

CASE 4640: Application of AMOCO
PRODUCTION CO. FOR SPECIAL POOL
RULES, LEA COUNTY, NEW MEXICO.

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PRODUCTION CO. FOR SPECIAL POOL
RULES, LEA COUNTY, NEW MEXICO.

Case Number
4640

Application

Transcripts

Small Exhibits

ETC.

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO
January 5, 1972

EXAMINER HEARING

IN THE MATTER OF:

Application of Amoco Production
Company for special pool rules,
Lea County, New Mexico.

Case No. 4640

BEFORE: Daniel S. Nutter,
Alternate Examiner.

TRANSCRIPT OF HEARING

1 MR. NUTTER: Case 4640.

2 MR. HATCH: Case 4640: Application of Amoco
3 Production Company for special pool rules, Lea County, New
4 Mexico.

5 We will take a recess.

6 (Recess.)

7 MR. NUTTER: The Hearing will come to order, please.

8 MR. BUELL: If I may say a few words to accomplish a
9 double purpose, one, kind of a little opening statement; two,
10 kind of an apology.

11 As you probably are aware, Mr. Examiner, it has been an
12 extremely long period of time since I have been before you on an
13 Application involving pool rules.

14 I hope this is an omen of good times to come and we will
15 have many many more pool rule hearings before you.

16 This is our Application for pool rules in the east Jim-Yates
17 Pool.

18 At the present time it is a one-well pool, although, as our
19 testimony will show, subsequent development is seriously being
20 contemplated.

21 I might also point out that while production from Yates and
22 some of our exhibits and our testimony, in order to more
23 precisely define the exact producing interval, we will be
24 referring to the top of the lower Yates conglomerate, because
25 that is the precise interval proposed, which the well is producing.

1 I might also point out, Mr. Examiner, after Mr. Porter sees
2 the excellent performance of this one well he may move to change
3 the name of the pool to the Little Gem Yates Oil Pool, because
4 the well is a little gem.

5 We have one witness, Mr. Malloy, who has not been sworn.

6 TOM MALLOY

7 BY MR. BUELL

8 Q Would you state your complete name, Mr. Malloy; by whom
9 you are employed; and in what capacity and what location,
10 please, sir?

11 A Thomas V. Malloy.

12 I am employed by Amoco Production Company as a staff
13 engineer in the Division Office at Houston, Texas.

14 Q Mr. Malloy, you have never testified before the New
15 Mexico Oil Conservation Commission?

16 In view of that, would you briefly state your
17 educational background in the field of petroleum
18 engineering?

19 A I received a degree of Bachelor of Science in Petroleum
20 Engineering from the University of Pittsburgh in 1938.

21 Q What have you done in the field of petroleum engineering
22 since graduation?

23 A I have been employed in the oil industry continuously
24 since graduation, since 1942 I have been employed by
25 Amoco Production Company in various engineering capacities.

1 Q All right, sir. Now, you testified as a petroleum engineer
2 before the Conservation Commission of both the states of
3 Louisiana and Texas; is that right?

4 A Yes, sir, I have.

5 Q Are there any questions of his qualifications, Mr. Examiner?

6 MR. NUTTER: No, he is qualified.

7 Q (By Mr. Buell) In order that the Examiner can evaluate your
8 testimony, I am going to ask you at the outset to briefly
9 state the pool rules that we are recommending here today.

10 A In that connection, Mr. Examiner, I will also refer to our
11 Exhibit No. 1, which is somewhat of a summary itself of the
12 rules we are recommending.

13 MR. NUTTER: I will ask, Mr. Malloy, in the interest
14 of brevity, to be more brief.

15 A The pool rules that we are recommending here today would
16 provide for the 80 acre oil units consisting of either the
17 north half, southeast half, east, or west half of the
18 governmental quarter section, with the usual right to drill
19 a well on each quarter section, the spacing provision that
20 the well be within 200 feet of a government center, of a
21 governmental quarter section, the usual provisions for the
22 exceptions being granted, administration for topographical
23 conditions, and that the well on a standard proration unit
24 of 79 to 81 shall be given 80 acre proration factor of two.

25 Q (By Mr. Buell) The production in this pool is more shallow than

1 5,000?

2 A Yes.

3 Q The current unit allowable for the existing well in the
4 pool is 80 barrels a day, is it not?

5 A Yes.

6 Q As I understand your recommendation, if it is approved by
7 the Commission, what would be its allowable?

8 A Its allowable would be 160 barrels.

9 Q All right, sir. Would you turn now, Mr. Malloy, to what
10 has been identified as Amoco's Exhibit No. 2?

11 A This is the structural contour map on the top of the lower
12 Yates carbon pat pay. This is the pay section within the
13 Yates Formation.

14 This was prepared utilizing data from the completed
15 well, the discovery well for this Pool, which is identified
16 by a large red arrow, and also data obtained from numerous
17 other wells in the area which were completed as dry holes
18 which have been drilled subsequent to the completion of
19 this well.

20 Q Would you locate for the record the discovery well, Amoco's
21 Discovery Well, Amoco's Bates Federal No. 1?

22 A Amoco's Bates Federal No. 1 is located 660' from the south
23 line; 1980' from the west line of Section 26, 19 South, 33
24 East.

25 This is in the unit in Section 29.

1 Q All right, sir. How would you describe the structure of
2 the pay that is reflected on Exhibit No. 2?

3 A Well, this would be described as an asymmetrical domal
4 feature.

5 It has an axis trending from the southeast to the
6 northwest.

7 Q Speak up. Were logs running on all of the dry holes shown
8 on this exhibit?

9 A No, sir, not in all of the wells.

10 Several of the wells did have logs, others the tops
11 were obtained from sample data, too, so it is entirely
12 possible that with additional drilling and more rigid data
13 the structure interpretation shown here could be slightly
14 changed.

15 Q Based on your study of this reservoir and the immediate
16 area, its position in the area, do you feel that the
17 position on the structure will be critical from the stand-
18 point of whether or not a well will be productive or a dry
19 hole?

20 A No, sir. Several of the wells which were completed as dry
21 holes, based on the depth at which the pay was encountered,
22 would have been expected to be producers.

23 However, they had no permeability in the pay zone;
24 therefore, they were completed as dry holes.

25 Q So, you feel that porosity, permeability development will

1 be more controlling than position on the structure?

2 A Yes, that is correct.

3 Q Mr. Malloy, as you probably recall, back in June of 1968,
4 a discovery allowable application was held on our Bates
5 Federal No. 1.

6 I believe that is Case No., Mr. Examiner, 3795.

7 Was an exhibit introduced at that hearing that
8 reflected structure?

9 A Yes, there was a map introduced as an exhibit at that
10 hearing in 1968 showing structure.

11 However, it was the structure on the top of the Yates
12 Formation.

13 It was not on the top of the pay interval, which we
14 have identified as the lower Yates on Exhibit No. 2.

15 Q It just showed Yates on the regional basis rather than
16 looking closely and critically at an area like you are
17 doing here?

18 A That is correct.

19 Q All right. Do you recall what the current horizontal lim-
20 its of this Pool are?

21 A The East Jim Yates Pool has been defined as the south half
22 of Section 26, 19 South, 33 East.

23 Q Do you have any other comments to make on Exhibit No. 2,
24 Mr. Malloy?

25 A No, sir.

1 Q All right. Would you look now at what has been identified
2 as Amoco's Exhibit No. 3; what is that exhibit?
3 A Exhibit 3 is the zonic gamma ray log of the Bates Federal
4 Well No. 1, the discovery well for this Pool.
5 The Yates pay has been identified on this log at near
6 the total depth of the well, and the interval which has
7 been perforated for completion has been also shown.
8 Q All right, sir. Do you have any other comments to make on
9 this log?
10 A I don't believe so, sir.
11 Q Are you introducing a cross-section exhibit here today,
12 Mr. Malloy?
13 A No, sir. At the Hearing in 1968 a cross-section was
14 introduced.
15 There has been some drilling in the intervening time.
16 However, there is really not new data that would
17 change the interpretation and change the picture, so I
18 didn't prepare a cross-section for this Hearing.
19 Q That is already in the Commission records and files?
20 A Yes.
21 Q Would you turn now to what has been identified as Amoco's
22 Exhibit No. 4?
23 A Amoco's Exhibit No. 4 is a tabulation of data such as is
24 available on the reservoir fluid characteristics, on the
25 reservoir rock.

