

CASE 6751: TENNECO OIL COMPANY FOR THE
RESCISSION OF SPECIAL POOL RULES, EDDY
COUNTY, NEW MEXICO

Case No.

6751

Application

Transcripts.

Small Exhibits

ETC.

STATE OF NEW MEXICO
 ENERGY AND MINERALS DEPARTMENT
 OIL CONSERVATION DIVISION
 STATE LAND OFFICE BLDG.
 SANTA FE, NEW MEXICO
 12 December 1979

EXAMINER HEARING

 IN THE MATTER OF:)
)
)

Application of Tenneco Oil Company for) CASE
 the rescission of special pool rules,) 6751
 Eddy County, New Mexico.)
)

BEFORE: Daniel S. Nutter

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation
 Division:

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 Tenneco Oil Company

I N D E X

DANIEL L. WILSON

Direct Examination by Mr. Simmons	5
Cross Examination by Mr. Nutter	11

THOMAS W. OLSON

Direct Examination by Mr. Simmons	15
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E X H I B I T S

Applicant Exhibit One, Plat	6
Applicant Exhibit Two, Table	7
Applicant Exhibit Three, Data	9
Applicant Exhibit Four, Cross Section	16

MR. NUTTER: Call Case Number 6751.

MR. PADILLA: Application of Tenneco Oil Company for the rescission of special pool rules, Eddy County, New Mexico.

MR. KELLAHIN: I'm Tom Kellahin of Santa Fe, New Mexico, appearing in association with Mr. Greg Simmons, counsel for Tenneco Oil Company. He is an attorney admitted to practice in Oklahoma and Texas.

MR. SIMMONS: Mr. Examiner, if I may make an opening statement.

MR. NUTTER: Sure.

MR. SIMMONS: By Order No. R-4157, dated June 21, 1971, the Division created the Catclaw Draw-Morrow Gas Pool for production of gas from the Morrow formation.

As defined by the Division, the vertical limits of the pool are 10,186 feet to 10,570 feet.

As defined by the Division, the horizontal limits of the pool cover all of Section 1, all of Sections 11 through 14, all of Sections 23 through 26, all of Sections 35 through 36, all located in Township 21 South, Range 25 East, Eddy County, New Mexico, and all of Section 18, 19, and 30 in Township 21 South, Range 26 East, Eddy County, New Mexico.

As defined by the Division, the present field rules provide for 640-acre spacing units, and you'll have to pardon me, I have a very bad cold today.

By its application, Tenneco Oil Company requests that the special field rules for the Catclaw Draw Gas Pool be amended to provide for 320-acre spacing rather than the 640-acre spacing. We feel that the testimony presented by Tenneco will show the following:

Number one, that the present existing wells do not adequately drain the hydrocarbon underlying the presently existing 640-acre spacing units, and that to prevent waste and protect correlative rights, the Division should respace the Catclaw Draw-Morrow Gas Pool to allow the drilling of additional wells on 320-acre spacing units.

We also feel like the testimony presented to the Division will show that the hydrocarbon now underlying the 640-acre spacing units will only be drained if wells are drilled on 320's.

Mr. Examiner, I now call as our first witness, Mr. Wilson, who has never been qualified as an expert witness before the Division.

(Witnesses sworn.)

DANIEL L. WILSON

being called as a witness and having been duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. SIMMONS:

Q Sir, would you state your complete name, please?

A Daniel L. Wilson.

Q And where do you reside?

A San Antonio, Texas.

Q And would you state to the Examiner your educational background?

A I have a Bachelor of Science degree in petroleum engineering from the University of Texas.

Q And, sir, for whom are you employed?

A Tenneco Oil.

Q And for how long have you been employed as a petroleum engineer for Tenneco Oil Company?

A One year.

Q Okay. Mr. Wilson, how long have you been employed as a petroleum engineer in the oil and gas industry?

A Three and a half years.

Q Okay. And how long have you worked in

the southeast New Mexico area?

A. Approximately two years.

MR. SIMMONS: Mr. Examiner, I tender Mr. Wilson as an expert petroleum engineer.

MR. NUTTER: Mr. Wilson is qualified.

Q. Okay, Mr. Wilson, I now hand you what has been marked as Exhibit One, and ask you to identify the exhibit, please.

A. This exhibit shows the horizontal extent of the Catclaw Draw-Morrow Pool, as defined in your opening statement, as shown in the heavy dark line surrounding the sections indicated in your opening statement.

Q. And I ask you to describe the line defined as A'-A' and tell us what that is, please.

A. That line shows the wells that we used in the cross section that we'll be presenting as evidence later on.

Q. Okay, and I ask you, as to the wells identified within the boundaries of the Catclaw Draw Unit, have you evaluated the production from those wells?

A. Yes.

Q. Okay. Mr. Wilson, was Exhibit One prepared under your supervision and direction?

A. Yes.

Q Mr. Wilson, I now hand you what has been marked as Exhibit Two and ask you to identify the exhibit, please.

A Exhibit Two is a table of all the wells that Tenneco owns in the Catclaw Draw-Morrow Pool, and which I used to make an engineering study to determine the areal extent from which hydrocarbons were being drained in the Morrow formation from these wells.

Q And, Mr. Wilson, what sources of data or information did you review in order to come up with the information contained on Exhibit Two?

A The information that I used to come up with the data compiled in this table was performance curves, P/z curves, and also log data on each of the wells.

Q And approximately for what period of time did that data cover that you reviewed for this purpose?

A This data covered the period of time since the wells were first put on production up to approximately July of this year.

Q And approximately what period of time was that?

A From 1972 to -- August of 1972 to July, 1979.

Q Okay. Mr. Wilson, based on your study

of the data that you've just described, and the information appearing on Exhibit Two, do you have an opinion as to the area being drained on an average by the wells presently producing from the Catclaw Draw Unit?

A. Yes. The results of my analysis showed that the average drainage per well in this area was 281 acres.

Q. Okay. Mr. Wilson, as I understand it, it is your testimony that the presently existing producing wells do not adequately drain the 640-acre spacing units now applicable to the Catclaw Draw Unit, is that correct?

A. That is correct.

Q. Okay. Is it your opinion that if additional wells were drilled, the hydrocarbons now underlying the 640-acre spacing units would be produced?

A. Yes, that is my opinion, that additional wells are needed to recover the hydrocarbons under each of the proration units.

Q. And based on your study and review, approximately how much hydrocarbon do you feel would be produced from the drilling of additional wells if the Division approved 320-acre spacing?

A. We feel that we have a good chance to recover an additional 2 Bcf of gas with a possibility of more,

based on the performance of the wells in the area.

Q Okay.

MR. NUTTER: That's per well?

A Yes.

MR. NUTTER: That's an average expected additional recovery per well?

A Yes, sir.

MR. NUTTER: 2-billion cubic feet.

A Right. I think the average production in that area of the existing wells is over 6 BCF.

Q Mr. Wilson, was Exhibit Two prepared under your supervision and direction?

A Yes.

Q Now, Mr. Wilson, I hand you what has been marked as Exhibit Three and ask you to identify that exhibit, please.

A Exhibit Three is supportive reservoir parameters that was obtained from log analysis that we use in the volumetric calculations of gas in place in the existing wells.

Q And, sir, what was the sources of information that you reviewed and studied in order to come up with the numbers that appear on Exhibit Three?

A Most of the data comes from log calculations. Some of the data came from completion information,

DST information.

Q Would you explain to the Examiner, please, how Exhibit Three relates to the information contained on Exhibit Two?

A The information in Exhibit Three was used to calculate the volumetric original gas in place per acre, and that was compared with the gas in place obtained from the performance of the wells, as seen on P/z curves. From this comparison the drainage per well was obtained.

Q Okay. Mr. Wilson, do you feel that if the Division approves the respacing of the Catolaw Draw-Morrow Gas Pool that such action will result in the prevention of waste and the protection of correlative rights?

A I do.

MR. SIMMONS: Mr. Examiner, I --

Q First, Mr. Wilson, was Exhibit Three prepared under your supervision and direction?

A Yes, it was.

Q Okay.

MR. SIMMONS: Mr. Examiner, at this time I would offer into evidence Exhibits One through Three.

MR. NUTTER: Tenneco Exhibits One through Three will be admitted in evidence.

MR. SIMMONS: And I have no further ques--

tions of Mr. Wilson.

CROSS EXAMINATION

BY MR. NUTTER:

Q Okay, Mr. Wilson, in referring to your Exhibit Number Two, first of all, where is this ARCO Fed Com No. 1 on your Exhibit Number One?

A Well, this ARCO Fed Com No. 1 is outside the boundary, as stipulated by the rules, but it appears in this exhibit because it is being reported in the State production books as Catclaw Draw-Morrow.

Q And what's the location of the well?

A The location of the ARCO Federal Well is in Section 20 of Township 21 South, 26 East.

Q That would be the well that's on the cross section line?

A Yes, sir.

Q Just outside the boundary of the unit?

A Yes, sir.

Q And then the rest I can find out where they are.

A Right.

Q Okay. Now, on your Exhibit Number Two, Mr. Wilson, you've got a per acre volumetric original gas in place

for each of these wells.

