 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, Humble Oil & Refining Company, seeks the promulgation of special rules and regulations for the Many Gates-Abo Pool, Chaves County, New Mexico, including a provision for 80-acre spacing and proration units, and wells to be located in the approximate center of the NE/4 or SW/4 of each quarter section.

(3) That in order to prevent the economic loss caused by the drilling of unnecessary wells, to avoid the augmentation of risk arising from the drilling of an excessive number of wells, to prevent reduced recovery which might result from the drilling of too few wells, and to otherwise prevent waste and protect correlative rights, temporary special rules and regulations providing for 80-acre spacing units should be promulgated for the Many Gates-Abo Pool.

(4) That the temporary special rules and regulations should provide for limited well locations in order to assure orderly development of the pool and protect correlative rights.

(5) That the temporary special rules and regulations should be established for a one-year period in order to allow the operators in the subject pool to gather reservoir information to establish the area that can be efficiently and economically drained and developed by one well.

-2-

CASE NO. 4789
Order No. R-4375

(6) That this case should be reopened at an examiner hearing in August, 1973, at which time the operators in the subject pool should be prepared to appear and show cause why the Many Gates-Abo Pool should not be developed on 40-acre spacing units.

IT IS THEREFORE ORDERED:

That temporary Special Rules and Regulations for the Many Gates-Abo Pool, Chaves County, New Mexico, are hereby promulgated as follows:

SPECIAL RULES AND REGULATIONS
FOR THE
MANY GATES-ABO POOL

RULE 1. Each well completed or recompleted in the Many Gates-Abo Pool or in the Abo formation within one mile thereof, and not nearer to or within the limits of another designated Abo oil pool, shall be spaced, drilled, operated, and produced in accordance with the special rules and regulations hereinafter set forth.

RULE 2. Each well shall be located on a standard unit containing 80 acres, more or less, consisting of the N/2, S/2, E/2, or W/2 of a governmental quarter section.

RULE 3. The Secretary-Director of the Commission may grant an exception to the requirements of Rule 2 without notice and hearing when an application has been filed for a non-standard unit comprising a governmental quarter-quarter section or lot, or the unorthodox size or shape of the tract is due to a variation in the legal subdivision of the United States Public Land Surveys. All operators offsetting the proposed non-standard unit shall be notified of the application by registered or certified mail, and the application shall state that such notice has been furnished. The Secretary-Director may approve the application upon receipt of written waivers from all offset operators or if no offset operator has entered an objection to the formation of the non-standard unit within 30 days after the Secretary-Director has received the application.

RULE 4. Each well shall be located within 150 feet of the center of either the NE/4 or the SW/4 of a governmental quarter-quarter section or lot.

RULE 5. The Secretary-Director may grant an exception to the footage requirements of Rule 4 without notice and hearing when an application has been filed for an unorthodox location necessitated by topographical conditions or the recompletion of a well previously drilled to another horizon. All operators offsetting the proposed location shall be notified of the application by registered or certified mail, and the application

-3-
CASE NO. 4789
Order No. R-4375

shall state that such notice has been furnished. The Secretary-Director may approve the application upon receipt of written waivers from all operators offsetting the proposed location or if no objection to the unorthodox location has been entered within 20 days after the Secretary-Director has received the application.

RULE 6. A standard proration unit (79 through 81 acres) shall be assigned an 80-acre proportional factor of 3.33 for allowable purposes. The allowable assigned to a non-standard proration unit shall bear the same ratio to a standard allowable as the acreage in such non-standard unit bears to 80 acres.

IT IS FURTHER ORDERED:

(1) That the locations of all wells presently drilling to or completed in the Many Gates-Abo Pool or in the Abo formation within one mile thereof are hereby approved; that the operator of any well having an unorthodox location shall notify the Hobbs District Office of the Commission in writing of the name and location of the well on or before September 1, 1972.

(2) That, pursuant to Paragraph A. of Section 65-3-14.5, NMSA 1953, contained in Chapter 271, Laws of 1969, existing wells in the Many Gates-Abo Pool shall have dedicated thereto 80 acres in accordance with the foregoing pool rules; or, pursuant to Paragraph C. of said Section 65-3-14.5, existing wells may have non-standard spacing or proration units established by the Commission and dedicated thereto.

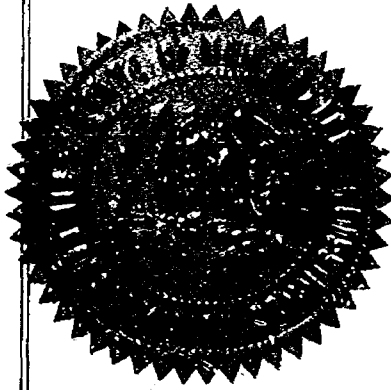
Failure to file new Forms C-102 with the Commission dedicating 80 acres to a well or to obtain a non-standard unit approved by the Commission within 60 days from the date of this order shall subject the well to cancellation of allowable. Until said Form C-102 has been filed or until a non-standard unit has been approved, and subject to said 60-day limitation, each well presently drilling to or completed in the Many Gates-Abo Pool or in the Abo formation within one mile thereof shall receive no more than one-half of a standard allowable for the pool.

(3) That this case shall be reopened at an examiner hearing in August, 1973, at which time the operators in the subject pool may appear and show cause why the Many Gates-Abo Pool should not be developed on 40-acre spacing units.

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

-4-
CASE NO. 4789
Order No. R-4375

DONE at Santa Fe, New Mexico, on the day and year herein-
above designated.



STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

Bruce King
BRUCE KING, Chairman

Alex J. Armijo
ALEX J. ARMIJO, Member

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

S E A L

dr/

DOCKET: EXAMINER HEARING - THURSDAY - AUGUST 9, 1973

9 A.M. - OIL CONSERVATION COMMISSION CONFERENCE ROOM,
STATE LAND OFFICE BUILDING - SANTA FE, NEW MEXICO

The following cases will be heard before Elvis A. Utz, Examiner, or Daniel S. Nutter, Alternate Examiner:

- ALLOWABLE: (1) Consideration of the allowable production of gas for September, 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 September, 1973.