1 Very briefly, this lists the average porosity as eight
2 per cent interstitial water saturation, twenty-eight per
3 cent.

4 The permeability is unknown.

5 The oil produced from this pool is 34° api gravity;
6 the solubility of the gas is unknown because the gas-oil
7 ratio is too small to measure and because of the very low
8 gas solubility, we have estimated the reservoir volume
9 factor at 1.02, reservoir barrel.

10 Q Do you have any other comments?

11 A I don't believe so.

12 Q If you will look at Amoco's Exhibit No. 5, what is that
13 exhibit?

14 A Exhibit No. 5 is a performance graph of the East Jim Yates
15 Pool or Yates Federal Well No. 1 from the discovery in 1968
16 until the latter part of 1971.

17 Q Would you comment very briefly, please, on each indice of
18 performance that is mentioned on this exhibit?

19 A At the top we have tabulated the available--shortly after
20 completion of the well, the bottomhole pressure measurement
21 was made. The pressure datum of thrust plus 230' was 1,209
22 pounds per square inch.

23 In late November, early December, 1971, an additional
24 pressure measurement was made at the same datum of +230'.

25 The pressure was 1,187 psi or a decline of only 22

1 pounds from the original.

2 The second curve on Exhibit No. 5 is the barrels of
3 oil per day produced each month throughout the life of the
4 reservoir after the production of the discovery allowable.
5 This generally shows then that the well has been capable of
6 producing the normal allowable assigned, normal unit
7 allowable assigned, and at the bottom is a curve showing
8 the cumulative production, which is about 116 barrels of
9 oil today.

10 Q Let's go back to your middle curve, the average barrels of
11 oil per day.

12 I noticed in October of 1970 that it shows it produced
13 an average of about 40 barrels of oil per day.

14 I know that the normal unit allowable was much higher
15 than that.

16 How do you account for that?

17 A Was made---the answer was made through a misunderstanding,
18 and the production during August of 1970 was at a higher
19 than the allowable rate, it being thought that discovery
20 allowable still continued because of that original
21 production in August.

22 Then there was the well that was under produced in
23 October to compensate for it.

24 Q So, this well does have excellent ability to produce?

25 A Yes, it does.

1 As a matter of fact, it has been tested a number of
2 times at rates about 200 barrels per day, and maybe even
3 exceeding that slightly.

4 Q Let me ask you this. I don't notice any curve here showing
5 water production. Did this well ever make water?

6 A No, it has never produced any water.

7 Q And it has produced a 116,000 barrels with only a 22 pound
8 pressure drop?

9 A Yes, sir, that is correct.

10 Q Is this well slowing or pumping?

11 A This well is pumping because of a very small amount of gas
12 that is in solution in it, even with the bottomhole
13 pressure being at a high level, it just won't flow, so it
14 is pumped.

15 It does pump with a very high fluid level, however.

16 Q Some of these tests that have been conducted on this well
17 in the range of 200 barrels a day are based on an observa-
18 tion that you made that the fluid level in the well was
19 high?

20 A Yes, sir.

21 Q The fluid was high?

22 A Even producing at the 200 barrel a day test rate.

23 Q Do you have any other comments on Exhibit 5?

24 A No.

25 Q Would you turn then, please, to what has been identified

1 as Amoco's Exhibit 6; what is that exhibit?

2 A Exhibit 6 is a data sheet which I have set forth a
3 comparison of the oil recovery to date, to the oil in
4 place, I have repeated the parameters that we used, the
5 porosity of eight per cent, the water saturation 28 per
6 cent, the RVF of 1.02.

7 It has been determined that the well has an effective
8 net pay of 16', so going through those calculations, that
9 calculates as 7,040 barrels of oil in place here per acre,
10 or 281,600 barrels in place in this 40 acre unit.

11 Q While you are giving some figures, go a little slower for
12 the sake of the reporter. I believe he is up with you
13 right now.

14 A Then, using the cumulative production of 116,000 barrels
15 and 281,000 barrels of oil in place, you had a 40-acre unit
16 with 16' of pay, we have recovered 41.2 per cent of the oil
17 in place under a 40-acre unit.

18 Q Mr. Malloy, do you as a reservoir engineer, what data of
19 these types indicates to you from the standpoint of the
20 drainage radius of the well--

21 A The fact we have had no water influx to the well, the
22 reservoir is exhibiting very slight signs of depletion in
23 that the reservoir pressure has dropped only 22,000 pounds.
24 I concluded definitely we are draining an area in excess
25 of the 40 acres.

- 1 Q All right, sir. Let me ask you this. We didn't core the
2 pay and we have no core data as to permeability. Do these
3 types of form data give you any idea as to the permeability
4 in the well bore?
- 5 A Yes, I would say that the performance data of the well and
6 the reservoir indicate a very excellent permeability in
7 this pay.
- 8 Q All right, sir. Based on the data reflected on our Exhibit
9 6 and other performance characteristics of this well which
10 you have observed have you formed an opinion as to whether
11 or not one well in this Pool will effectively and effi-
12 ciently drain in excess of 80 acres?
- 13 A Yes, sir, I feel because of the excellent performance of
14 the well and the reservoir that very definitely one well
15 can efficiently and economically drain in excess of 80 acres.
- 16 Q Do you foresee that any reservoir damage could occur if the
17 Commission approved our recommendation here today and adop-
18 ted our 80 acre units and our two times factor which at
19 this time would result in 160 barrels a day rate for this
20 Field; do you see any reservoir damage or waste occurring?
- 21 A No, sir, I would not anticipate any damage of that type.
- 22 Q Do you feel that the recommendations made here today will
23 prevent waste as well as protecting the correlative rights
24 of all of the owners in the area?
- 25 A Yes, sir, I do.

1 Q Do you have anything else you would care to add?

2 A I don't believe so.

3 Q Mr. Examiner, that is all we have by way of direct evidence
4 and testimony.

5 I would like to formally offer Amoco's Exhibits 1
6 through 6.

7 MR. NUTTER: Amoco's Exhibits 1 through 6 will be
8 admitted in evidence.

9 CROSS-EXAMINATION

10 BY MR. NUTTER

11 Q Mr. Malloy, your bottom-hole pressure decline curve is
12 based on two points?

13 A That is correct.

14 Q There is no confirming point that would indicate whether
15 the line is to the flat or to the steep?

16 A No, nothing at this time, no, sir.

17 Q Either point could be in error?

18 A The pressure that was obtained in late 1971, I believe, was
19 after either a 48 or 72 hour shut-in.

20 The data that were entered on the form at the initial
21 one showed stabilized pressure.

22 I don't recall of there being a record of shut-in time
23 for that.

24 However, it was considered a stabilized pressure, and
25 we feel the long shut-in time for this later pressure would

1 give us stabilized pressure, also.

2 Q What is the original IP on this one?

3 A This initially was swabbed at a rate of 137 barrels in four
4 hours, I believe, on the initial test.

5 Q It would appear that the well was capable of producing top
6 allowable for most of the period of time plus the discovery
7 allowable?

8 A Yes, sir.

9 Q Which was, I guess, the discovery allowables were completed
10 then just prior to August when they over produced these?

11 A That is correct. Just looking at the data, discovery
12 allowable hearing that was held in June, '68, it can be
13 presumed that the discovery started then probably August 1
14 and in '68, and ended August 1st, '70, but through error
15 they produced at the higher rate throughout the month of
16 August.

17 And we do feel, I mean the well has been capable of
18 producing the normal allowable in excess of that, as shown
19 by the test that has been taken from time to time.

20 Q Do you have a current potential on the well?

21 A I have seen some test data. I don't know if I have it with
22 me, of the well pumping, oh, in the vicinity of 200 barrels
23 a day.