A Yes, sir.

Q Now this is based purely on a volumetric calculation.

A Right.

Q And then in your next column you have original gas in place based on the bottom hole pressure over 2.

A Yes, sir.

Q Now, have you figured anywhere on here which shows us how much of the original gas in place is going to be recovered from each of the individual wells?

A Would you repeat the question, please?

Q Have you got a figure on either Exhibit Number Two or Three or will the next witness have a figure that shows the recovery per well, for the individual wells?

A No, sir, we don't have an exhibit like --

Q As compared with the original gas in place under that well?

A I have a table, as such, it wasn't presented as an exhibit, but I have a table here that shows the ultimate recovery of each of these wells.

Q Under present conditions --

A Yes, sir.

Q -- with the existing spacing?

A Yes, sir.

Q Can you introduce that or could you read the figures into the record, either one?

But go slow enough that I can write them down.

A All right.

Q Now, let me put a heading up there. This is --

A This is ultimate --

Q Estimated ultimate --

A -- recovery in MMCF.

Q -- recovery, and what recovery factor are you using on here, or is this extrapolation of bottom hole pressures?

A Correct.

Q Okay.

A These will be in MMCF.

Q Okay.

A Catclaw Draw Unit 1-Y, 6080.

Q 6080, okay.

A No. 2, 13,500; No. 4, 10,250; No. 5, 3470; No. 6, 3510; No. 7, 3995; No. 9, 14500; No. 11, 315; the Nan-Bet Com No. 1, 8595; and the ARCO Fed Com No. 1, 425.

Q So some of those wells are going to recover

a pretty good percentage of their original gas in place and some are going to just barely tap it.

A Right.

Q And it looks like this Catclaw Draw Unit No. 1 -- or No. 11, if it's 320, is going to recover 315. I see.

A That's right.

Q And you didn't have any data for your volumetric calculations on No. 9 because of poor log data.

A Yes, sir.

MR. SIMMONS: Mr. Examiner, do you have any other questions?

MR. NUTTER: No, I'm just looking to see, Mr. Simmons.

I believe that's all I have.

A I think the reason there's no recovery factor showing up in these things, because if you set them equal recovery factor, you have to assume the recovery factor from the pressure data is going to have to be applied to the volumetric equation, and they're just going to cancel out.

Q Yeah, and when you've got -- when you've got another well on here, that's going to affect the recovery from these wells somewhat, too.

A Somewhat. We think we'll probably encounter some -- some of the sands that are -- that show some pressure

depletion, but we still feel that the average drainage in the wells is not anywhere near the 640-acre.

Q And you anticipate also that you'll recover untapped stringers.

A Yes, sir, we'll see that on the cross section that Mr. Olson will present.

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

MR. SIMMONS: Mr. Examiner, if I may, I would like to put this on the wall.

MR. NUTTER: Okay.

MR. SIMMONS: Mr. Examiner, at this time I call to the stand our second witness, Mr. Olson, who has never been qualified before the Division.

THOMAS W. OLSON

being called as a witness and having been duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. SIMMONS:

Q Mr. Olson, would you state your complete name, please?

A Thomas W. Olson.

Q And where do you reside?

A San Antonio.

Q And would you state your educational background, please?

A I have a Bachelor of Science degree in geological engineering from the Colorado School of Mines in 1974.

Q And, Mr. Olson, how long have you been a geological engineer?

A Five years.

Q And how long have you been working in the southeast New Mexico area?

A Eight months.

Q And by whom are you presently employed?

A Tenneco Oil.

Q And in the course of your employment with Tenneco Oil Company have you had an occasion to study in detail the Catclaw Draw-Morrow Gas Unit?

A Yes, I have.

MR. SIMMONS: Mr. Examiner, I now tender Mr. Olson as an expert.

MR. NUTTER: Mr. Olson is qualified.

Q Okay. Mr. Olson, if you would, if you'd go to the Exhibit Four, which we have placed upon the wall, and I'd ask that you identify the exhibit, please.

A The exhibit is a stratigraphic cross section which includes part of the Catclaw Draw-Morrow Gas Pool and into the Avalon-Morrow Gas Pool. It is an east/west cross section, which I feel is representative of the Catclaw-Morrow Field. It is hung on a stratigraphic datum, which is a correlation point within the Morrow, and it entails the total vertical limits of the Catclaw-Morrow Pool.

 The cross section illustrates the nature of the Morrow Sand bodies. They are in separate bodies that are not continuous across the entire area. You can see in the first two wells on the left part of the cross section that we have a sand in the Upper Morrow, which is not contained in the rest of the wells in the cross section.

 You can see, as we move down farther in the section, representative sands that are reservoir quality as yellow; sands that are non-reservoir quality by log analysis as being colored brown.

MR. BUTTER: Although present.

A Although present.

 You can see that the reservoir effects are so that you have several different types -- or several different sands within the pool that are being produced or tested gas; DST's being indicated by the wavy lines; perforations of completions being indicated by the solid black lines.

Moving over farther to the east into the Avalon-Morrow, we have closer well spacing. I have an example of the Ocotillo Hills No. 1 in which you see in the lower section there were two sands that were penetrated by that wellbore that are separate and that are perforated and that are not encountered on wells on either side. We contend that deposition being likewise in the Catclaw-Morrow area, that this type of situation is very likely to arise on drilling on a closer spacing on 320-s.

Moving farther down into the section, you'll find that the Lower Sands, which is the most prevalent producer, in the Catclaw-Morrow Field, is perforated in most of the wells; however, most of the wells, according to Mr. Wilson's calculations will not drain over 320 acres. They average 281 acres.

Farther down in the section occurs another sand, which is again not continuous throughout the entire section. It's separated and, again, the same type of situation, where several sands exist and you're going to find separate reservoirs on closer drilling.

Q Okay, Mr. Olson, do you have an opinion based on your study of the logs appearing on Exhibit Four as to whether or not, in your opinion, the now existing wells will actually drain 640-acre units not applicable to the unit?

A It does not appear that all the sand will be drained in the area by the current wells.

Q And do you feel like the drilling of

additional wells is the only way that would insure the recovery of hydrocarbons that will not be recovered out of the now existing wells?

A Yes, I do.

Q And based upon the present 640-acre spacing, you are prevented from drilling additional wells, is that correct?

A That is correct.

Q Mr. Olson, was Exhibit Four prepared under your supervision and direction?

A Yes it was.

Q Okay.

MR. SIMMONS: Mr. Examiner, I offer Exhibit Four into evidence.

MR. NUTTER: Tenneco Exhibit Number Four will be admitted in evidence.

MR. SIMMONS: Mr. Examiner, I have no further questions at this time.

MR. NUTTER: Are there any questions of Mr. Olson? He may be excused.

Do you have anything further, Mr. Simmons?

MR. SIMMONS: No, sir, we do not.

MR. NUTTER: Does anyone have anything they wish to offer in Case Number 6751?

MR. PADILLA: Yes, sir, I have a telegram

submitted by Sam S. Reed, Junior, Area Landman for Inexco Oil Company, and it reads as follows:

In reference to Catclaw Draw Unit, Eddy County, New Mexico, Cause No. 6751, this will advise you that INexco Oil Company, a non-operating working interest owner in the subject unit, concurs in the petition made by the unit operator, Tenneco Oil Company, on Cause 6751. The petition requests the Board's consideration for a change in spacing. Sincerely, Sam S. Reed, Junior, Area Landman.

MR. HUTTER: Thank you, Mr. Padilla.

Does anyone else have anything to offer in Case 6751?

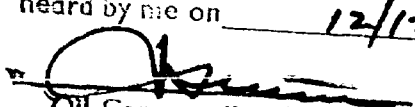
We'll take the case under advisement.

(Hearing concluded.)

REPORTER'S CERTIFICATE

I, SALLY W. BOYD, a Certified Shorthand Reporter,
DO HEREDY CERTIFY that the foregoing and attached Transcript of
Hearing before the Oil Conservation Division was reported by me;
that the said transcript is a full, true, and correct record of
the hearing, prepared by me to the best of my ability.

Sally W. Boyd, C.S.R.

I do hereby certify that the foregoing is
a complete record of the proceedings in
the Examiner hearing of Case No. 6751,
heard by me on 12/12 19 79.
 Examiner
Oil Conservation Division

STATE OF NEW MEXICO
 ENERGY AND MINERALS DEPARTMENT
 OIL CONSERVATION DIVISION
 STATE LAND OFFICE BLDG.
 SANTA FE, NEW MEXICO
 12 December 1979

EXAMINER HEARING

 IN THE MATTER OF:)

Application of Tenneco Oil Company for) CASE
 the rescission of special pool rules,) 6751
 Eddy County, New Mexico.)

BEFORE: Daniel S. Nutter

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 Division:

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 Tenneco Oil Company

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Direct Examination by Mr. Simmons 5

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E X H I B I T S

Applicant Exhibit One, Plat 6

Applicant Exhibit Two, Table 7

Applicant Exhibit Three, Data 9

Applicant Exhibit Four, Cross Section 16

MR. NUTTER: Call Case Number 6751.