CASE 4933: (Readvertised)

Application of Texaco Inc. for salt water disposal, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Delaware formation through the perforated interval from 4280 feet to 4288 feet in its R. T. Wilson Federal Well No. 5 located in Unit J of Section 24, Township 26 South, Range 31 East, North Mason-Delaware Pool, Eddy County, New Mexico.

CASE 5040: Application of Wallen Production Company for a pressure maintenance project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a pressure maintenance project by the injection of water into the Yates Seven-Rivers formation in its Federal Well No. 2 located in Unit C of Section 20, Township 20 South, Range 34 East, North Lynch Yates-Seven Rivers Pool, Lea County, New Mexico.

CASE 5041: Application of W. T. Wynn for a unit agreement, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Kaiser Lake Unit Area comprising 960 acres, more or less, of federal and fee lands in Township 18 South, Ranges 26 and 27 East, Eddy County, New Mexico.

CASE 4789: (Reopened)

In the matter of Case No. 4789 being reopened pursuant to the provisions of Order No. R-4375, which order established special rules and regulations for the Many Gates-Abo Pool, Chaves County, New Mexico, including a provision for 80-acre proration units. All interested parties may appear and show cause why said pool should not be developed on 40-acre spacing.

CASE 4548: (Reopened)

In the matter of Case No. 4548 being reopened pursuant to the provisions of Order No. R-4157, which order established special rules and regulations for the Catclaw Draw-Morrow Gas Pool, Eddy County, New Mexico, including a provision for 640-acre proration units. All interested parties may appear and show cause why said pool should not be developed on 320-acre spacing.

DOCKET: EXAMINER HEARING - THURSDAY - AUGUST 9, 1973

9 A.M. - OIL CONSERVATION COMMISSION CONFERENCE ROOM,
STATE LAND OFFICE BUILDING - SANTA FE, NEW MEXICO

The following cases will be heard before Elvis A. Utz, Examiner, or Daniel S. Nutter, Alternate Examiner:

- ALLOWABLE: (1) Consideration of the allowable production of gas for September, 1973, from seventeen prorated pools in Lea, Eddy, Roosevelt and Chaves Counties, New Mexico;
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CASE 4789: (Reopened)

In the matter of Case No. 4789 being reopened pursuant to the provisions of Order No. R-4375, which order established special rules and regulations for the Many Gates-Abo Pool, Chaves County, New Mexico, including a provision for 80-acre proration units. All interested parties may appear and show cause why said pool should not be developed on 40-acre spacing.

CASE 4548: (Reopened)

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Memo

From

R. L. STAMETS
Technical
Support Chief

To

Includes no provision
for restricted allowables
until casinghead
gas connection
available in the
pool.

4789

Lead 8-9-72

Rec 8-11-72.

Grant Hembel special
pool - river for the Henry
Gates also pool.

80 Acres spacing

150' fr. center of NE or SW

40.

Use R 4246 or equivalent.

1 yr. Temp. order.