24 Q So, in other words, if your proposal were approved here and
25 you got here your acreage factor of two, the well would

1 have been on an allowable of 160 barrels, which would be
2 up here off of your chart?

3 A Yes.

4 Q We have no evidence to indicate that the well can't produce
5 that. You do have a test?

6 A We do have test data from time to time throughout the life
7 of the well that shows the well has been able to produce
8 in the vicinity of 200 barrels a day.

9 Q How come you have never drilled a second well here, Mr.
10 Malloy?

11 A I think because of the fact there have been so many dry
12 holes drilled, some of these dry holes have been drilled
13 subsequent to the completion of this well. This subject
14 well was completed in May, 1968, the well that is on
15 Exhibit No. 2 is labeled as Gorman-McKnight, which is
16 immediately south of that in Section 35. It was completed
17 as a dry hole in July, '68.

18 The well over towards the northwest corner of Section
19 35, the Smith-McKnight was April, 1971.

20 The well immediately to the east of the discovery
21 well was October, 1968.

22 Q That is a Pan-Am well there?

23 A Yes, sir, it was. All three of these wells were Pan-Am or
24 Amoco wells.

25 Then up in the two McKnight wells in the northwest of

1 26-4, they were 1969 completions as dry holes.

2 So, we have tried to drill another well in this
3 reservoir. We just haven't hit it.

4 MR. PORTER: You think that one well will get all of
5 the oil that would be gotten by more wells?

6 THE WITNESS: We are still contemplating doing some
7 more drilling, probably in the southwest of 26, for this
8 reservoir.

9 Q (By Mr. Buehl) Actually, a recommendation to drill the
10 additional well has been processed through the lower level
11 of management and is ready to go to top management now?

12 A Yes.

13 Q Would you like for us to furnish you the latest potential
14 tests by--by that, by potential tests, I mean to show that
15 the well can easily make in excess of the 160.

16 MR. NUTTER: You might file that with the Commission.

17 CROSS-EXAMINATION

18 BY MR. NUTTER

19 Q What is your interpretation of 16 feet of net pay based on
20 Mr. Malloy?

21 A It was obtained from the microlateral log.

22 Q Were there any cores run?

23 A No cores were taken in the interval from the microlateral
24 log.

25 It has been estimated that there is possibly sixteen

1 feet of pay.

2 Q There is a calculated porosity?

3 A Yes, it is a calculated porosity, and the water saturation
4 from the logs.

5 See, the completion is actually over a forty foot
6 interval from 3,305 to 3,390, and within that forty foot
7 interval we feel there is probably sixteen feet of good
8 effective net pay.

9 Q You feel you do have a water drive here?

10 A It is either a water drive or there is a mighty big
11 reservoir to maintain the pressure as it has, with the
12 production of 116,000 barrels, with the number of dry holes
13 that we have around here, we have to find where the biggest
14 reservoir is.

15 Q The biggest reservoir doesn't show up as yet?

16 A It hasn't shown up as yet, so I would presume there is
17 probably an aquafair thus far that is aided in maintaining
18 the pressure.

19 Q Wouldn't there be a possibility if you had a water
20 production drive and you increased your pressure to a level
21 higher--

22 A That might result in a condition of water--oh, some adverse
23 effect on the reservoir by those high productions. I mean,
24 nothing that has been obtained in producing and testing the
25 wells so far has indicated any adverse effect.

1 Q It has never been produced at the rate?

2 A It has never been produced over a sustained period of time
3 at the rate, though, but if that would be the case, if
4 there were indications of damage, then drilling a second
5 well on an 80 acre unit and reducing the individual well
6 producing rates would certainly appear to be in order.

7 MR. NUTTER: Are there any further questions of Mr.
8 Malloy?

9 You may be excused.

10 Do you have anything further, Mr. Buell?

11 MR. BUELL: No, Mr. Examiner, I do not.

12 MR. NUTTER: Does anyone have anything they wish to
13 offer in Case 4640?

14 We will take the case under advisement.
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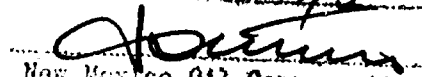
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1 STATE OF NEW MEXICO)
2) ss.
3 COUNTY OF BERNALILLO)

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

10 
11 CERTIFIED SHORTHAND REPORTER

22 I do hereby certify that the foregoing is
23 a complete record of the proceedings in
24 the hearing of Case No. 4640
25 heard by me on 1/5 1972

New Mexico Oil Conservation Commission

I N D E XWITNESSPAGE

THOMAS V. MALLOY

Direct Examination by Mr. Buell

4

Cross-Examination by Mr. Nutter

15 & 18

E X H I B I T SAPPLICANT'SMARKEDADMITTED

Exhibit No. 1

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Exhibit No. 2

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Exhibit No. 3 & 4

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Exhibit No. 5

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Exhibit No. 6

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OIL CONSERVATION COMMISSION

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

GOVERNOR
BRUCE KING
CHAIRMAN

**LAND COMMISSIONER
ALEX J. ARMIJO
MEMBER**

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

August 8, 1972

Mr. Guy Buell
Amoco Production Company
Post Office Box 3092
Houston, Texas 77001

Re: Case No. 4640
Order No. R-4358
Applicant:
Amoco Production Company

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 **x**

Artesia OCC

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. 4640
Order No. R-4358

APPLICATION OF AMOCO PRODUCTION
COMPANY FOR SPECIAL POOL RULES,
LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on January 5, 1972, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 7th 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, Amoco Production Company, seeks the promulgation of special rules and regulations for the East Gem-Yates Pool, Lea County, New Mexico, including a provision for 80-acre proration units.

(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, special rules and regulations providing for 80-acre spacing units should be promulgated for the East Gem-Yates Pool.

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

IT IS THEREFORE ORDERED:

(1) That effective August 10, 1972 Special Rules and Regulations for the East Gem-Yates Pool, Lea County, New Mexico, are hereby promulgated as follows:

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Case No. 4640
Order No. R-4358

SPECIAL RULES AND REGULATIONS
FOR THE
EAST GEM-YATES POOL

RULE 1. Each well completed or recompleted in the East Gem-Yates Pool or in the Yates formation within one mile thereof, and not nearer to or within the limits of another designated Yates 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.

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

RULE 5. The Secretary-Director may grant an exception to the 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 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 2.00 for allowable purposes, and in the event there is more than one well

-3-

Case No. 4640
Order No. R-4358

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.

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 East Gem-Yates Pool or in the Yates 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 East Gem-Yates 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 East Gem-Yates Pool or in the Yates formation within one mile thereof shall receive no more than one-half of a standard allowable for the pool.

(3) 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


BRUCE KING, Chairman

ALEX J. ABALJO, Member

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

dr/

ATWOOD, MALONE, MANN & COOTER
LAWYERS

JEFF D. ATWOOD [1883-1960]

P. O. DRAWER 700
SECURITY NATIONAL BANK BUILDING
ROSWELL, NEW MEXICO 88201
[505] 622-6221

DECEMBER
28th
1 9 7 1

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DEC 29 1971
OIL CONSERVATION COMMISSION
SANTA FE

CHARLES F. MALONE
RUSSELL O. MANN
PAUL A. COOTER
BOB F. TURNER
ROBERT A. JOHNSON
JOHN W. BASSETT
ROBERT E. SABIN
RUFUS E. THOMPSON

Mr. A. L. Porter, Jr.
Oil Conservation Commission
State Land Office Building
Santa Fe, New Mexico 87501

Re: Examiner Hearing January 5
Case No. 4640

Dear Mr. Porter:

I will appreciate your filing the enclosed Entry of
Appearance in this case, in behalf of Amoco Produc-
tion Company.