MR. PADILLA: Application of Tenneco Oil Company for the rescission of special pool rules, Eddy County, New Mexico.

MR. KELLAHIN: I'm Tom Kellahin of Santa Fe, New Mexico, appearing in association with Mr. Greg Simmons, counsel for Tenneco Oil Company. He is an attorney admitted to practice in Oklahoma and Texas.

MR. SIMMONS: Mr. Examiner, if I may make an opening statement.

MR. NUTTER: Sure.

MR. SIMMONS: By Order No. R-4157, dated June 21, 1971, the Division created the Catclaw Draw-Morrow Gas Pool for production of gas from the Morrow formation.

As defined by the Division, the vertical limits of the pool are 10,186 feet to 10,570 feet.

As defined by the Division, the horizontal limits of the pool cover all of Section 1, all of Sections 11 through 14, all of Sections 23 through 26, all of Sections 35 through 36, all located in Township 21 South, Range 25 East, Eddy County, New Mexico, and all of Section 18, 19, and 30 in Township 21 South, Range 26 East, Eddy County, New Mexico.

As defined by the Division, the present field rules provide for 640-acre spacing units, and you'll have to pardon me, I have a very bad cold today.

By its application, Tenneco Oil Company requests that the special field rules for the Catclaw Draw Gas Pool be amended to provide for 320-acre spacing rather than the 640-acre spacing. We feel that the testimony presented by Tenneco will show the following:

Number one, that the present existing wells do not adequately drain the hydrocarbon underlying the presently existing 640-acre spacing units, and that to prevent waste and protect correlative rights, the Division should respace the Catclaw Draw-Morrow Gas Pool to allow the drilling of additional wells on 320-acre spacing units.

We also feel like the testimony presented to the Division will show that the hydrocarbon now underlying the 640-acre spacing units will only be drained if wells are drilled on 320's.

Mr. Examiner, I now call as our first witness, Mr. Wilson, who has never been qualified as an expert witness before the Division.

(Witnesses sworn.)

DANIEL L. WILSON

being called as a witness and having been duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. SIMMONS:

Q Sir, would you state your complete name, please?

A Daniel L. Wilson.

Q And where do you reside?

A San Antonio, Texas.

Q And would you state to the Examiner your educational background?

A I have a Bachelor of Science degree in petroleum engineering from the University of Texas.

Q And, sir, for whom are you employed?

A Tenneco Oil.

Q And for how long have you been employed as a petroleum engineer for Tenneco Oil Company?

A One year.

Q Okay. Mr. Wilson, how long have you been employed as a petroleum engineer in the oil and gas industry?

A Three and a half years.

Q Okay. And how long have you worked in

the southeast New Mexico area?

A. Approximately two years.

MR. SIMMONS: Mr. Examiner, I tender Mr. Wilson as an expert petroleum engineer.

MR. NUTTER: Mr. Wilson is qualified.

Q. Okay, Mr. Wilson, I now hand you what has been marked as Exhibit One, and ask you to identify the exhibit, please.

A. This exhibit shows the horizontal extent of the Catclaw Draw-Morrow Pool, as defined in your opening statement, as shown in the heavy dark line surrounding the sections indicated in your opening statement.

Q. And I ask you to describe the line defined as A'-A' and tell us what that is, please.

A. That line shows the wells that we used in the cross section that we'll be presenting as evidence later on.

Q. Okay, and I ask you, as to the wells identified within the boundaries of the Catclaw Draw Unit, have you evaluated the production from those wells?

A. Yes.

Q. Okay. Mr. Wilson, was Exhibit One prepared under your supervision and direction?

A. Yes.

Q. Mr. Wilson, I now hand you what has been marked as Exhibit Two and ask you to identify the exhibit, please.

A. Exhibit Two is a table of all the wells that Tenneco owns in the Catclaw Draw-Morrow Pool, and which I used to make an engineering study to determine the areal extent from which hydrocarbons were being drained in the Morrow formation from these wells.

Q. And, Mr. Wilson, what sources of data or information did you review in order to come up with the information contained on Exhibit Two?

A. The information that I used to come up with the data compiled in this table was performance curves, P/z curves, and also log data on each of the wells.

Q. And approximately for what period of time did that data cover that you reviewed for this purpose?

A. This data covered the period of time since the wells were first put on production up to approximately July of this year.

Q. And approximately what period of time was that?

A. From 1972 to -- August of 1972 to July, 1979.

Q. Okay. Mr. Wilson, based on your study

of the data that you've just described, and the information appearing on Exhibit Two, do you have an opinion as to the area being drained on an average by the wells presently producing from the Catclaw Draw Unit?

A. Yes. The results of my analysis showed that the average drainage per well in this area was 281 acres.

Q Okay. Mr. Wilson, as I understand it, it is your testimony that the presently existing producing wells do not adequately drain the 640-acre spacing units now applicable to the Catclaw Draw Unit, is that correct?

A. That is correct.

Q Okay. Is it your opinion that if additional wells were drilled, the hydrocarbons now underlying the 640-acre spacing units would be produced?

A. Yes, that is my opinion, that additional wells are needed to recover the hydrocarbons under each of the proration units.

Q And based on your study and review, approximately how much hydrocarbon do you feel would be produced from the drilling of additional wells if the Division approved 320-acre spacing?

A. We feel that we have a good chance to recover an additional 2 Bcf of gas with a possibility of more,

based on the performance of the wells in the area.

Q Okay.

MR. NUTTER: That's per well?

A Yes.

MR. NUTTER: That's an average expected additional recovery per well?

A Yes, sir.

MR. NUTTER: 2-billion cubic feet.

A Right. I think the average production in that area of the existing wells is over 6 BCF.

Q Mr. Wilson, was Exhibit Two prepared under your supervision and direction?

A Yes.

Q Now, Mr. Wilson, I hand you what has been marked as Exhibit Three and ask you to identify that exhibit, please.

A Exhibit Three is supportive reservoir parameters that was obtained from log analysis that we use in the volumetric calculations of gas in place in the existing wells.

Q And, sir, what was the sources of information that you reviewed and studied in order to come up with the numbers that appear on Exhibit Three?

A Most of the data comes from log calculations. Some of the data came from completion information,

DST information.

Q Would you explain to the Examiner, please, how Exhibit Three relates to the information contained on Exhibit Two?

A The information in Exhibit Three was used to calculate the volumetric original gas in place per acre, and that was compared with the gas in place obtained from the performance of the wells, as seen on P/z curves. From this comparison the drainage per well was obtained.

Q Okay. Mr. Wilson, do you feel that if the Division approves the respacing of the Catclaw Draw-Morrow Gas Pool that such action will result in the prevention of waste and the protection of correlative rights?

A I do.

MR. SIMMONS: Mr. Examiner, I --

Q First, Mr. Wilson, was Exhibit Three prepared under your supervision and direction?

A Yes, it was.

Q Okay.

MR. SIMMONS: Mr. Examiner, at this time I would offer into evidence Exhibits One through Three.

MR. NUTTER: Tenneco Exhibits One through Three will be admitted in evidence.

MR. SIMMONS: And I have no further ques-

tions of Mr. Wilson.

CROSS EXAMINATION

BY MR. NUTTER:

Q Okay, Mr. Wilson, in referring to your Exhibit Number Two, first of all, where is this ARCO Fed Com No. 1 on your Exhibit Number One?

A Well, this ARCO Fed Com No. 1 is outside the boundary, as stipulated by the rules, but it appears in this exhibit because it is being reported in the State production books as Catclaw Draw-Morrow.

Q And what's the location of the well?

A The location of the ARCO Federal Well is in Section 20 of Township 21 South, 26 East.

Q That would be the well that's on the cross section line?

A Yes, sir.

Q Just outside the boundary of the unit?

A Yes, sir.

Q And then the rest I can find out where they are.

A Right.

Q Okay. Now, on your Exhibit Number Two, Mr. Wilson, you've got a per acre volumetric original gas in place

for each of these wells.

A. Yes, sir.

Q. Now this is based purely on a volumetric calculation.

A. Right.

Q. And then in your next column you have original gas in place based on the bottom hole pressure over Z.

A. Yes, sir.

Q. Now, have you figured anywhere on here which shows us how much of the original gas in place is going to be recovered from each of the individual wells?

A. Would you repeat the question, please?

Q. Have you got a figure on either Exhibit Number Two or Three or will the next witness have a figure that shows the recovery per well, for the individual wells?

A. No, sir, we don't have an exhibit like --

Q. As compared with the original gas in place under that well?

A. I have a table, as such, it wasn't presented as an exhibit, but I have a table here that shows the ultimate recovery of each of these wells.

Q. Under present conditions --

A. Yes, sir.

Q. --- with the existing spacing?

A. Yes, sir.

Q. Can you introduce that or could you read the figures into the record, either one?

But go slow enough that I can write them down.