3.33 Depth factors

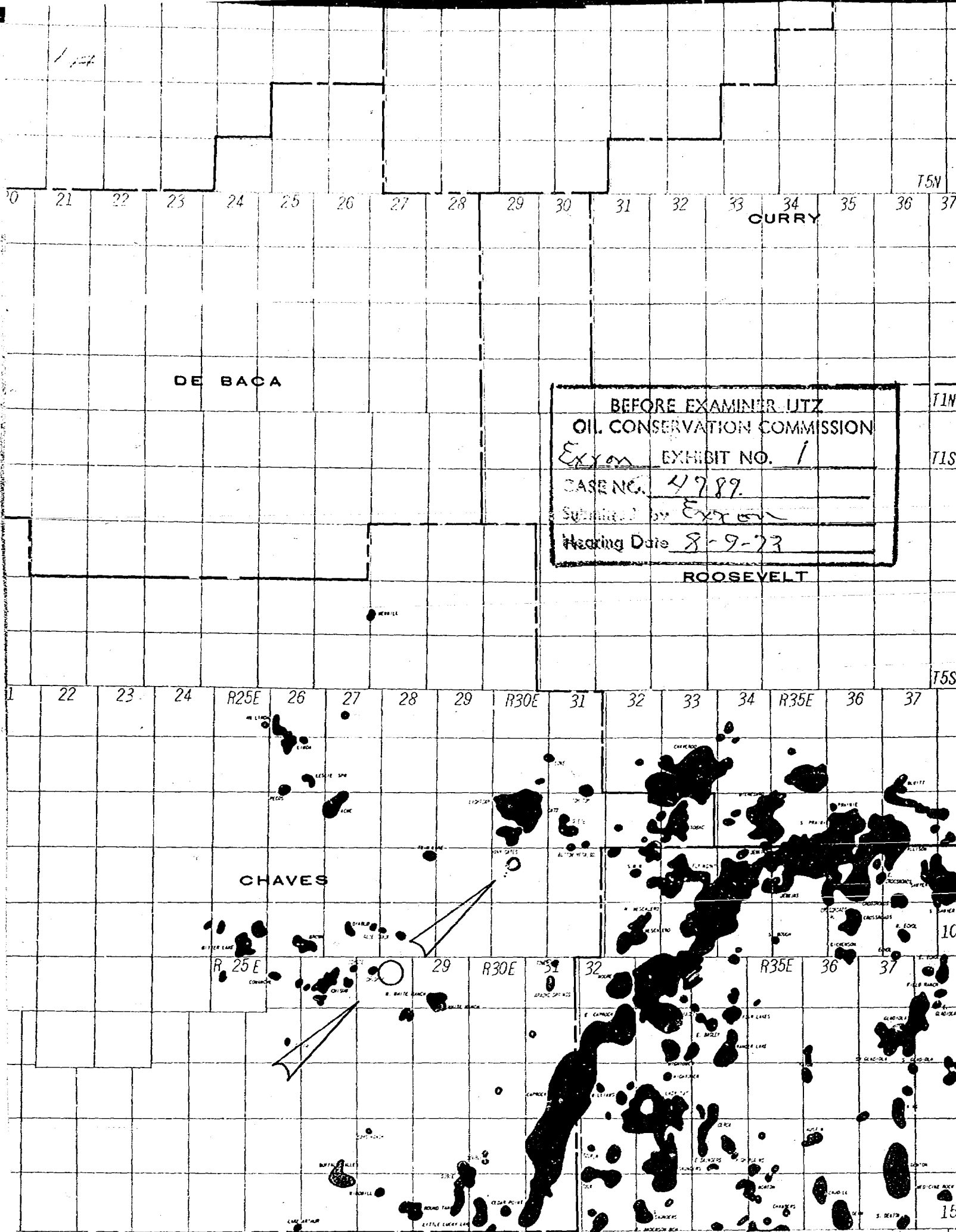
James O. Hembel

DOCKET: EXAMINER HEARING - WEDNESDAY - AUGUST 9, 1972

9 A.M. - OIL CONSERVATION COMMISSION CONFERENCE ROOM,
STATE LAND OFFICE BUILDING - SANTA FE, NEW MEXICO

The following cases will be heard before Elvis A. Utz, Examiner, or Daniel S. Nutter, Alternate Examiner:

- CASE 4785: Application of Gulf Oil Corporation for rededication of acreage and a non-standard proration unit, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the consolidation of a 40-acre non-standard proration unit comprising the SE/4 NW/4 of Section 28 and an 80-acre non-standard proration unit comprising the W/2 NE/4 of Section 28; Township 21 South, Range 37 East, Blinbry Gas Pool, Lea County, New Mexico, to form a 120-acre non-standard proration unit. Applicant also seeks permission to produce the allowable assigned to said 120-acre unit from its Eunice King Wells Nos. 5 and 9 located, respectively, in Units F and G of said Section 28 in any proportion.
- CASE 4786: Application of Highland Production Company for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Delaware formation in the open-hole interval from 4378 feet to 4418 feet in its Russell Federal Well No. 6 located in Unit K of Section 20, Township 26 South, Range 32 East, East Mason-Delaware Pool, Lea County, New Mexico.
- CASE 4787: Application of Superior Oil Company for an unorthodox well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to drill a gas well to test the Morrow and other formations at an unorthodox location 660 feet from the North line and 990 feet from the West line of Section 5, Township 23 South, Range 27 East, South Carlsbad Field, Eddy County, New Mexico, with the N/2 of said Section 5 to be dedicated to the well.
- CASE 4788: Application of Murphy H. Baxter for an unorthodox well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to drill a producing well approximately in the center of the SW/4 of Section 18, Township 17 South, Range 33 East, Maljamar (Grayburg-San Andres) Pool, Lea County, New Mexico. Said well to be within the area of a waterflood project approved by Order No. R-2156.
- CASE 4789: Application of Humble Oil & Refining Company for special pool rules, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks the promulgation of special rules for the Many Gates-Abo Pool, Chaves County, New Mexico, including provisions for 80-acre spacing units and wells to be located in the approximate center of the NE/4 or SW/4 of each quarter section.
- CASE 4790: Application of The Petroleum Corporation for special pool rules and a non-standard proration unit, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the promulgation of special pool rules



MANY GATES - ABO POOL
CHAVES COUNTY, NEW MEXICO

COMPLETION DATA

LEASE	WELL NO	TOTAL DEPTH	PRODUCTION CASING	PERFORATIONS	STIMULATION TREATMENT	INITIAL POTENTIAL	CUM. PRODUCTION TO 7-01-73	CURRENT PROD.
Isler-Federal	1	10,200	4-1/2" Csg. @ 9480' with 750 sks. cmt.	7248-57 7263-75 7278-81	9500 gal.	Flow 227 BOPD, 3/8" choke TP 165#, GOR 652, 3-8-72	38.1 MBO	48 BOPD 5 BWPD
Isler-Federal	2	7,321	Not Set. Pay below O/W contact	---	---	Plugged & Abandoned	---	---
N.M. "CR" State	1	9,450	5" Csg. @ 7434' with 1375 sks. cmt.	7266-90	6000 gal.	Flow 216 BOPD + 7 BW, 16/64" choke, TP 100#, GOR 1405, 5-25-72	56.0 MBO	115 BOPD 111 BWPD
N.M. "CR" State	2	7,450	5-1/2" Csg. @ 7450' with 175 sks. cmt.	7287-98 7310-17	4000 gal. 3000 gal.	Swabbed 100% water Abandoned Abo, converted to SWD well in San Andres	---	---

BEFORE EXAMINER UTZ OIL CONSERVATION COMMISSION
<u>aff</u> EXHIBIT NO. <u>5</u>
CASE NO. <u>4789</u>
Submitted by <u>Exxon</u>
Hearing Date <u>8-9-73</u>