With best wishes for the New Year, I am,

Very truly yours,


Charles F. Malone

C
F
M

*

V
Encls.
Cc: Guy S. Buell, Esquire

RECEIVED
DEC 29 1977
OIL CONSERVATION COMMISSION
SANTA FE


BEFORE THE OIL CONSERVATION COMMISSION
STATE OF NEW MEXICO

IN THE MATTER OF THE APPLICATION)
OF AMOCO PRODUCTION COMPANY FOR)
SPECIAL POOL RULES IN EAST GEM-) CASE NO. 4640
YATES POOL, LEA COUNTY, NEW)
MEXICO.)

ENTRY OF APPEARANCE

The undersigned Atwood, Malone, Mann & Cooter of Roswell, New Mexico, hereby enter their appearance herein for Amoco Production Company with Guy Buell, Esquire, Houston, Texas.

ATWOOD, MALONE, MANN & COOTER

By 
Attorneys for Amoco Production
Company
Post Office Drawer 700
Roswell, New Mexico 88201

Docket No. 1-72

DOCKET: EXAMINER HEARING - WEDNESDAY - JANUARY 5, 1972

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

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

CASE 4621: (Continued from the November 10, 1971 Examiner Hearing)

Application of Jack L. McClellan for a dual completion, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks approval for the dual completion (conventional) of his Bar-J Federal Well No. 1 located in Unit E of Section 15, Township 6 South, Range 27 East, Chaves County, New Mexico, in such a manner as to produce oil from an undesignated Siluro-Devonian pool through tubing and gas from the Haystack-Cisco Gas Pool through the casing-tubing annulus.

CASE 4609: (Continued from the November 17, 1971 Examiner Hearing)

Application of Jack L. McClellan for a unit agreement, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Sulimar-Queen Unit Area comprising 1520 acres, more or less, of Federal lands in Sections 13, 23, 24, 25, and 26 of Township 15 South, Range 29 East, and Sections 18 and 19 of Township 15 South, Range 30 East, Chaves County, New Mexico.

CASE 4482: (Reopened):

In the matter of Case 4482 being reopened pursuant to the provisions of Order No. R-4093, which order established 160-acre spacing units and established a maximum gas-oil ratio limitation of 3,000 cubic feet of gas for each barrel of oil produced for the Parkway-Strawn Pool, Eddy County, New Mexico. All interested parties may appear and show cause why said pool should not be developed on 40-acre or 80-acre spacing units and why the limiting gas-oil ratio should not revert to the statewide limit of 2,000 to one.

CASE 3709 (Reopened):

In the matter of Case 3709 being reopened pursuant to the provisions of Order No. R-3366-B, which order continued 80-acre spacing for the Akah Nez-Devonian Oil Pool, San Juan County, New Mexico, for an additional one-year period. All interested persons may appear and show cause why said pool should not be developed on 40-acre spacing units.

CASE 4638: Application of Holder Petroleum Corporation for downhole

(Case 4638 continued)

and surface commingling, Roosevelt County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle production from the Todd Lower-San Andres Pool and the Todd Upper-San Andres Gas Pool in the well-bores of its BA Wells Nos. 1 and 2, located respectively, in Units A and H of Section 34, Township 7 South, Range 35 East, Roosevelt County, New Mexico. Applicant further seeks authority to commingle, on the surface, production from said wells prior to measurement.

CASE 4639: Application of Great Western Drilling Company to directionally drill, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to drill out its State Well No. 1, having a surface location 330 feet from the North and East lines of Section 17, Township 16 South, Range 35 East, Townsend-Morrow Gas Pool, Lea County, New Mexico, to a depth of approximately 8,000 feet and whipstock the well in a southwesterly direction to a bottom-hole location within the NE/4 of said Section 17 at a depth of approximately 11,800 feet.

CASE 4640: Application of Amoco Production Company for special pool rules, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the promulgation of special rules for the East Gem-Yates Pool, Lea County, New Mexico, including a provision for 80-acre spacing and proration units.

CASE 4641: Application of Reserve Oil and Gas Company for a waterflood expansion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to expand its South Langlie Jal Unit Jalmat Waterflood Project, Jalmat Oil Pool, by the conversion of water injection of its Unit Well No. 23, located 2310 feet from the South and West lines of Section 17, Township 25 South, Range 37 East, Lea County, New Mexico.

CASE 4642: Application of Fluid Power Pump Company for special pool rules and a pressure maintenance project, Sandoval County, New Mexico. Applicant, in the above-styled cause, seeks the promulgation of special rules for the Media-Entrada Pool, including a provision for 160-acre spacing and proration units. Applicant further seeks authority to institute a pressure maintenance project in said pool by the injection of water into the Entrada formation through various wells located in Sections 10, 11, 22, and 23 of Township 19 North, Range 3 West, Sandoval County, New Mexico, and promulgation of rules for said project including a procedure whereby additional injection or production wells at orthodox or un-orthodox locations may be approved administratively.

CASE 4619: (Continued from the December 1, 1971, Examiner Hearing)

Application of Corinne Grace for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests from the surface of the ground down to and including the Morrow formation underlying the N/2 of Section 25, Township 22 South, Range 26 East, which acreage is within one mile of the South Carlsbad-Morrow Gas Pool, Eddy County, New Mexico. Said acreage to be dedicated to a well to be drilled to the Morrow formation at a location 1980 feet from the North and East lines of said Section 25. Also to be considered will be the costs of drilling said well, a charge for the risk involved, a provision for the allocation of actual operating costs, and the establishment of charges of supervision of said well.

CASE 4620: (Continued from the December 1, 1971, Examiner Hearing)

Application of Corinne Grace for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests from the surface of the ground down to and including the Morrow formation underlying the N/2 of Section 24, Township 22 South, Range 26 East, which acreage is in the vicinity of the South Carlsbad-Morrow Gas Pool, Eddy County, New Mexico. Said acreage to be dedicated to a well to be drilled to the Morrow formation at a location 1980 feet from the North and East lines of said Section 24. Also to be considered will be the costs of drilling said well, a charge for the risk involved, a provision for the allocation of actual operating costs, and the establishment of charges for supervision of said well.

CASE 4643: Application of Cities Service Oil Company for compulsory pooling and unorthodox gas well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Morrow formation underlying the N/2 of Section 19, Township 22 South, Range 27 East, South Carlsbad-Morrow Gas Pool, Eddy County, New Mexico, to form a standard 320-acre proration unit for the production of gas from the Morrow formation with said unit to be dedicated to a well to be drilled at an unorthodox location 2173 feet from the North line and 1200 feet from the East line of said Section 19.

CASE 4644: Application of Continental Oil Company for four non-standard gas proration units and rededication of acreage, Lea County New Mexico. Applicant, in the above-styled cause, seeks the rededication of acreage and the establishment of the following-described non-standard gas proration units for wells on its Meyer A-29 Lease in Section 29, Township 22 South, Range 36 East, Jalmat Gas Pool, Lea County, New Mexico.

1. A 240-acre unit comprising the SE/4 and E/2 SW/4 to be dedicated to Well No. 3 in Unit N;
2. An 80-acre unit comprising the W/2 SW/4 to be dedicated to Well No. 4 in Unit L;
3. An 80-acre unit comprising the E/2 NE/4 to be dedicated to Well No. 5 in Unit A;
4. A 240-acre unit comprising the NW/4 and W/2 NE/4 to be dedicated to Well No. 9 in Unit E.

CASE 4563: (Continued from the December 1, 1971, Examiner Hearing) Application of Corrinne Grace for special gas-oil ratio limitation and pressure maintenance project, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks authority to produce her State Well No. 1 located in Unit A of Section 1, Township 15 South, Range 29 East, Double L-Queen Pool, Chaves County, New Mexico, with no gas-oil ratio limitation, strip the liquids, and institute a pressure maintenance project by the injection of all said gas back into the producing formation through her State Well No. 2 located in Unit B of said Section 1. Applicant further seeks to transfer an oil allowable from said Well No. 2 to said Well No. 1.