A. All right.

Q. Now, let me put a heading up there. This is --

A. This is ultimate --

Q. Estimated ultimate --

A. -- recovery in MMCF.

Q. -- recovery, and what recovery factor are you using on here, or is this extrapolation of bottom hole pressures?

A. Correct.

Q. Okay.

A. These will be in MMCF.

Q. Okay.

A. Catclaw Draw Unit 1-Y, 6080.

Q. 6080, okay.

A. No. 2, 13,500; No. 4, 10,850; No. 5, 3470; No. 6, 3510; No. 7, 3995; No. 9, 14500; No. 11, 315; the Nan-Bet Com No. 1, 8595; and the ARCO Fed Com No. 1, 425.

Q. So some of those wells are going to recover

a pretty good percentage of their original gas in place and some are going to just barely tap it.

A Right.

Q And it looks like this Catclaw Draw Unit No. 1 -- or No. 11, if it's 320, is going to recover 315. I see.

A That's right.

Q And you didn't have any data for your volumetric calculations on No. 9 because of poor log data.

A Yes, sir.

MR. SIMMONS: Mr. Examiner, do you have any other questions?

MR. NUTTER: No, I'm just looking to see, Mr. Simmons.

I believe that's all I have.

A I think the reason there's no recovery factor showing up in these things, because if you set them equal recovery factor, you have to assume the recovery factor from the pressure data is going to have to be applied to the volumetric equation, and they're just going to cancel out.

Q Yeah, and when you've got -- when you've got another well on here, that's going to affect the recovery from these wells somewhat, too.

A Somewhat. We think we'll probably encounter some -- some of the sands that are -- that show some pressure

depletion, but we still feel that the average drainage in the wells is not anywhere near the 640-acre.

Q. And you anticipate also that you'll recover untapped stringers.

A. Yes, sir, we'll see that on the cross section that Mr. Olson will present.

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

MR. SIMMONS: Mr. Examiner, if I may, I would like to put this on the wall.

MR. NUTTER: Okay.

MR. SIMMONS: Mr. Examiner, at this time I call to the stand our second witness, Mr. Olson, who has never been qualified before the Division.

THOMAS W. OLSON

being called as a witness and having been duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. SIMMONS:

Q. Mr. Olson, would you state your complete name, please?

A. Thomas W. Olson.

Q. And where do you reside?

A. San Antonio.

Q. And would you state your educational background, please?

A. I have a Bachelor of Science degree in geological engineering from the Colorado School of Mines in 1974.

Q. And, Mr. Olson, how long have you been a geological engineer?

A. Five years.

Q. And how long have you been working in the southeast New Mexico area?

A. Eight months.

Q. And by whom are you presently employed?

A. Tenneco Oil.

Q. And in the course of your employment with Tenneco Oil Company have you had an occasion to study in detail the Catclaw Draw-Morrow Gas Unit?

A. Yes, I have.

MR. SIMMONS: Mr. Examiner, I now tender Mr. Olson as an expert.

MR. NUTTER: Mr. Olson is qualified.

Q. Okay. Mr. Olson, if you would, if you'd go to the Exhibit Four, which we have placed upon the wall, and I'd ask that you identify the exhibit, please.

A. The exhibit is a stratigraphic cross section which includes part of the Catclaw Draw-Morrow Gas Pool and into the Avalon-Morrow Gas Pool. It is an east/west cross section, which I feel is representative of the Catclaw-Morrow Field. It is hung on a stratigraphic datum, which is a correlation point within the Morrow, and it entails the total vertical limits of the Catclaw-Morrow Pool.

The cross section illustrates the nature of the Morrow Sand bodies. They are in separate bodies that are not continuous across the entire area. You can see in the first two wells on the left part of the cross section that we have a sand in the Upper Morrow, which is not contained in the rest of the wells in the cross section.

You can see, as we move down farther in the section, representative sands that are reservoir quality as yellow; sands that are non-reservoir quality by log analysis as being colored brown.

MR. NUTTER: Although present.

A. Although present.

You can see that the reservoir effects are so that you have several different types -- or several different sands within the pool that are being produced or tested gas; DST's being indicated by the wavy lines; perforations of completions being indicated by the solid black lines.

Moving over farther to the east into the Avalon-Morrow, we have closer well spacing. I have an example of the Ocotillo Hills No. 1 in which you see in the lower section there were two sands that were penetrated by that wellbore that are separate and that are perforated and that are not encountered on wells on either side. We contend that deposition being likewise in the Catclaw-Morrow area, that this type of situation is very likely to arise on drilling on a closer spacing on 320-s.

Moving farther down into the section, you'll find that the Lower Sands, which is the most prevalent producer, in the Catclaw-Morrow Field, is perforated in most of the wells; however, most of the wells, according to Mr. Wilson's calculations will not drain over 320 acres. They average 281 acres.

Farther down in the section occurs another sand, which is again not continuous throughout the entire section. It's separated and, again, the same type of situation, where several sands exist and you're going to find separate reservoirs on closer drilling.

Q. Okay, Mr. Olson, do you have an opinion based on your study of the logs appearing on Exhibit Four as to whether or not, in your opinion, the now existing wells will actually drain 640-acre units not applicable to the unit?

A. It does not appear that all the sand will be drained in the area by the current wells.

Q. And do you feel like the drilling of

additional wells is the only way that would insure the recovery of hydrocarbons that will not be recovered out of the now existing wells?

A. Yes, I do.

Q. And based upon the present 640-acre spacing, you are prevented from drilling additional wells, is that correct?

A. That is correct.

Q. Mr. Olson, was Exhibit Four prepared under your supervision and direction?

A. Yes, it was.

Q. Okay.

MR. SIMMONS: Mr. Examiner, I offer Exhibit Four into evidence.

MR. NUTTER: Tenneco Exhibit Number Four will be admitted in evidence.

MR. SIMMONS: Mr. Examiner, I have no further questions at this time.

MR. NUTTER: Are there any questions of Mr. Olson? He may be excused.

Do you have anything further, Mr. Simmons?

MR. SIMMONS: No, sir, we do not.

MR. NUTTER: Does anyone have anything they wish to offer in Case Number 6751?

MR. PADILLA: Yes, sir, I have a telegram

submitted by Sam S. Reed, Junior, Area Landman for Inexco Oil Company, and it reads as follows:

In reference to Catclaw Draw Unit, Eddy County, New Mexico, Cause No. 6751, this will advise you that INexco Oil Company, a non-operating working interest owner in the subject unit, concurs in the petition made by the unit operator, Tenneco Oil Company, on Cause 6751. The petition requests the Board's consideration for a change in spacing. Sincerely,
Sam S. Reed, Junior, Area Landman.

MR. NUTTER: Thank you, Mr. Padilla.

Does anyone else have anything to offer in
Case 6751?

We'll take the case under advisement.

(Hearing concluded.)

REPORTER'S CERTIFICATE

I, SALLY W. BOYD, a Certified Shorthand Reporter,
DO HEREBY CERTIFY that the foregoing and attached Transcript of
Hearing before the Oil Conservation Division was reported by me;
that the said transcript is a full, true, and correct record of
the hearing, prepared by me to the best of my ability.

Sally W. Boyd C.S.R.
Sally W. Boyd, C.S.R.

I do hereby certify that the foregoing is
a complete record of the proceedings in
the Examiner hearing of Case No. 6751
heard by me on 12/12 1979.

[Signature], Examiner
Oil Conservation Division



western union

Telegram

CBS AM

TEAC98(1159)(4-021033345)PD 12/11/75 1159

LOS IPHENGZ CSP

7136213414 TDBN HOUSTON TX 26 12-11 1159A EST

FOR 5032272338 n-~~2034~~ 827-326 0

MR JOE D. RAMEY

NEW MEXICO STATE OIL CONSERVATION COMMISSION

PO BOX 1148

SANTE FE NM 87501.

IN REFERENCE TO C&F CLAW DRAM UNIT, EDDY COUNTY, NEW MEXICO CRUSE

6751

THIS WILL ADVISE YOU THAT IN LAGO OIL COMPANY, A NON-OPERATING
WORKING INTEREST OWNER IN THE SUBJECT UNIT CONCERN IN THE PETITION
MADE BY THE UNIT OPERATOR, TENNECO OIL COMPANY AND CRUSE 6751.
THE PETITION REQUESTS THE BOARD'S CONSIDERATION FOR A CHANGE IN
SPACING. SINCERELY,

SAM S. REEVES, JR, AREA LANDMAN,

SF-1201 (75-89)

S.B. 1104A. 151. 543 P 314 713 P 314
108 P 314 220 P 151. 827-326 0 827-326 0
mail. (no one returns sec)

**Tenneco Oil
Exploration and Production**

A Tenneco Company

Southwestern Division

6800 Park Ten Blvd. • Suite 200 North
San Antonio, Texas 78213
(512) 734-8161



October 31, 1979

State of New Mexico
Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87501

Attention: Richard L. Stamets
Technical Support Chief

Gentlemen:

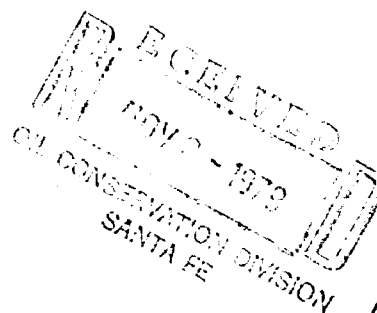
Tenneco Oil Company hereby requests that the Catclaw Draw (Morrow) Field be brought under the General Rules and Regulations of Pennsylvania Gas in New Mexico as per Rule No. 104. Our evaluation of the Morrow production in this field indicates that the current wells are not efficiently and effectively draining the 640-acre proration units dedicated to each well. We feel that the spacing rule should be changed so that proration units of 320 acres can be established which will allow additional wells to be drilled to recover morrow reserves that are otherwise unrecoverable by exisiting production. If possible, we would like to be set up on your docket for November 21, 1979.