MANY GATES - ABO POOL

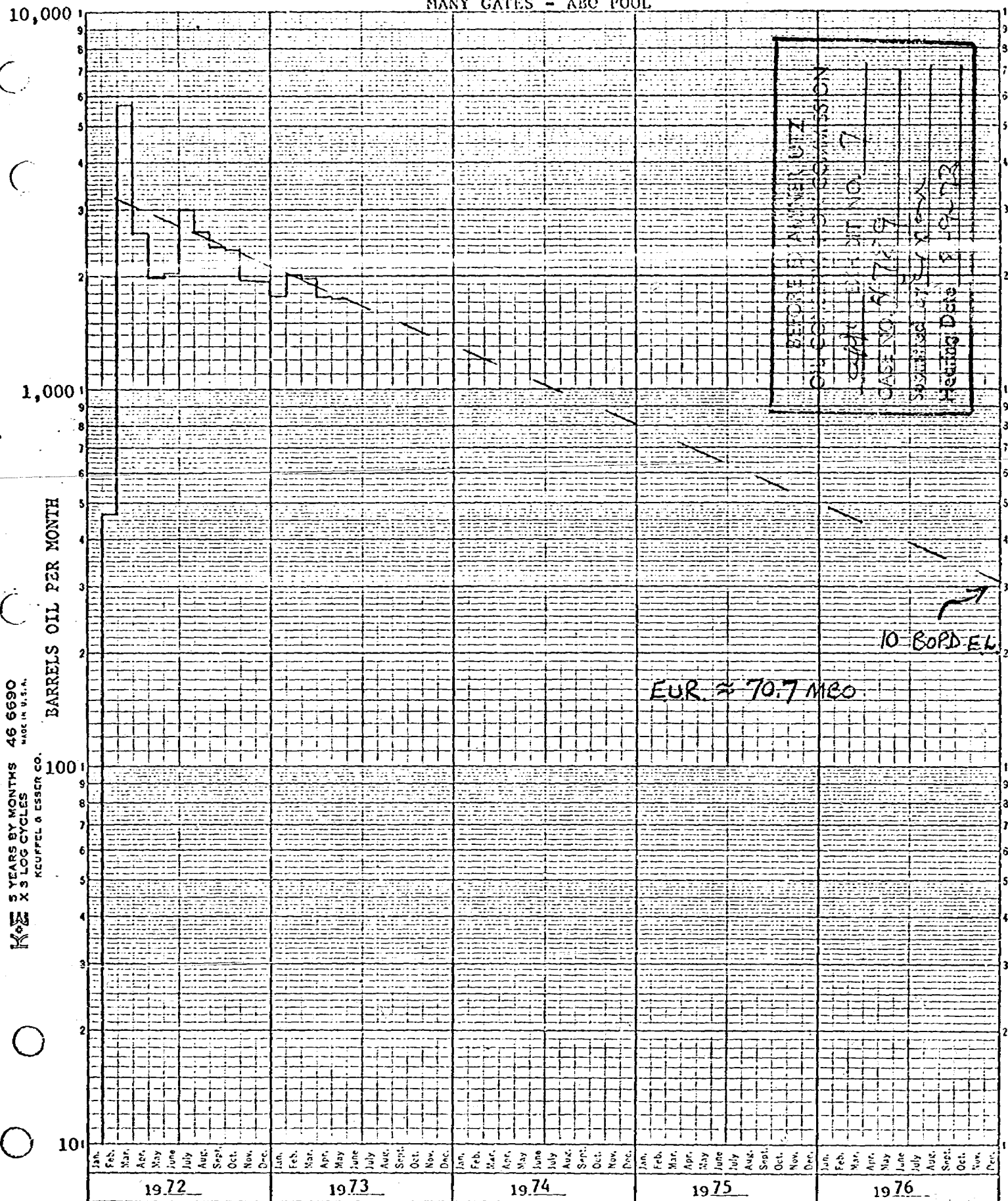
RESERVOIR DATA

Formation	Dolomite
Type Structure	Stratigraphic Trap
Porosity (%)	16
Permeability (md)	20
Connate Water Saturation (%)	31
Dip of Formation (feet/mile)	100
Oil-Water Contact	-3242
Average Net Pay (ft. above O/W contact)	12
Original Reservoir Pressure (psi)	2420
Reservoir Temperature (°F)	145
Reservoir Datum (ft. subsea)	-3250
Oil Gravity (°API)	43
Oil Viscosity (cp)	.44
Formation Volume Factor (RBO/STBO)	1.432
Solution Gas-Oil Ratio (cu ft/bbl)	690
Gas Gravity (air = 1.0)	.96
No. Wells Producing	2
No. Wells Pumping	2
No. Wells Flowing	0
No. Wells Abandoned	2
No. Wells Drilling	0
Spacing of Active Wells (acres/well)	80
Stage of Depletion	1st-Primary
Cumulative Production as of 7/1/73	
Oil (M Bbls)	94.1
Gas (MMCF)	24.9
Water (M Bbls)	18.9