PROPOSED PROVISIONS
EAST GEM-YATES POOL ORDER
JANUARY 5, 1972

1. Each well must be on a standard unit containing 80 acres, more or less, consisting of N/2, S/2, E/2 or W/2 of a governmental quarter section. Nothing shall be construed as prohibiting the drilling of a well on each of the quarter-quarter sections of the unit.
2. All wells shall be located within 200' of the center of a governmental quarter-quarter section.
3. Exceptions to well locations may be granted administratively where necessary due to topographical conditions or the recompletion of a previously drilled well. The unorthodox location will be no closer than 330 feet from the outer boundaries of the unit.
4. A standard proration unit (79 to 81 acres) shall be assigned an 80 acre proportional factor of 2.00. If there is more than one well on a unit the allowable assigned the unit may be produced from the wells in any proportion.

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
Amoco EXHIBIT NO. 1
CASE NO. 4640

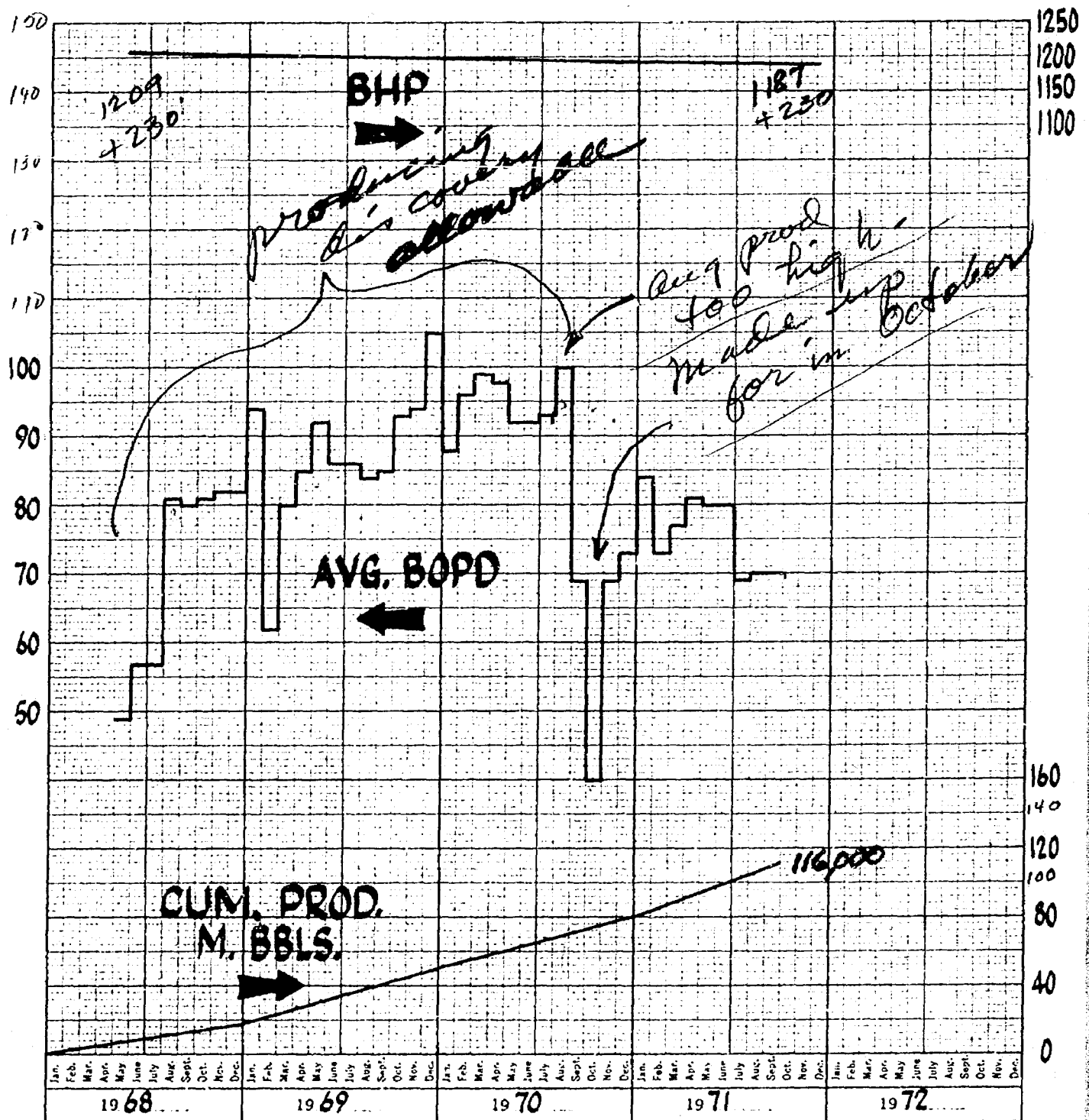
RESERVOIR FLUID AND ROCK DATA
EAST GEM-YATES POOL
LEA COUNTY, NEW MEXICO

Porosity	- 8%
Water Saturation	- 28%
Permeability	- Unknown
Oil Gravity	- 34° API
Oil Solubility	- TSIM
Estimated RVF	- 1.02

TBM
12-30-71

BEFORE EXAMINER NUTTER	
OIL CONSERVATION COMMISSION	
Amoco's	EXHIBIT NO. <u>4</u>
CASE NO.	<u>7640</u>

168
East Gem - Yates Pool
Amoco Production Co.
Bates Federal No. 1



BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
Amoco's EXHIBIT NO. 5
CASE NO. 4640

OIL RECOVERY CALCULATIONS

EAST GEM-YATES POOL
LEA COUNTY, NEW MEXICO

Porosity	- 8%
Water Saturation	- 28%
RVF	- 1.02
Net Pay	- 16 feet

$$\text{Oil in Place} = \frac{7758 \times 0.08 \times (1-0.28)}{1.02}$$

$$= 440 \text{ Barrels per Acre Foot}$$

$$= 16 \times 440$$

$$= 7040 \text{ Barrels per Acre}$$

$$= 40 \times 7040$$

$$= 281,600 \text{ Barrels per 40 Acre Unit.}$$

$$\text{Production to Date} = 116,000 \text{ Barrels}$$

$$\text{Recovery to Date} = 116,000/281,600$$

$$= 41.2\% \text{ of Oil in Place.}$$

TBM
12-30-71

BEFORE EXAMINER NUTTER	
OIL CONSERVATION COMMISSION	
Amoco	EXHIBIT NO. 6
CASE NO.	4640



D. L. Ray
Division Engineer

December 10, 1971

File: TBM-986.521NM-3788

Re: Request for Hearing
East Gem-Yates Pool
Lea County, New Mexico

Case 4640
Amoco Production Company
500 Jefferson Building
P.O. Box 3092
Houston, Texas 77001
RECEIVED
DEC 13 1971
OIL CONSERVATION COMM.
SANTA FE

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

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

Gentlemen:

Amoco Production Company respectfully requests a Hearing for the purpose of obtaining Special Rules and Regulations including establishment of 80 acre spacing units and assignment of an 80 acre proportional factor of 2.00 for allowable purposes for the East Gem-Yates Pool, Lea County, New Mexico.

It is respectfully requested that this matter be included on the Docket for the Examiner Hearing scheduled to be held January 5, 1972, if possible.

Yours very truly,

D. L. Ray

Attachment

DRC:as

Date

12-21-71

dearnley-meier reporting service, inc.

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS
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BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO
January 5, 1972

EXAMINER HEARING

IN THE MATTER OF:

Application of Amoco Production)
Company for special pool rules,))
Lea County, New Mexico.)

Case No. 4640

BEFORE: Daniel S. Nutter,
Alternate Examiner.

TRANSCRIPT OF HEARING

1 MR. NUTTER: Case 4640.

2 MR. HATCH: Case 4640: Application of Amoco
3 Production Company for special pool rules Lea County, New
4 Mexico.

5 We will take a recess.

6 (Recess.)

7 MR. NUTTER: The Hearing will come to order, please.

8 MR. BUELL: If I may say a few words to accomplish a
9 double purpose, one, kind of a little opening statement; two,
10 kind of an apology.

11 As you probably are aware, Mr. Examiner, it has been an
12 extremely long period of time since I have been before you on an
13 Application involving pool rules.