Yours truly,

J. G. Strother

JGS/DLW/mg

See style Case 6657 9-19-79



Request for Hearing
Case 6751



BRUCE KING
GOVERNOR
LARRY KEHOE
SECRETARY

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

January 10, 1980

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-2434

Mr. Thomas Kellahin
Kellahin & Kellahin
Attorneys at Law
Post Office Box 1769
Santa Fe, New Mexico

Re: CASE NO. 6751
ORDER NO. R-4157-C

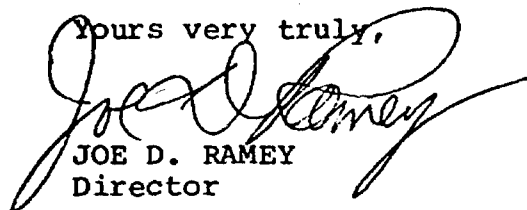
Applicant:

Tenneco Oil Company

Dear Sir:

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

Yours very truly,


JOE D. RAMEY
Director

JDR/fd

Copy of order also sent to:

Hobbs OCD X
Artesia OCD X
Aztec OCD

Other Gregory E. Simmons

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:

CASE NO. 6751
Order No. R-4157-C

APPLICATION OF TENNECO OIL
COMPANY FOR THE RESCISSION
OF SPECIAL POOL RULES, EDDY
COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on December 12, 1979, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 28th day of January, 1980, the Division Director, 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 Division has jurisdiction of this cause and the subject matter thereof.
- (2) That by Order No. R-4157, entered June 21, 1971, in Case No. 4548, the Division created and defined the Catclaw Draw-Morrow Gas Pool in Eddy County, New Mexico, and promulgated special pool rules therefor, which included a provision for 640-acre well spacing and proration units and specified well locations.
- (3) That by Order No. R-4157-A, entered September 13, 1973, the Division extended said special pool rules, and by Order No. R-4157-B, entered October 22, 1974, continued said special pool rules in full force and effect until further order of the Division.
- (4) That the applicant in the instant case, Tenneco Oil Company, seeks the rescission of the special pool rules for the spacing and location of wells in the Catclaw Draw-Morrow Gas Pool, and seeks to have said pool governed by the provisions of Rule 104 C II(a) of the Division Rules and Regulations for gas pools of Pennsylvanian age.

(5) That the evidence in this case indicates that the wells in the Catclaw Draw-Morrow Gas Pool are not draining 640 acres as it had been thought that they would, but that they are in fact draining somewhere between 281 acres and 353 acres.

(6) That production from the Morrow formation in the subject pool is from many separate pay stringers which vary greatly in areal extent and in permeability, porosity, and thickness, both within individual stringers and between stringers.

(7) That due to the variation in the areal extent and in permeability, porosity, and thickness of the stringers, there is considerable variation in the amount of original gas in place tapped by the various wells completed in the subject pool, and also in the percent of such original gas in place under each well which may be expected to be recovered by the well.

(8) That due to the variation in the areal extent and in permeability, porosity, and thickness of the stringers in the Morrow formation in the subject pool, the existing wells (drilled on 640-acre spacing and proration units) are not believed to have encountered many of the smaller stringers in the reservoir, nor are they expected in all cases to effectively and efficiently drain the stringers which they have tapped.

(9) That to reduce the size of the spacing and proration units in the subject pool from 640 acres to 320 acres would result in numerous additional wells being drilled in the pool, and would greatly enhance the chances of tapping all of the productive stringers in the reservoir, and could also improve the drainage of gas from stringers previously tapped by existing wells.

(10) That the wells presently completed in the Catclaw Draw-Morrow Gas Pool are not effectively and efficiently draining the 640-acre spacing and proration units assigned to them, but if 320-acre spacing and proration units are adopted for said pool, the wells in the pool should effectively and efficiently drain the 320-acre spacing and proration units assigned to them.

(11) That according to the evidence submitted in this case, approximately 2 billion cubic feet of additional gas may be expected to be recovered by each additional well drilled as the result of rescinding the existing pool rules and developing the Catclaw Draw-Morrow Gas Pool on 320-acre well spacing and proration units.

-3-

Case No. 6751

Order No. R-4157-C

(12) That the rescission of the Special Pool Rules for the Catclaw Draw-Morrow Gas Pool as promulgated by Division Orders Nos. R-4157, R-4157-A, and R-4157-B is in the public interest and will not cause but will prevent waste, and will not impair but will protect correlative rights.

(13) That such rescission should take effect on March 1, 1980, and after that date the Catclaw Draw-Morrow Gas Pool should be governed by the provisions of Rule 104 C II(a) of the Division Rules and Regulations.

(14) That the location of any well completed in or drilling to the Catclaw Draw-Morrow Gas Pool on or before January 9, 1980, which location is not in compliance with the aforesaid Rule 104 C II(a) should be approved, and that each operator in the pool should have 30 days after January 9, 1980, in which to file new plats for each of his wells, showing the location of the well and dedicating thereto 320 acres, more or less, comprising any two contiguous quarter sections of a single governmental section.

(15) That the Texas Oil & Gas Corporation Catclaw Draw State Com Well No. 1, located 660 feet from the South line and 660 feet from the West line of Section 18, Township 21 South, Range 26 East, NMPM, approved as an unorthodox location and subject to an allowable factor of 0.35 for 640-acre spacing should receive an allowable factor of 0.70, if the W/2 of said Section 18 is dedicated to the well under the herein-approved 320-acre spacing. Any challenge to an allowable factor of 0.70 for said well should be the subject matter of a separate case and should not be considered as part of Case No. 6751 nor as an attack on any part of this Order No. R-4157-C except that part of this order that relates to such allowable factor.

(16) That Rule 1 of the Special Rules and Regulations for the Catclaw Draw-Morrow Gas Pool as promulgated by Division Order No. R-1670-O, and as amended by Order No. R-4157-B, should be amended to read in its entirety as follows:

"RULE 1. Each well completed or recompleted or recompleted in the Catclaw Draw-Morrow Gas Pool or in the Morrow formation within one mile thereof and not nearer to nor within the boundaries of another pool producing from the Morrow formation shall be spaced, drilled, operated, and prorated in accordance with the rules for the Catclaw Draw-Morrow Gas Pool as set forth herein."

Case No. 6751
Order No. R-4157-C

(17) That Rule 2 of the Special Rules and Regulations for the Catclaw Draw-Morrow Gas Pool as promulgated by Division Order No. R-1670-0 should be amended to read in its entirety as follows:

"RULE 2. Each well shall be located not closer than 660 feet to the nearest side boundary of the dedicated tract nor closer than 1980 feet to the nearest end boundary nor closer than 330 feet to any quarter-quarter section or subdivision inner boundary."

(18) That Rule 9 of the aforesaid special rules should be amended to read in its entirety as follows:

"RULE 9. A standard unit consisting of 320 acres shall be assigned an acreage factor of 1.00, provided however, the acreage tolerances provided in Rule 5(A) shall apply."

(19) That Division Orders Nos. R-4157, R-4157-A, and R-4157-B should be rescinded.

IT IS THEREFORE ORDERED:

(1) That the Catclaw Draw-Morrow Gas Pool is hereby defined as comprising the Morrow formation underlying the following described lands in Eddy County, New Mexico:

TOWNSHIP 21 SOUTH, RANGE 25 EAST, NMPM

Section 1: All
Section 2: Lots 9 through 16 and S/2
Sections 11 through 14: All
Sections 23 through 28: All
Sections 34 through 36: All

TOWNSHIP 21 SOUTH, RANGE 26 EAST, NMPM

Sections 17 through 20: All
Section 30: All

(2) That Division Orders Nos. R-4157, R-4157-A, and R-4157-B are hereby rescinded.

(3) That the Catclaw Draw-Morrow Gas Pool shall hereinafter be governed by the provisions of Rule 104 C II(a) of the Division's Rules and Regulations.

(4) That Rule 1 of the Special Rules and Regulations for the Catclaw Draw-Morrow Gas Pool as promulgated by Division Order No. R-1670-0 and amended by Division Order No. R-4571-B

-5-

Case No. 6751
Order No. R-4157-C

is hereby amended to read in its entirety as follows:

"RULE 1. Each well completed or recompleted or recompleted in the Catclaw Draw-Morrow Gas Pool or in the Morrow formation within one mile thereof and not nearer to nor within the boundaries of another pool producing from the Morrow formation shall be spaced, drilled, operated, and prorated in accordance with the rules for the Catclaw Draw-Morrow Gas Pool as set forth herein."