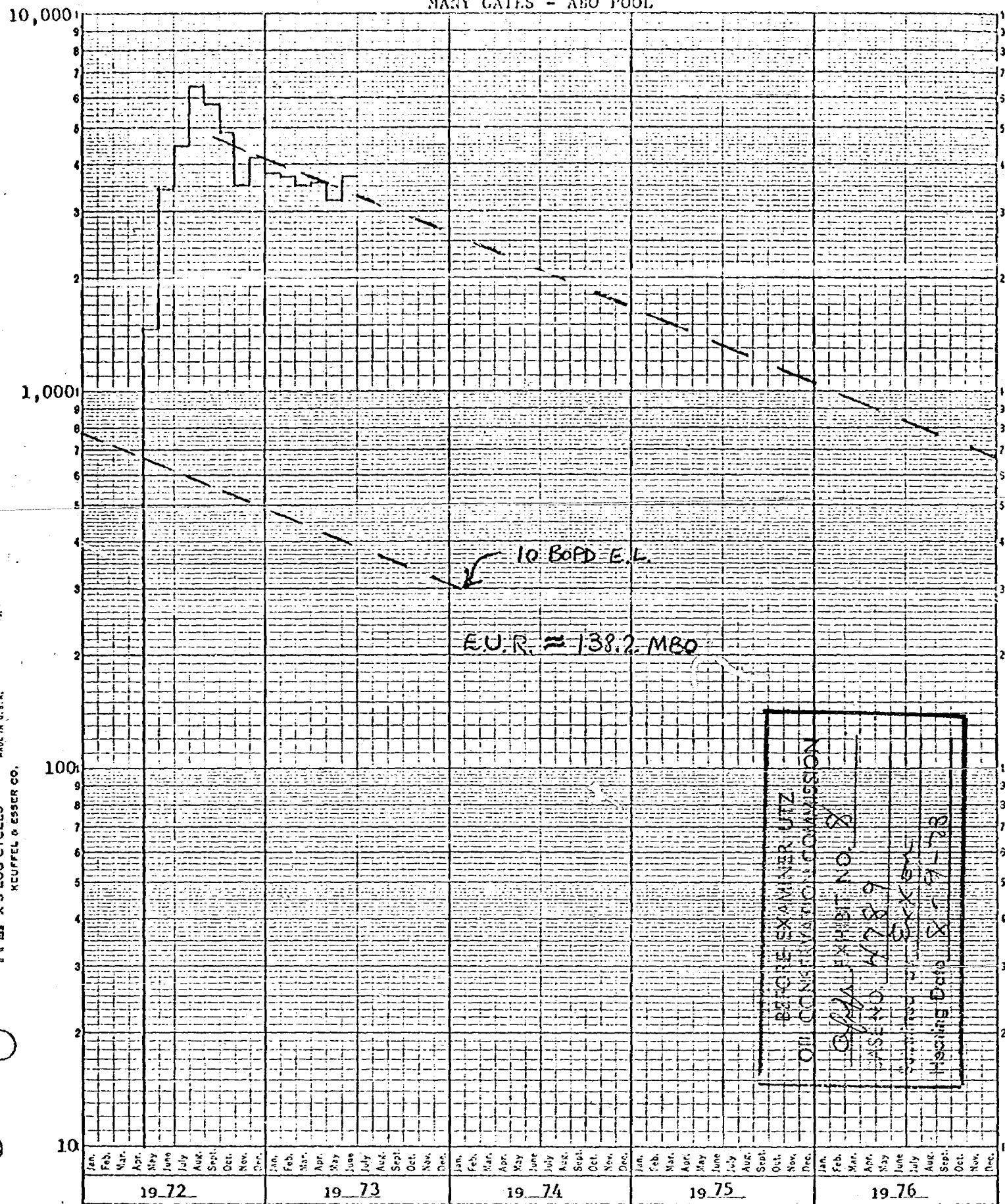
BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
OFFR EXHIBIT NO. 6
CASE NO. 4787
Submitted by E. X. G.
Hearing Date 8-9-73

C.R. D. only.

ISLER FEDERAL #1
MANY GATES - ABC POOL



NEW MEXICO "CR" #1
MANY GATES - ABO POOL



K&E 5 YEARS BY MONTHS 46 6690
X 3 LOG CYCLES
MADE IN U.S.A.
KEUFFEL & ESSER CO.

MANY GATES - ABO POOL

VOLUMETRIC RESERVE ESTIMATES AND COSTS FOR AN AVERAGE WELL

LEASE	WELL	NET PAY* (FT.)	POROSITY (%)	EST. Sw (%)	EST. F.V.F. (RBO/STBO)	EST. VOLUMETRIC OOIP (MBSTO/AC)	40 ACRE VOLUMETRIC WELL RESERVES** (MBSTO)	80 ACRE VOLUMETRIC WELL RESERVES** (MBSTO)	DECLINE CURVE E.U.R. (MBSTO)
Isler Federal	1	30	17	31	1.432	19.1	114.6	229.2	70.7
Isler Federal	2	3	17	31	1.432	1.9	11.4	22.8	0***
N.M. "CR" State	1	13	15	31	1.432	7.3	43.8	87.6	138.2
N.M. "CR" State	2	0	15	31	1.432	0	0	0	0***
AVERAGE ALL WELLS		12	16	31	1.432	7.2	43.2	86.4	52.2
AVERAGE 2 PROD. WELLS		22	16	31	1.432	13.2	79.2	158.4	104.5

*Above Oil/Wtr Contact
 **Based on Recovery of 15% of OOIP
 ***Well Drilled & Abandoned

164,000 / well.

REQUIRED INVESTMENTS PER AVERAGE WELL

Drill and Complete \$129 M
 Artificial Lift 25 M
 Related Facilities 10 M
 TOTAL \$164 M

BEFORE EXAMINER UTZ
 OIL CONSERVATION COMMISSION
 EXHIBIT NO. 9
 CASE NO. 4789
 Submitted by EYON
 Hearing Date 8-9-73

MANY GATES - ABO POOL

PRESSURE HISTORY

<u>WELL</u>	<u>DATE</u>	<u>SHUT IN PRESSURE @ 7290' (psi)</u>	<u>CUMULATIVE PRODUCTION (BBLs.)</u>
Isler Federal #1	10-16-71	2420	---
	5-13-72	1380	8,672
	6-03-72	1299	11,122
New Mexico "CR" State #1	5-20-72	2311	---
	5-30-72	2224	2,161
	7-10-72	2059	5,853
	11-14-72	1740	28,504
	8-02-73	971	58,700
New Mexico "CR" State #2	10-06-72	2280	---

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
a/k/a EXHIBIT NO. 10
CASE NO. 4789
by order of E. J. Egan
Hearing Date 8-9-73