14 I hope this is an omen of good times to come and we will
15 have many many more pool rule hearings before you.

16 This is our Application for pool rules in the east Jim-Yates
17 Pool.

18 At the present time it is a one-well pool, although, as our
19 testimony will show, subsequent development is seriously being
20 contemplated.

21 I might also point out that while production from Yates and
22 some of our exhibits and our testimony, in order to more
23 precisely define the exact producing interval, we will be
24 referring to the top of the lower Yates conglomerate, because
25 that is the precise interval proposed, which the well is producing.

1 I might also point out, Mr. Examiner, after Mr. Porter sees
2 the excellent performance of this one well he may move to change
3 the name of the pool to the Little Gem Yates Oil Pool, because
4 the well is a little gem.

5 We have one witness, Mr. Malloy, who has not been sworn.

6 TOM MALLOY

7 BY MR. BUELL

8 Q Would you state your complete name, Mr. Malloy; by whom
9 you are employed; and in what capacity and what location,
10 please, sir?

11 A Thomas V. Malloy.

12 I am employed by Amoco Production Company as a staff
13 engineer in the Division Office at Houston, Texas.

14 Q Mr. Malloy, you have never testified before the New
15 Mexico Oil Conservation Commission.

16 In view of that, would you briefly state your
17 educational background in the field of petroleum
18 engineering?

19 A I received a degree of Bachelor of Science in Petroleum
20 Engineering from the University of Pittsburgh in 1938.

21 Q What have you done in the field of petroleum engineering
22 since graduation?

23 A I have been employed in the oil industry continuously
24 since graduation, since 1942 I have been employed by
25 Amoco Production Company in various engineering capacities.

1 Q All right, sir. Now, you testified as a petroleum engineer
2 before the Conservation Commission of both the states of
3 Louisiana and Texas; is that right?

4 A Yes, sir, I have.

5 Q Are there any questions of his qualifications, Mr. Examiner?

6 MR. NUTTER: No, he is qualified.

7 Q (By Mr. Buell) In order that the Examiner can evaluate your
8 testimony, I am going to ask you at the outset to briefly
9 state the pool rules that we are recommending here today.

10 A In that connection, Mr. Examiner, I will also refer to our
11 Exhibit No. 1, which is somewhat of a summary itself of the
12 rules we are recommending.

13 MR. NUTTER: I will ask, Mr. Malloy, in the interest
14 of brevity, to be more brief.

15 A The pool rules that we are recommending here today would
16 provide for the 80 acre oil units consisting of either the
17 north half, southeast half, east, or west half of the
18 governmental quarter section, with the usual right to drill
19 a well on each quarter section, the spacing provision that
20 the well be within 200 feet of a government center, of a
21 governmental quarter section, the usual provisions for the
22 exceptions being granted, administration for topographical
23 conditions, and that the well on a standard proration unit
24 of 79 to 81 shall be given 80 acre proration factor of two.

25 Q (By Mr. Buell) The production in this pool is more shallow than

1 5,000?

2 A Yes.

3 Q The current unit allowable for the existing well in the
4 pool is 80 barrels a day, is it not?

5 A Yes.

6 Q As I understand your recommendation, if it is approved by
7 the Commission, what would be its allowable?

8 A Its allowable would be 160 barrels.

9 Q All right, sir. Would you turn now, Mr. Malloy, to what
10 has been identified as Amoco's Exhibit No. 2?

11 A This is the structural contour map on the top of the lower
12 Yates carbon pat pay. This is the pay section within the
13 Yates Formation.

14 This was prepared utilizing data from the completed
15 well, the discovery well for this Pool, which is identified
16 by a large red arrow, and also data obtained from numerous
17 other wells in the area which were completed as dry holes
18 which have been drilled subsequent to the completion of
19 this well.

20 Q Would you locate for the record the discovery well, Amoco's
21 Discovery Well, Amoco's Bates Federal No. 1?

22 A Amoco's Bates Federal No. 1 is located 660' from the south
23 line; 1980' from the west line of Section 26, 19 South, 33
24 East.

25 This is in the unit in Section 29.

1 Q All right, sir. How would you describe the structure of
2 the pay that is reflected on Exhibit No. 2?

3 A Well, this would be described as an asymmetrical domal
4 feature.

5 It has an axis trending from the southeast to the
6 northwest.

7 Q Speak up. Were logs running on all of the dry holes shown
8 on this exhibit?

9 A No, sir, not in all of the wells.

10 Several of the wells did have logs, others the tops
11 were obtained from sample data, too, so it is entirely
12 possible that with additional drilling and more rigid data
13 the structure interpretation shown here could be slightly
14 changed.

15 Q Based on your study of this reservoir and the immediate
16 area, its position in the area, do you feel that the
17 position on the structure will be critical from the stand-
18 point of whether or not a well will be productive or a dry
19 hole?

20 A No, sir. Several of the wells which were completed as dry
21 holes, based on the depth at which the pay was encountered,
22 would have been expected to be producers.

23 However, they had no permeability in the pay zone;
24 therefore, they were completed as dry holes.

25 Q So, you feel that porosity, permeability development will

1 be more controlling than position on the structure?

2 A Yes, that is correct.

3 Q Mr. Malloy, as you probably recall, back in June of 1968,
4 a discovery allowable application was held on our Bates
5 Federal No. 1.

6 I believe that is Case No., Mr. Examiner, 3795.

7 Was an exhibit introduced at that hearing that
8 reflected structure?

9 A Yes, there was a map introduced as an exhibit at that
10 hearing in 1968 showing structure.

11 However, it was the structure on the top of the Yates
12 Formation.

13 It was not on the top of the pay interval, which we
14 have identified as the lower Yates on Exhibit No. 2.

15 Q It just showed Yates on the regional basis rather than
16 looking closely and critically at an area like you are
17 doing here?

18 A That is correct.

19 Q All right. Do you recall what the current horizontal lim-
20 its of this Pool are?

21 A The East Jim Yates Pool has been defined as the south half
22 of Section 26, 19 South, 33 East.

23 Q Do you have any other comments to make on Exhibit No. 2,
24 Mr. Malloy?

25 A No, sir.

1 Q All right. Would you look now at what has been identified
2 as Amoco's Exhibit No. 3; what is that exhibit?

3 A Exhibit 3 is the zonic gamma ray log of the Bates Federal
4 Well No. 1, the discovery well for this Pool.

5 The Yates pay has been identified on this log at near
6 the total depth of the well, and the interval which has
7 been perforated for completion has been also shown.

8 Q All right, sir. Do you have any other comments to make on
9 this log?

10 A I don't believe so, sir.

11 Q Are you introducing a cross-section exhibit here today,
12 Mr. Malloy?

13 A No, sir. At the Hearing in 1968 a cross-section was
14 introduced.

15 There has been some drilling in the intervening time.

16 However, there is really not new data that would
17 change the interpretation and change the picture, so I
18 didn't prepare a cross-section for this Hearing.

19 Q That is already in the Commission records and files?

20 A Yes.

21 Q Would you turn now to what has been identified as Amoco's
22 Exhibit No. 4?

23 A Amoco's Exhibit No. 4 is a tabulation of data such as is
24 available on the reservoir fluid characteristics, on the
25 reservoir rock.

1 Very briefly, this lists the average porosity as eight
2 per cent interstitial water saturation, twenty-eight per
3 cent.

4 The permeability is unknown.

5 The oil produced from this pool is 34° api gravity;
6 the solubility of the gas is unknown because the gas-oil
7 ratio is too small to measure and because of the very low
8 gas solubility, we have estimated the reservoir volume
9 factor at 1.02, reservoir barrel.

10 Q Do you have any other comments?

11 A I don't believe so.

12 Q If you will look at Amoco's Exhibit No. 5, what is that
13 exhibit?

14 A Exhibit No. 5 is a performance graph of the East Jim Yates
15 Pool or Yates Federal Well No. 1 from the discovery in 1968
16 until the latter part of 1971.