(5) That Rule 2 of the Special Rules and Regulations for the Catclaw Draw-Morrow Gas Pool as promulgated by Division Order No. R-1670-O is hereby amended to read in its entirety as follows:

"RULE 2. Each well shall be located not closer than 660 feet to the nearest side boundary of the dedicated tract nor closer than 1980 feet to the nearest end boundary nor closer than 330 feet to any quarter-quarter section or subdivision inner boundary."

(6) That Rule 9 of the aforesaid special rules is hereby amended to read in its entirety as follows:

"RULE 9. A standard unit consisting of 320 acres shall be assigned an acreage factor of 1.00, provided however, the acreage tolerances provided in Rule 5(A) shall apply."

(7) That the locations of all wells drilled and completed in the Catclaw Draw-Morrow Gas Pool are hereby approved.

(8) That the operator of each well in the Catclaw Draw-Morrow Gas Pool shall have until February 9, 1980, to file with the Artesia District Office of the Division new Forms C-102, Well Location and Acreage Dedication Plat, for each of his wells, showing thereon the location of the well and the acreage dedicated thereto pursuant to this order. Failure to so file such plats will subject the well to cancellation of allowable.

(9) That the Texas Oil and Gas Corporation Catclaw Draw State Com Well No. 1, located 660 feet from the South line and 660 feet from the East line of Section 18, Township 21 South, Range 26 East, NMPM, Eddy County, New Mexico, shall receive an allowable factor of 0.70 effective March 1, 1980, provided Forms C-102 have been filed for said well dedicating thereto the W/2 of said Section 18.

-6-

Case No. 6751
Order No. R-4157-C

(10) That any challenge to the aforesaid allowable factor of 0.70 for said Catclaw Draw State Com Well No. 1 shall be considered as a separate case by the Division and not as an attack on any part of Division Order No. R-4157-C except Order No. (8) above relating to the allowable factor.

(11) That this order shall become effective at 7:00 o'clock a.m. March 1, 1980.

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

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



S E A L

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

Joe D. Ramey
JOE D. RAMEY
Director

fd/

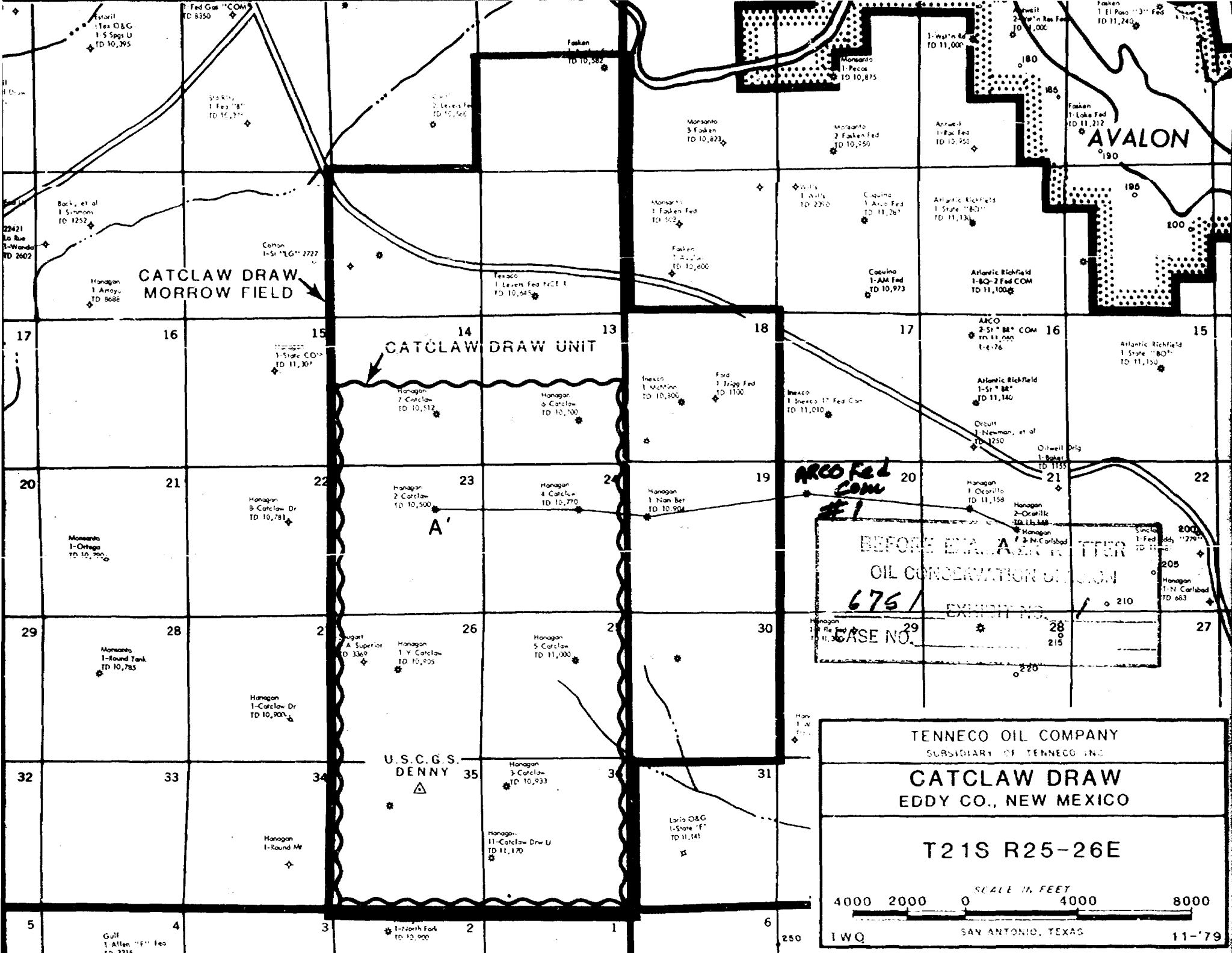
Telegram called in December 12, 1979

In reference to Catclaw Draw Unit, Eddy County, New Mexico, Cause 6751, this will advise you that Inexco Oil Company, a non-operating working interest owner in the subject unit, concurs in the petition made by the unit operator, Tenneco Oil Company in Cause 6751. The petition requests the Board's consideration for a change in spacing.

Sincerely,

Sam S. Reed, Jr.
Area Landman

- CASE 6760: Application of Sun Oil Company for an unorthodox location, non-standard gas proration unit, infill findings, and simultaneous dedication, Roosevelt County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of its State "AY" Well No. 5, located in Unit E of Section 36, Township 7 South, Range 35 East, Todd-Upper San Andres Gas Pool, to be simultaneously dedicated with its State "AY" Well No. 3 in Unit F of Section 36 to a 160-acre non-standard gas proration unit comprising the NW/4 of Section 36. Also sought are findings that the proposed well is necessary to effectively and efficiently drain that portion of the proration unit which cannot be so drained by the existing unit well.
- CASE 6761: Application of Phillips Petroleum Company for an unorthodox gas well location and approval of infill drilling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of an Atoka-Morrow test well to be drilled 660 feet from the North and West lines of Section 2, Township 24 South, Range 28 East; applicant further seeks a finding that the drilling of said well is necessary to effectively and efficiently drain that portion of the proration unit, being the W/2 of said Section 2, which cannot be so drained by the existing well.
- CASE 6762: Application of Joe Don Cook for an exception to Order No. R-3221, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an exception to Order No. R-3221 to permit disposal of produced brine into an unlined surface pit located in Section 1, Township 19 South, Range 31 East, Shugart Pool.
- CASE 6763: Application of Adams Exploration Company for compulsory pooling and an unorthodox location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the North Osudo-Morrow Gas Pool underlying Section 16, Township 20 South, Range 36 East, to be dedicated to a well to be drilled at an unorthodox location 660 feet from the South and West lines of said Section 16. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision. Also to be considered will be the designation of applicant as operator of the well and a charge for risk involved in drilling said well.
- CASE 6729: (Continued from November 14, 1979, Examiner Hearing)
Application of Adams Exploration Company for compulsory pooling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Pennsylvanian formation underlying Section 16, Township 20 South, Range 36 East, North Osudo-Morrow Gas Pool, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision. Also to be considered will be the designation of applicant as operator of the well and a charge for risk involved in drilling said well.
- CASE 6725: (Continued from November 28, 1979, Examiner Hearing)
Application of Tenneco Oil Company for three non-standard gas proration units, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks approval of a 291.23-acre non-standard gas proration unit comprising the W/2 of Section 6 and the NW/4 of Section 7, a 347.58-acre unit comprising the W/2 of Section 19 and the NW/4 of Section 30, and a 375.17-acre unit comprising the SW/4 of Section 30 and the W/2 of Section 31, all in Township 29 North, Range 8 West, Basin-Dakota Pool, each unit to be dedicated to a well to be drilled at a standard location thereon.
- CASE 6751: (Continued from November 28, 1979, Examiner Hearing)
Application of Tenneco Oil Company for the rescission of special pool rules, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks the rescission of the special pool rules for the Catclaw Draw-Morrow Gas Pool to provide for 320-acre spacing rather than 640 acres. In the absence of objection, the pool rules will be rescinded and the pool placed on standard 320-acre spacing for Pennsylvanian gas pools rather than the present 640-acre spacing.
- CASE 6764: Application of Lee Crane for surface commingling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks approval for the surface commingling of undesignated Ojo Alamo and Oswell-Farmington production from his Martin Wells Nos. 1 and 3 located in Section 34, Township 30 North, Range 11 West.
- CASE 6765: Application of Mesa Petroleum Company for an exception to Order No. R-111-A and an unorthodox well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an exception to the casing-cementing rules of Order No. R-111-A to complete its Bass Federal Well No. 2 to be drilled at an unorthodox location 1450 feet from the North line and 1850 feet from the West line and its Bass Federal Well No. 3 to be drilled in Unit D, both in Section 6, Township 20 South, Range 31 East, by setting surface casing in the "Red Bed" section of the basal Rustler formation and production casing at total depth. Both casing strings would have cement circulated to the surface.