2, 10

PHOTO EXAMINER UTZ
EXAMINATION DIVISION

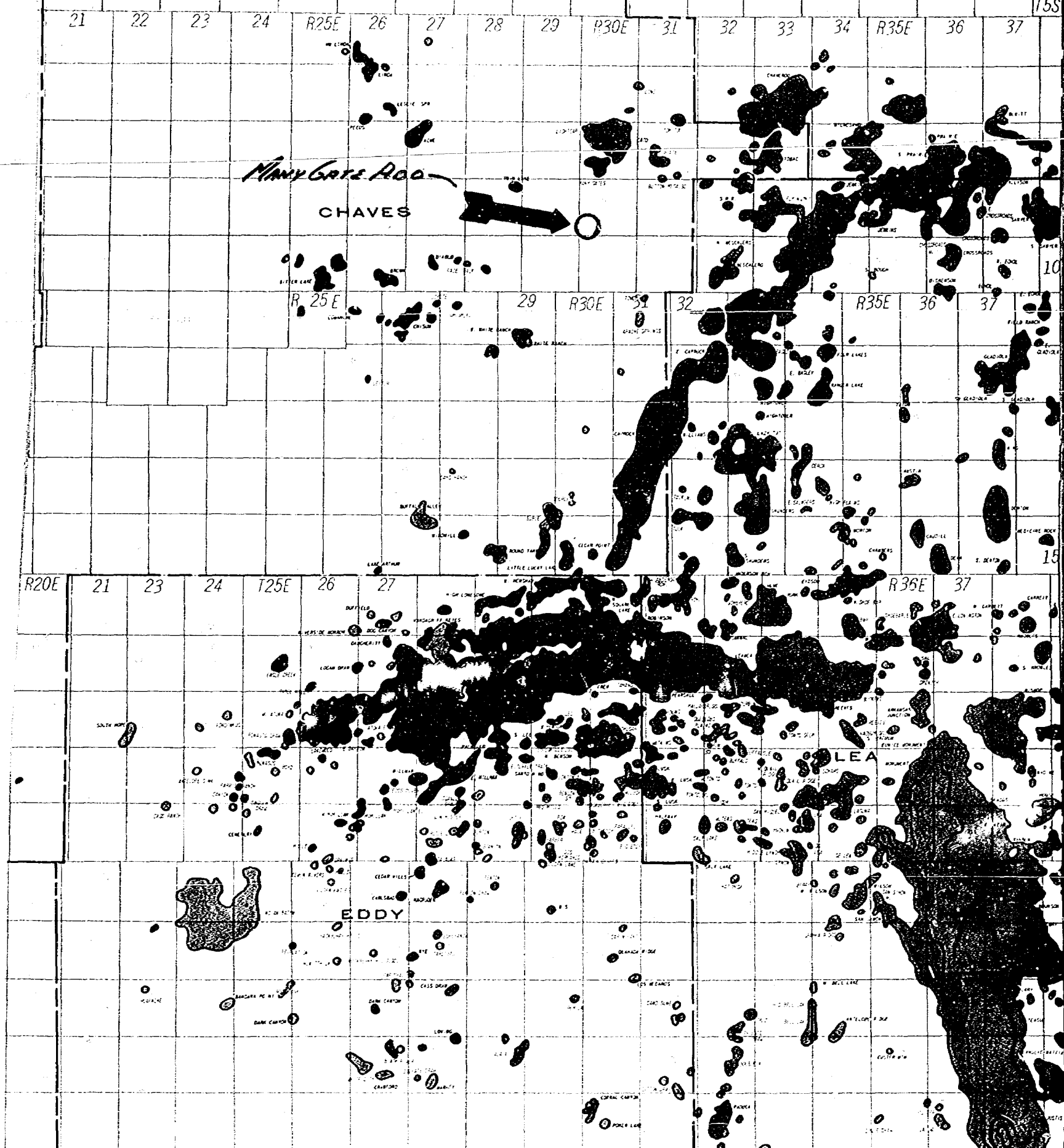
BIT NO. 1

478f

Humble

Hearing Date 8-9-72

ROOSEVELT



C

MANY GATES - ABO POOL

COMPARISON OF ECONOMICS
40 ACRE VS. 80 ACRE SPACING
BASED ON HUMBLE'S NEW MEXICO "CR" STATE #1

	<u>40 ACRE</u>	<u>80 ACRE</u>
Recoverable Oil (M BBLs)	84.3	168.6
Actual Value to Operator @ \$2.15/BO (M \$)	181.2	362.4
Cost to Drill, Complete, & Equip an Average Well (M \$)	164.0	164.0

B

MANY GATES - ABO POOL

PRESSURE HISTORY

ISLER FEDERAL #1

<u>DATE</u>	<u>SHUT IN PRESSURE @ -3250 ss (psi)</u>	<u>CUMULATIVE PRODUCTION (BBLs.)</u>
10-16-71	2420	---
5-13-72	1380	8,672
6-03-72	1299	11,122

NEW MEXICO "CR" STATE #1

<u>DATE</u>	<u>SHUT IN PRESSURE @ -3250 ss (psi)</u>	<u>CUMULATIVE PRODUCTION (BBLs.)</u>
5-20-72	2311	---
5-30-72	2224	2,161
7-10-72	2059	5,853

A

MANY GATES - ABO POOL
VOLUMETRIC RESERVE ESTIMATES

OPERATOR	LEASE	WELL	NET PAY ¹ (FT)	POROSITY ¹ (%)	EST. Sw (%)	EST. F.V.F. (RBO/STBO)	EST. VOLUMETRIC OOIP (STBO/AC)	40 ACRE VOLUMETRIC WELL RESERVES ² (STBO)	80 ACRE VOLUMETRIC WELL RESERVES ² (STBO)
Jack Phillips	Isler Federal	1	44	17	35	1.4	26,942	161,652	323,304
Humble Oil & Refining Company	New Mexico "CR" State	1	26	15	35	1.4	14,048	84,288	168,576
	AVERAGE		35	16	35	1.4	20,171	121,026	242,052

¹ Based on Log Analysis

² Based on Recovery of 15% of OOIP

MANY GATES - ABO POOL
CHAVES COUNTY, NEW MEXICO

COMPLETION DATA

Operator	Lease	Well No.	Total Depth	Production Casing	Perforations	Stimulation Treatment	Initial Potential	Cum. Production to 8-1-72
Jack L. Phillips	Isler-Federal	1	10,200	4-1/2" Csg. @ 9480' w/750 sks cmt.	7248-57 7263-75 7278-81	9500 gal.	Flow 227 BOPD, 3/8" choke TP 165#, GOR 652, 3-8-72	15,793 bbls. oil
Humble Oil & Refining Co.	N. M. "CR" State	1	9,450	5" Csg. @ 7434' w/1375 sks cmt.	7266-90	6000 gal.	Flow 216 BOPD + 7 BW, 16/64" choke, TP 100#, GOR 1405, 5-25-72	9,421 bbls. oil

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION

EXHIBIT NO. 5

CASE NO.