17 Q Would you comment very briefly, please, on each indice of
18 performance that is mentioned on this exhibit?

19 A At the top we have tabulated the available---shortly after
20 completion of the well, the bottomhole pressure measurement
21 was made. The pressure datum of thrust plus 230' was 1,209
22 pounds per square inch.

23 In late November, early December, 1971, an additional
24 pressure measurement was made at the same datum of +230'.

25 The pressure was 1,187 psi or a decline of only 22

1 Very briefly, this lists the average porosity as eight
2 per cent interstitial water saturation, twenty-eight per
3 cent.

4 The permeability is unknown.

5 The oil produced from this pool is 34° api gravity;
6 the solubility of the gas is unknown because the gas-oil
7 ratio is too small to measure and because of the very low
8 gas solubility, we have estimated the reservoir volume
9 factor at 1.02, reservoir barrel.

10 Q Do you have any other comments?

11 A I don't believe so.

12 Q If you will look at Amoco's Exhibit No. 5, what is that
13 exhibit?

14 A Exhibit No. 5 is a performance graph of the East Jim Yates
15 Pool or Yates Federal Well No. 1 from the discovery in 1968
16 until the latter part of 1971.

17 Q Would you comment very briefly, please, on each indice of
18 performance that is mentioned on this exhibit?

19 A At the top we have tabulated the available--shortly after
20 completion of the well, the bottomhole pressure measurement
21 was made. The pressure datum of thrust plus 230' was 1,209
22 pounds per square inch.

23 In late November, early December, 1971, an additional
24 pressure measurement was made at the same datum of +230'.

25 The pressure was 1,187 psi or a decline of only 22

1 pounds from the original.

2 The second curve on Exhibit No. 5 is the barrels of
3 oil per day produced each month throughout the life of the
4 reservoir after the production of the discovery allowable.
5 This generally shows then that the well has been capable of
6 producing the normal allowable assigned, normal unit
7 allowable assigned, and at the bottom is a curve showing
8 the cumulative production, which is about 116 barrels of
9 oil today.

10 Q Let's go back to your middle curve, the average barrels of
11 oil per day.

12 I noticed in October of 1970 that it shows it produced
13 an average of about 40 barrels of oil per day.

14 I know that the normal unit allowable was much higher
15 than that.

16 How do you account for that?

17 A Was made--the answer was made through a misunderstanding,
18 and the production during August of 1970 was at a higher
19 than the allowable rate, it being thought that discovery
20 allowable still continued because of that original
21 production in August.

22 Then there was the well that was under produced in
23 October to compensate for it.

24 Q So, this well does have excellent ability to produce?

25 A Yes, it does.

1 As a matter of fact, it has been tested a number of
2 times at rates about 200 barrels per day, and maybe even
3 exceeding that slightly.

4 Q Let me ask you this. I don't notice any curve here showing
5 water production. Did this well ever make water?

6 A No, it has never produced any water.

7 Q And it has produced a 116,000 barrels with only a 22 pound
8 pressure drop?

9 A Yes, sir, that is correct.

10 Q Is this well slowing or pumping?

11 A This well is pumping because of a very small amount of gas
12 that is in solution in it, even with the bottomhole
13 pressure being at a high level, it just won't flow, so it
14 is pumped.

15 It does pump with a very high fluid level, however.

16 Q Some of these tests that have been conducted on this well
17 in the range of 200 barrels a day are based on an observa-
18 tion that you made that the fluid level in the well was
19 high?

20 A Yes, sir.

21 Q The fluid was high?

22 A Even producing at the 200 barrel a day test rate.

23 Q Do you have any other comments on Exhibit 57?

24 A No.

25 Q Would you turn then, please, to what has been identified

1 as Amoco's Exhibit 6; what is that exhibit?

2 A Exhibit 6 is a data sheet which I have set forth a
3 comparison of the oil recovery to date, to the oil in
4 place, I have repeated the parameters that we used, the
5 porosity of eight per cent, the water saturation 28 per
6 cent, the RVF of 1.02.

7 It has been determined that the well has an effective
8 net pay of 16', so going through those calculations, that
9 calculates as 7,040 barrels of oil in place here per acre,
10 or 281,600 barrels in place in this 40 acre unit.

11 Q While you are giving some figures, go a little slower for
12 the sake of the reporter. I believe he is up with you
13 right now.

14 A Then, using the cumulative production of 116,000 barrels
15 and 281,000 barrels of oil in place, you had a 40-acre unit
16 with 16' of pay, we have recovered 41.2 per cent of the oil
17 in place under a 40-acre unit.

18 Q Mr. Malloy, do you as a reservoir engineer, what data of
19 these types indicates to you from the standpoint of the
20 drainage radius of the well--

21 A The fact we have had no water influx to the well, the
22 reservoir is exhibiting very slight signs of depletion in
23 that the reservoir pressure has dropped only 22, ~~500~~ pounds.
24 I concluded definitely we are draining an area in excess
25 of the 40 acres.

1 Q All right, sir. Let me ask you this. We didn't core the
2 pay and we have no core data as to permeability. Do these
3 types of form data give you any idea as to the permeability
4 in the well bore?

5 A Yes, I would say that the performance data of the well and
6 the reservoir indicate a very excellent permeability in
7 this pay.

8 Q All right, sir. Based on the data reflected on our Exhibit
9 6 and other performance characteristics of this well which
10 you have observed have you formed an opinion as to whether
11 or not one well in this Pool will effectively and effi-
12 ciently drain in excess of 80 acres?

13 A Yes, sir, I feel because of the excellent performance of
14 the well and the reservoir that very definitely one well
15 can efficiently and economically drain in excess of 80 acres.

16 Q Do you foresee that any reservoir damage could occur if the
17 Commission approved our recommendation here today and adop-
18 ted our 80 acre units and our two times factor which at
19 this time would result in 160 barrels a day rate for this
20 Field; do you see any reservoir damage or waste occurring?

21 A No, sir, I would not anticipate any damage of that type.

22 Q Do you feel that the recommendations made here today will
23 prevent waste as well as protecting the correlative rights
24 of all of the owners in the area?

25 A Yes, sir, I do.

1 Q Do you have anything else you would care to add?

2 A I don't believe so.

3 Q Mr. Examiner, that is all we have by way of direct evidence
4 and testimony.

5 I would like to formally offer Amoco's Exhibits 1
6 through 6.

7 MR. NUTTER: Amoco's Exhibits 1 through 6 will be
8 admitted in evidence.

9 CROSS-EXAMINATION

10 BY MR. NUTTER

11 Q Mr. Malloy, your bottom-hole pressure decline curve is
12 based on two points?

13 A That is correct.

14 Q There is no confirming point that would indicate whether
15 the line is to the flat or to the steep?

16 A No, nothing at this time, no, sir.

17 Q Either point could be in error?

18 A The pressure that was obtained in late 1971, I believe, was
19 after either a 48 or 72 hour shut-in.

20 The data that were entered on the form at the initial
21 one showed stabilized pressure.

22 I don't recall of there being a record of shut-in time
23 for that.

24 However, it was considered a stabilized pressure, and
25 we feel the long shut-in time for this later pressure would

1 give us stabilized pressure, also.

2 Q What is the original IP on this one?

3 A This initially was swabbed at a rate of 137 barrels in four
4 hours, I believe, on the initial test.

5 Q It would appear that the well was capable of producing top
6 allowable for most of the period of time plus the discovery
7 allowable?

8 A Yes, sir.

9 Q Which was, I guess, the discovery allowables were completed
10 then just prior to August when they over produced these?

11 A That is correct. Just looking at the data, discovery
12 allowable hearing that was held in June, '68, it can be
13 presumed that the discovery started then probably August 1
14 and in '68, and ended August 1st, '70, but through error
15 they produced at the higher rate throughout the month of
16 August.

17 And we do feel, I mean the well has been capable of
18 producing the normal allowable in excess of that, as shown
19 by the test that has been taken from time to time.

20 Q Do you have a current potential on the well?

21 A I have seen some test data. I don't know if I have it with
22 me, of the well pumping, oh, in the vicinity of 200 barrels
23 a day.