TENNECO OIL COMPANY
CALCULATED DRAINAGE AREAS

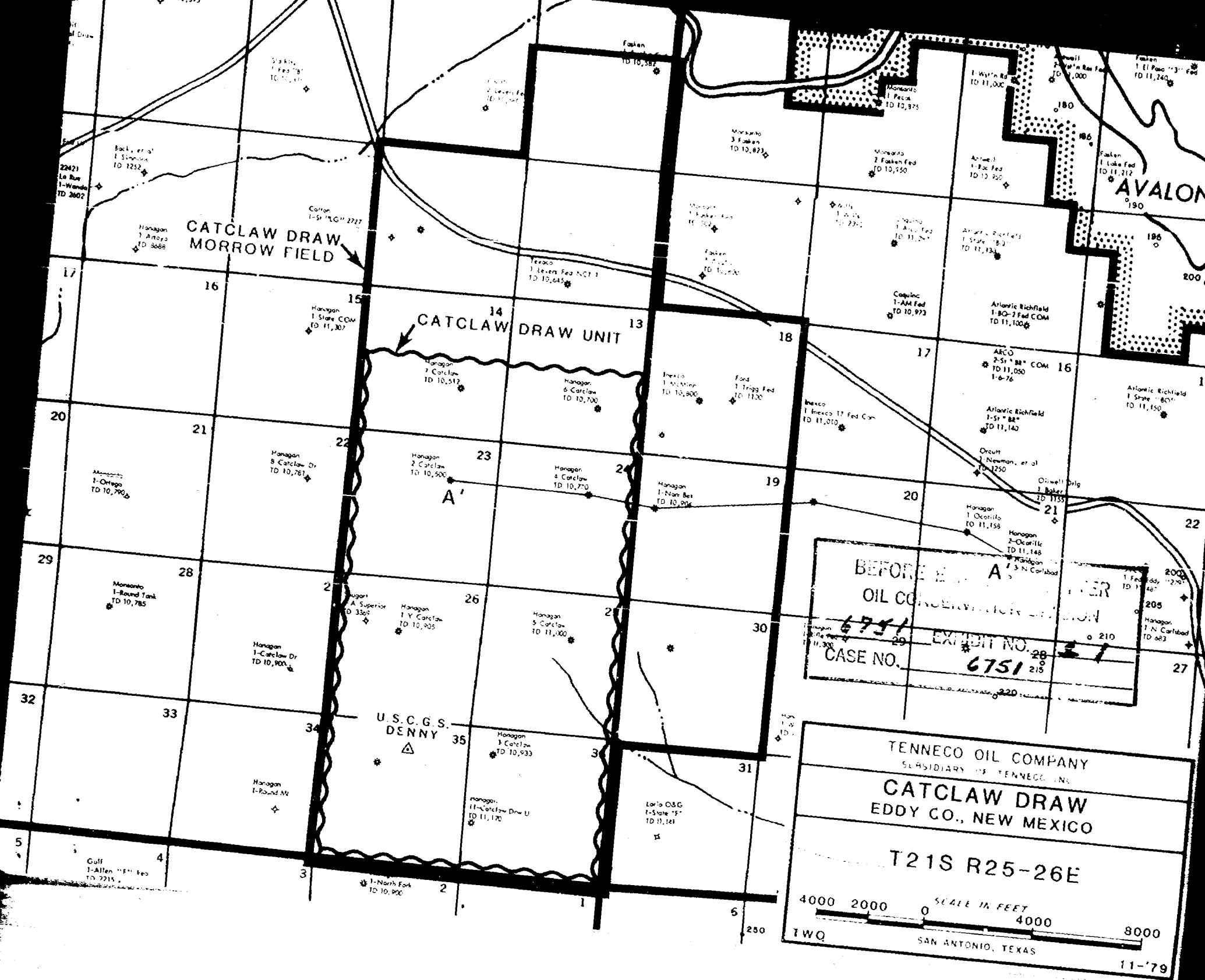
Areas Being Drained by Wells in the Catclaw Draw (Morrow) Pool
Based on Reservoir Parameters and Well Performance

Field/Well	Per Acre Volumetric OGIP (MMCF)	BHP/Z OGIP (MMCF)	Calculated Drainage Area (Acres)	Assigned Proration Unit (Acres)	Est Ult Recy MMCF
<u>CATCLAW DRAW (MORROW)</u>					
CATCLAW DRAW UNIT 1Y	51.4	8,000	156	640	6080
CDU NO. 2	31.5	14,100	448	640	13500
CDU NO. 4	31.5	11,000	350	640	10850
CDU NO. 5	16.4	4,900	299	640	3470
CDU NO. 6	11.4	5,250	461	640	3510
CDU NO. 7	12.7	5,250	414	640	3995
CDU NO. 9	NOT CALCULATED DUE TO POOR LOG DATA				14500
CDU NO. 11	18.3	320	18	640	315
NAN BET COM. NO. 1	27.8	9,500	342	640	8595
ARCO FED. COM. NO. 1	10.6	440	42	640	425

Average Drainage Area Per Well = 281 Acres

*expect average
add recovery
per well of 2 BCF*

ENGINEER REVIEWED
CALCULATED DRAINAGE AREAS
DATE: 10/2/72
6751



TENNECO OIL COMPANY
CALCULATED DRAINAGE AREAS

Areas Being Drained by Wells in the Catclaw Draw (Morrow) Pool
Based on Reservoir Parameters and Well Performance

<u>Field/Well</u>	<u>Per Acre Volumetric OGIP (MMCF)</u>	<u>BHP/Z OGIP (MMCF)</u>	<u>Calculated Drainage Area (Acres)</u>	<u>Assigned Proration Unit (Acres)</u>	
<u>CATCLAW DRAW (MORROW)</u>					
CATCLAW DRAW UNIT 1Y	51.4	8,000	156	640	6080
CDU NO. 2	31.5	14,100	448 ✓	640	13,530
CDU NO. 4	31.5	11,000	350 ✓	640	10,850
CDU NO. 5	16.4	4,900	299	640	3490
CDU NO. 6	11.4	5,250	461 ✓	640	3510
CDU NO. 7	12.7	5,250	414 ✓	640	3005
CDU NO. 9	NOT CALCULATED DUE TO POOR LOG DATA				14500
CDU NO. 11	18.3	320	18	640	315
NAN BET COM. NO. 1	27.8	9,500	342 ✓	640	8595
ARCO FED. COM. NO. 1	10.6	440	42	640	625

2530

Average Drainage Area Per Well = 281 Acres

$$\frac{2530}{9} = 281.1$$

Delete the two anomalous wells

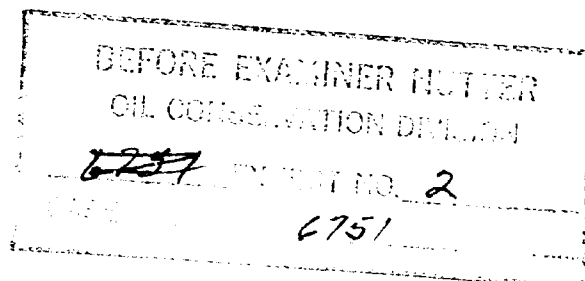
2530

- 18

- 42

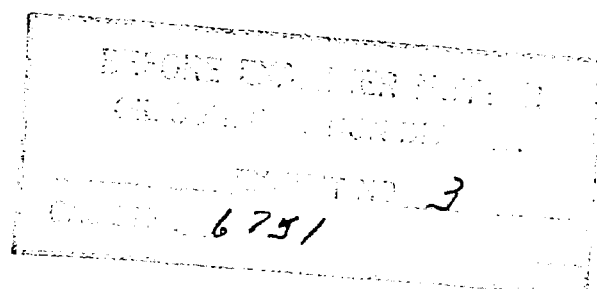
2470

$$\frac{2470}{7} = 352.9$$



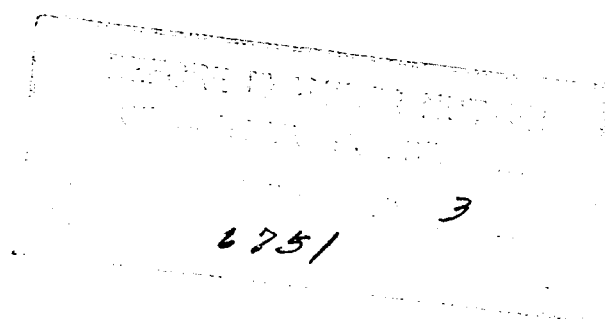
TENNECO OIL COMPANY
RESERVOIR PARAMETERS
CATCLAW DRAW UNIT
CATCLAW DRAW (MORROW)