4789

Submitted by

Humble

Hearing Date

8-9-72

MANY GATES - ABO POOL

RESERVOIR DATA

Formation	Dolomite
Type Structure	Stratigraphic Trap
Porosity (%)	16
Permeability (md)	20
Connate Water Saturation (est. %)	35
Dip of Formation (feet/mile)	100
Oil - Water Contact	Unknown
Average Net Pay (ft)	35
Original Reservoir Pressure (psi)	2420
Reservoir Temperature (°F)	145
Reservoir Datum (ft. subsea)	-3250
Oil Gravity (°API)	43
Oil Viscosity (cp)	.44
Formation Volume Factor (RBO/STBO)	1.40
Solution Gas-Oil Ratio (cu ft/bbl)	690
Gas Gravity (air = 1.0)	.96
No. Wells Producing	2
No. Wells Pumping	2
No. Wells Flowing	0
No. Wells Drilling	0
Spacing of Active Wells (acres/well)	80
Stage of Depletion	Initial
Cumulative Production as of 7/1/72	
Oil (BBLS)	18,194
Gas (MCF)	12,736
Water (BBLS)	1,418

BEFORE EXAMINER UTZ	
OIL CONSERVATION COMMISSION	
EXHIBIT NO.	6
CASE NO.	4789
FILED BY	Humble
Filing Date	8-9-72

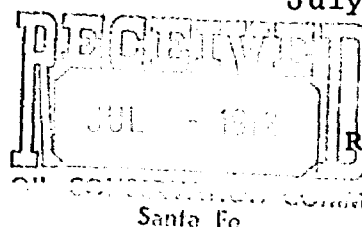
HUMBLE OIL & REFINING COMPANY

MIDLAND, TEXAS 79701

PRODUCTION DEPARTMENT
MIDCONTINENT DIVISION
L. H. BYRD
MANAGER

July 5, 1972

POST OFFICE BOX 1600



Re: Rules Hearing
Many Gates Abo Pool
Chaves County, New Mexico

New Mexico Oil Conservation Commission
P. O. Box 2088
Santa Fe, New Mexico 87501

Case 4789

Attention: Mr. A. L. Porter, Jr.

Gentlemen:

We respectfully request an examiner hearing be scheduled to consider Humble Oil & Refining Company's application for special rules and regulations for the Many Gates Abo Oil Pool located in Sections 31 and 32 of T-9-S, R-30-E, Chaves County, New Mexico.

Humble will request the Commission to establish 80-acre spacing units with wells to be located in the NE/4 or SW/4 of a governmental quarter-section. A standard proration unit would be assigned an 80-acre proportional factor of 3.33 for allowable purposes.

Jack Phillips discovered this field with the completion of his Federal Isler No. 1 in the NE/4 of NE/4 of Section 31. Humble operates the only other well in the pool, the New Mexico "CR" State No. 1 located in the SW/4 of NW/4 of Section 32. Other interested parties in the area are AMOCO, Getty and Mission and a copy of this letter has been furnished each of these operators.

Your early scheduling of this hearing will be appreciated.

Yours very truly,

L. H. BYRD

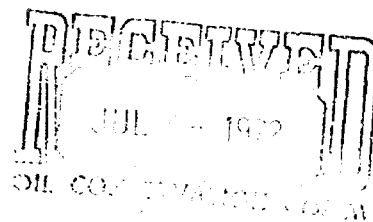
DOCKET MARKED

HNR/rs

(See Attached Sheet for
Distribution of Copies)

Date 7-27-72

*+ Send docket to
Mr. Henkle*



Copies to:

New Mexico Oil Conservation Commission
P. O. Box 1980
Hobbs, New Mexico 88240

AMOCO Production Company
P. O. Box 3092
Houston, Texas 77001

Getty Oil Company
P. O. Box 1231
Midland, Texas 79701

Mission Corporation
P. O. Box 1231
Midland, Texas 79701

Jack Phillips
P. O. Drawer 392
Gladewater, Texas 75647

DRAFT

GMH/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. 4789

Order No. R-4375

APPLICATION OF HUMBLE OIL &
REFINING COMPANY FOR SPECIAL
POOL RULES, CHAVES COUNTY,
NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on August 9, 1972
at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this day of August, 1972, 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, Humble Oil & Refining Company,
seeks the promulgation of special rules and regulations for the
Many Gates-Abo Pool, Chaves County, New Mexico, including a
provision for 80-acre spacing and proration units, and wells to
be located in the approximate center of the NE/4 or SW/4 of each
quarter section.

(3) That in order to prevent the economic loss caused by the drilling of unnecessary wells, to avoid the augmentation of risk arising from the drilling of an excessive number of wells, to prevent reduced recovery which might result from the drilling of too few wells, and to otherwise prevent waste and protect correlative rights, ^{temporary} special rules and regulations providing for 80-acre spacing units should be promulgated for the Many Gates-Abo Pool.

(4) That the ^{temporary} special rules and regulations should provide for limited well locations in order to assure orderly development of the pool and protect correlative rights.

(5) ~~let~~ That the temporary special rules and regulations should be established for a one-year period in order to allow the operators in the subject pool to gather reservoir information to establish the area that can be efficiently and economically drained and developed by one well.

(6) ~~let~~ That this case should be reopened at an examiner hearing in ~~April~~, 1973, at which time the operators in the subject pool should be prepared to appear and show cause why the ~~West Trees~~ ^{Many Gates-Abo} ~~Rapalotes-Pennsylvanian~~ Pool should not be developed on ~~less~~ ^{40-acre spacing units} than ~~160-acre spacing units~~. (under)

follows:

SPECIAL RULES AND REGULATIONS
FOR THE
MANY GATES-ABO POOL

RULE 1. Each well completed or recompleted in the Many Gates-Abo Pool or in the Abo formation within one mile thereof, and not nearer to or within the limits of another designated Abo oil pool, shall be spaced, drilled, operated, and produced in accordance with the special rules and regulations hereinafter set forth.