24 Q So, in other words, if your proposal were approved here and
25 you got here your acreage factor of two, the well would

1 have been on an allowable of 160 barrels, which would be
2 up here off of your chart?

3 A Yes.

4 Q We have no evidence to indicate that the well can't produce
5 that. You do have a test?

6 A We do have test data from time to time throughout the life
7 of the well that shows the well has been able to produce
8 in the vicinity of 200 barrels a day.

9 Q How come you have never drilled a second well here, Mr.
10 Malloy?

11 A I think because of the fact there have been so many dry
12 holes drilled, some of these dry holes have been drilled
13 subsequent to the completion of this well. This subject
14 well was completed in May, 1968, the well that is on
15 Exhibit No. 2 is labeled as Gorman-McKnight, which is
16 immediately south of that in Section 35. It was completed
17 as a dry hole in July, '68.

18 The well over towards the northwest corner of Section
19 35, the Smith-McKnight was April, 1971.

20 The well immediately to the east of the discovery
21 well was October, 1968.

22 Q That is a Pan-Am well there?

23 A Yes, sir, it was. All three of these wells were Pan-Am or
24 Amoco wells.

25 Then up in the two McKnight wells in the northwest of

1 26-4, they were 1969 completions as dry holes.

2 So, we have tried to drill another well in this
3 reservoir. We just haven't hit it.

4 MR. PORTER: You think that one well will get all of
5 the oil that would be gotten by more wells?

6 THE WITNESS: We are still contemplating doing some
7 more drilling, probably in the southwest of 26, for this
8 reservoir.

9 Q (By Mr. Buell) Actually, a recommendation to drill the
10 additional well has been processed through the lower level
11 of management and is ready to go to top management now?

12 A Yes.

13 Q Would you like for us to furnish you the latest potential
14 tests by--by that, by potential tests, I mean to show that
15 the well can easily make in excess of the 160.

16 MR. NUTTER: You might file that with the Commission.

17 CROSS-EXAMINATION

18 BY MR. NUTTER

19 Q What is your interpretation of 16 feet of net pay based on,
20 Mr. Malloy?

21 A It was obtained from the microlateral log.

22 Q Were there any cores run?

23 A No cores were taken in the interval from the microlateral
24 log.

25 It has been estimated that there is possibly sixteen

1 feet of pay.

2 Q There is a calculated porosity?

3 A Yes, it is a calculated porosity, and the water saturation
4 from the logs.

5 See, the completion is actually over a forty foot
6 interval from 3,305 to 3,390, and within that forty foot
7 interval we feel there is probably sixteen feet of good
8 effective net pay.

9 Q You feel you do have a water drive here?

10 A It is either a water drive or there is a mighty big
11 reservoir to maintain the pressure as it has, with the
12 production of 116,000 barrels, with the number of dry holes
13 that we have around here, we have to find where the biggest
14 reservoir is.

15 Q The biggest reservoir doesn't show up as yet?

16 A It hasn't shown up as yet, so I would presume there is
17 probably an aquafair thus far that is aided in maintaining
18 the pressure.

19 Q Wouldn't there be a possibility if you had a water
20 production drive and you increased your pressure to a level
21 higher--

22 A That might result in a condition of water--oh, some adverse
23 effect on the reservoir by those high productions. I mean,
24 nothing that has been obtained in producing and testing the
25 wells so far has indicated any adverse effect.

1 Q It has never been produced at the rate?

2 A It has never been produced over a sustained period of time
3 at the rate, though, but if that would be the case, if
4 there were indications of damage, then drilling a second
5 well on an 80 acre unit and reducing the individual well
6 producing rates would certainly appear to be in order.

7 MR. NUTTER: Are there any further questions of Mr.
8 Malloy?

9 You may be excused.

10 Do you have anything further, Mr. Buell?

11 MR. BUELL: No, Mr. Examiner, I do not.

12 MR. NUTTER: Does anyone have anything they wish to
13 offer in Case 4640?

14 We will take the case under advisement.
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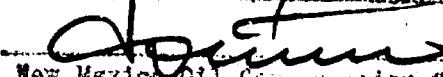
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1 STATE OF NEW MEXICO)
2) ss.
3 COUNTY OF BERNALILLO)

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

10 
11 CERTIFIED SHORTHAND REPORTER

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22 I do hereby certify that the foregoing is
23 a complete record of the proceedings in
24 the Executive hearing of Case No. 4640,
25 heard by me on 4/5, 1972.


New Mexico Oil Conservation Commission

I N D E X

<u>WITNESS</u>	<u>PAGE</u>
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E X H I B I T S

<u>APPLICANT'S</u>	<u>MARKED</u>	<u>ADMITTED</u>
Exhibit No. 1	5	15
Exhibit No. 2	6	15
Exhibit No. 3 & 4	9	15
Exhibit No. 5	10	15
Exhibit No. 6	13	15

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:

APPLICATION OF AMOCO PRODUCTION
COMPANY FOR SPECIAL POOL RULES,
LEA COUNTY, NEW MEXICO.

CASE No. 4640

Order No. R- 4358
~~NOMENCLATURE~~

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on January 5, 1972,
at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

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, Amoco Production Company, seeks the
promulgation of special rules and regulations for the East Gem-
Yates Pool, Lea County, New Mexico, including a provision for
80-acre proration units.

~~(3) That the applicant also seeks the assignment of an oil
discovery allowable in the amount of approximately barrels
to the discovery well for said pool.~~

~~(4) That the evidence presently available indicates that the _____, located in Unit _____ of Section _____, Township _____, Range _____, NMPM, Lea County, New Mexico, discovered a separate common source of supply which has been designated the East Gem-Yates Pool; that the vertical limits of said pool have been defined as the _____ formation, and that the horizontal limits of said pool have previously been defined as the _____ of said Section _____.~~

~~(5) That the discovery well for the aforesaid pool, _____, located in Unit _____ of Section _____, Township _____, Range _____, NMPM, Lea County, New Mexico, is entitled to and should receive a bonus discovery oil allowable in the amount of _____ barrels, based upon the top of the perforations in said well at _____ feet, to be assigned over a two-year period.~~

(3) ~~(6)~~ 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 East Gem-Yates Pool.

(4) ~~(7)~~ 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.

~~(8) 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.~~

~~(9) That this case should be reopened at an examiner hearing in _____, 1973, at which time the operators in the subject pool should be prepared to appear and show cause why the East Gem-Yates Pool should not be developed on other than 40-acre spacing units.~~

~~(10) That the horizontal limits of the East Gem-Yates Pool should be extended to include the _____ of the above-described Section _____~~

IT IS THEREFORE ORDERED:

~~(1) That the East Gem-Yates Pool in Lea County, New Mexico, as heretofore classified, defined, and described, is hereby extended to include therein:~~

~~(2) That the _____, located in Unit _____ of Section _____, Township _____, Range _____, NMPM, East Gem-Yates Pool, Lea County, New Mexico, is hereby authorized an oil discovery allowable of _____ barrels to be assigned to said well at the rate of _____ barrels per day in accordance with Rule 509 of the Commission Rules and Regulations.~~

~~(1) (3) That,~~ ^{effective August 10, 1972,} Special Rules and Regulations for the East Gem-Yates Pool, Lea County, New Mexico, are hereby promulgated as follows:

SPECIAL RULES AND REGULATIONS
FOR THE
EAST GEM-YATES POOL

RULE 1. Each well completed or recompleted in the East Gem-Yates Pool or in the Yates formation within one mile thereof, and not nearer to or within the limits of another designated Yates 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.

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

RULE 5. The Secretary-Director may grant an exception to the 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 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^{2.00} acres) shall be assigned an 80-acre proportional factor of ~~1.00~~ 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.

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 East Gem-Yates Pool or in the Yates 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 East Gem-Yates 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 East Gem-Yates Pool or in the Yates 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 _____, 1973, at which time the operators in the subject pool may appear and show cause why the East Gem-Yates Pool should not be developed on other than 40 acre spacing units.~~

(3) ~~that~~ 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.