RULE 2. Each well shall be located on a standard unit containing 80 acres, more or less, consisting of the N/2, S/2, E/2, or W/2 of a governmental quarter section, ~~provided however, that nothing contained herein shall be construed as prohibiting the drilling of a well on each of the quarter-quarter sections in the unit.~~

RULE 3. The Secretary-Director of the Commission may grant an exception to the requirements of Rule 2 without notice and hearing when an application has been filed for a non-standard unit comprising a governmental quarter-quarter section or lot, or the unorthodox size or shape of the tract is due to a variation in the legal subdivision of the United States Public Land Surveys. All operators offsetting the proposed non-standard unit shall be notified of the application by registered or certified mail, and the application shall state that such notice has been furnished. The Secretary-director may approve the application upon receipt of written waivers from all offset operators or if no offset operator has entered an objection to the formation of the non-standard unit within 30 days after the Secretary-Director has received the application.

within 150 feet of the
RULE 4. Each well shall be located ~~no nearer than 330~~
Center of either the NE 1/4 or the SW 1/4 of a
~~feet to any governmental quarter-quarter section or lot.~~

RULE 5. The Secretary-Director may grant an exception to the footage requirements of Rule 4 without notice and hearing when an application has been filed for an unorthodox location necessitated by topographical conditions or the recompletion of a well previously drilled to another horizon. ~~provided the well will be located no nearer than 330 feet to the outer boundary of the unit.~~ All operators offsetting the proposed location shall be notified of the application by registered or certified mail, and the application shall state that such notice has been furnished. The Secretary-Director may approve the application upon receipt of written waivers from all operators offsetting the proposed location or if no objection to the unorthodox location has been entered within 20 days after the Secretary-Director has received the application.

RULE 6. A standard proration unit (79 through 81 acres) shall be assigned an 80-acre proportional factor of ~~2.77~~ ^{3.33} for allowable purposes, ~~and in the event there is more than one well on an 80-acre proration unit, the operator may produce the allowable assigned to the unit from the wells on the unit in any proportion.~~

no 4
The allowable assigned to a non-standard proration unit shall bear the same ratio to a standard allowable as the acreage in such non-standard unit bears to 80 acres.

IT IS FURTHER ORDERED:

(1) That the locations of all wells presently drilling to or completed in the Many Gates-Abo Pool or in the abo formation within one mile thereof are hereby approved; that the operator of any well having an unorthodox location shall notify the ~~Artesia~~ ^{Hobbs} District Office of the Commission in writing of the name and location of the well on or before September 1, 1972

(2) That, pursuant to Paragraph A. of Section 65-3-14.5, NMSA 1953, contained in Chapter 271, Laws of 1969, existing wells in the Many Gates-Abo Pool shall have dedicated thereto 80 acres in accordance with the foregoing pool rules; or, pursuant to Paragraph C. of said Section 65-3-14.5, existing wells may have non-standard spacing or proration units established by the Commission and dedicated thereto.

Failure to file new Forms C-102 with the Commission dedicating 80 acres to a well or to obtain a non-standard unit approved by the Commission within 60 days from the date of this order shall subject the well to cancellation of allowable. Until said Form C-102 has been filed or until a non-standard unit has been approved, and subject to said 60-day limitation, each well presently drilling to or completed in the Many Gates-Abo Pool or in the abo formation within one mile thereof shall receive no more than one-half of a standard allowable for the pool.

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Case No. 4789
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(4) 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.

(3) That this case shall be reopened at an examiner hearing in August, 1973, at which time the operators in the subject pool may appear and show cause why the Many Gates-Obispo Pool should not be developed on 40-acre spacing units.

DRAFT

TWD/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. 4789

Order No. R-4375-A

IN THE MATTER OF CASE NO. 4789 BEING
REOPENED PURSUANT TO THE PROVISIONS
OF ORDER NO. R-4375, WHICH ORDER ESTABLISHED
SPECIAL RULES AND REGULATIONS FOR THE MANY
GATES-ABO POOL, CHAVES COUNTY, NEW MEXICO, INCLUDING
A PROVISION FOR 80-ACRE PRORATION UNITS.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on August 9, 1973
at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

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

FINDS:

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

(2) That by Order No. R-4375, dated August 28, 1972,
temporary special rules and regulations were established for
the Many Gates-Abo Pool, Chaves County, New Mexico, including a
provision for temporary 80-acre spacing and a provision for wells
to be located in the approximate center of the NE/4 or the SW/4
of each quarter section.

(3) That pursuant to the provisions of Order No. R-4375 this case was reopened to allow the operators in the subject pool to appear and show cause why the Many Gates-Abo Pool should not be developed on ~~80~~¹⁶⁰-acre spacing units, ~~with wells to be located in the approximate center of the NE/4 or SW/4 of each quarter section.~~

(4) That the evidence establishes that one well in the Many Gates-Abo Pool can efficiently and economically drain and develop 80 acres.

(5) That in order to prevent the economic loss caused by the drilling of unnecessary wells, to avoid the augmentation of risk arising from the drilling of an excessive number of wells, to prevent reduced recovery which might result from the drilling of too few wells and to otherwise prevent waste and protect correlative rights, the Special Rules and Regulations promulgated by Order No. R-4375 should be continued in full force and effect until further order of the Commission.

IT IS THEREFORE ORDERED:

(1) That the Special Rules and Regulations governing the Many Gates-Abo Pool, Chaves County, New Mexico, promulgated by Order No. R-4375, are hereby continued in full force and effect until further order of the Commission.

(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.

CASE 4790: Application of THE
PETROLEUM CORPORATION for special
rules for Dublin-Ellenburger Pool.

Cont to May 8

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R-4270-A