WELL	POROSITY	h, ft	SW	Gg	Zi	Bgi (RCF/SCF)
CATCLAW DRAW UNIT 1 Y	.13	48	.31	.60	.9145	.0036585
CDU NO. 2	.116	34	.32	.59	.9082	.0037119
CDU NO. 4	.102	35	.27	.60	.9125	.0036056
CDU NO. 5	.08	30	.41	.59	.8995	.0037598
CDU NO. 6	.04	38	.36	.59	.9143	.0037178
CDU NO. 7	.072	31	.42	.59	.9061	.0036796
CDU NO. 9	NOT CALCULATED DUE TO POOR LOG DATA					
CDU NO. 11	.09	28	.36	.60	.9260	.0038415
NAN BET COM. NO. 1	.095	34	.28	.61	.9060	.0036428
ARCO FED. COM. NO. 1	.095	16	.40	.59	.9169	.0037581



TENNECO OIL COMPANY
RESERVOIR PARAMETERS
CATCLAW DRAW UNIT
CATCLAW DRAW (MORROW)

<u>WELL</u>	<u>POROSITY</u>	<u>h, ft</u>	<u>SW</u>	<u>Gg</u>	<u>Zi</u>	<u>Bgi (RCF/SCF)</u>
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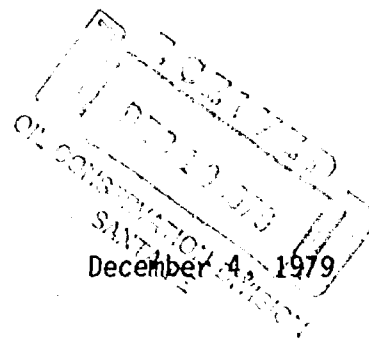


- CASE 6745: Application of Harvey E. Yates Company for compulsory pooling, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Wolfcamp-Pennsylvanian formations underlying the W/2 of Section 28, Township 23 South, Range 24 East, to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision. Also to be considered will be the designation of applicant as operator of the well and a charge for risk involved in drilling said well.
- CASE 6746: Application of Yates Petroleum Corporation for compulsory pooling and an unorthodox location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Wolfcamp-Pennsylvanian formations underlying the S/2 of Section 31, Township 18 South, Range 26 East, to be dedicated to a well to be drilled at an unorthodox location 660 feet from the South line and 1100 feet from the West line of said Section 31. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision. Also to be considered will be the designation of applicant as operator of the well and a charge for risk involved in drilling said well.
- CASE 6747: Application of Yates Petroleum Corporation for compulsory pooling and an unorthodox location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Wolfcamp-Pennsylvanian formations underlying the S/2 of Section 23, Township 18 South, Range 25 East, to be dedicated to a well to be drilled at an unorthodox location in the center of Unit P of said Section 23. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof as well as actual operating costs and charges for supervision. Also to be considered will be the designation of applicant as operator of the well and a charge for risk involved in drilling said well.
- CASE 6748: Application of Yates Petroleum Corporation for an unorthodox gas well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of its Rio Pecos "NH" Fed. Well No. 1, a Morrow test to be drilled 1980 feet from the South line and 1100 feet from the East line of Section 29, Township 18 South, Range 27 East, the S/2 of said Section 29 to be dedicated to the well.
- CASE 6749: Application of Petro-Lewis Corporation for downhole commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the downhole commingling of Penrose Skelly, Blinbry, and Drinkard production in the wellbore of its Warlick Well No. 3 located in Unit P of Section 18, Township 21 South, Range 37 East.
- CASE 6750: Application of CO₂-In-Action, Inc. for creation of a new carbon dioxide gas pool and special pool rules, Harding County, New Mexico. Applicant, in the above-styled cause, seeks the creation of the North Bueyeros-Santa Rosa CO₂ Gas Pool comprising all or parts of Sections 1, 2, 3, 10, 11, and 12, Township 20 North, Range 30 East and Sections 20 thru 23 and 26 thru 35, Township 21 North, Range 30 East, and the promulgation of special rules therefor including a provision for 160-acre spacing units with the option to drill on 40 acres, and with well locations as close as 330 feet to the unit boundary.
- CASE 6725: (Continued from November 14, 1979, Examiner Hearing)
- Application of Tenneco Oil Company for three non-standard gas proration units, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks approval of a 291.23-acre non-standard gas proration unit comprising the W/2 of Section 6 and the NW/4 of Section 7, a 347.58-acre unit comprising the W/2 of Section 19 and the NW/4 of Section 30, and a 375.17-acre unit comprising the SW/4 of Section 30 and the W/2 of Section 31, all in Township 29 North, Range 8 West, Basin-Dakota Pool, each unit to be dedicated to a well to be drilled at a standard location thereon.
- CASE 6751: Application of Tenneco Oil Company for the rescission of special pool rules, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks the rescission of the special pool rules for the Catclaw Draw-Morrow Gas Pool to provide for 320-acre spacing rather than 640 acres. In the absence of objection, the pool rules will be rescinded and the pool placed on standard 320-acre spacing for Pennsylvanian gas pools rather than the present 640-acre spacing.
- CASE 6357: (Reopened and Readvertised)
- In the matter of Case 6357 being reopened pursuant to the provisions of Order No. R-5853 which order established temporary special rules and regulations for the South Peterson-Pennsylvanian Pool, with provisions for 80-acre spacing. All interested parties may appear and show cause why the South Peterson-Pennsylvanian Pool should not be developed on 40-acre spacing units.

Tenneco Oil
Exploration and Production
A Tenneco Company

Southwestern Division

6800 Park Ten Blvd. • Suite 200 North
San Antonio, Texas 78213
(512) 734-8161



RSL

Oil Conservation Division
Department of Energy and Minerals
P.O. Box 2088
Santa Fe, New Mexico 87501
ATTENTION: Richard L. Stamets, Examiner

Re: CATCLAW DRAW - MORROW GAS POOL
RESCIND POOL RULES (CASE #6751)

Dear Mr. Stamets:

Pursuant to conversations had between Jim Strother, Division Production Manager, Southwestern Division, Tenneco Oil Company, and yourself, on November 27, 1979, it is Tenneco Oil Company's understanding that the above styled case has been continued for hearing from November 28, 1979 to December 12, 1979.

If the above is not the understanding with the Commission, please call the undersigned collect and advise.

Very truly yours,

TENNECO OIL COMPANY

Gregory E. Simmons
Gregory E. Simmons
Division Attorney
Legal Department

GES:njp

ROUGH

dr/

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:

CASE NO. 6751
Order No. R-4157-C

APPLICATION OF TENNECO OIL
COMPANY FOR THE RESCISSION
OF SPECIAL POOL RULES, EDDY
COUNTY, NEW MEXICO.

JAR

ORDER OF THE DIVISION

Don

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on December 12
19 79, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this _____ day of January, 1980, the
Division Director, 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 Division has jurisdiction of this cause and the
subject matter thereof.

(2) That by Order No. 4157, entered June 21, 1971, in
Case No. 4548, the Division created and defined the Catclaw Draw-
Morrow Gas Pool in Eddy County, New Mexico, and promulgated special
pool rules therefor, which included a provision for 640-acre well
spacing and proration units and specified well locations.

(3) That by Order No. R-4157-A, entered September 13, 1973,
the Division extended said special pool rules, and by Order No.
R-4157-B, entered October 22, 1974, continued said special pool
rules in full force and effect until further order of the Division.

(4) That the applicant in the instant case, Tenneco Oil Company, seeks the rescission of the special pool rules for the spacing and location of wells in the Catclaw Draw-Morrow Gas Pool, and seeks to have said pool governed by the provisions of Rule 104 C II(a) of the Division Rules and Regulations for gas pools of Pennsylvanian age.

(5) That the evidence in this case indicates that the wells in the Catclaw Draw-Morrow Gas Pool are not draining 640 acres as it had been thought that they would, but that they are in fact draining somewhere between 281 acres and 353 acres.

(6) That production from the Morrow formation in the subject pool is from many separate pay stringers which vary greatly in areal extent and in permeability, porosity, and thickness, both within individual stringers and between stringers.

(7) That due to the variation in the areal extent and ⁱⁿ permeability, porosity, and thickness of the stringers, there is considerable variation in the amount of original gas in place tapped by the various wells completed in the subject pool, and also in the percent of such original gas in place under each well which may be expected to be recovered by the well.

(8) That due to the variation in the areal extent ^{and in} permeability, porosity, and thickness of the stringers in the Morrow formation in the subject pool, the existing wells (drilled on 640-acre spacing and proration units) are not ^{believed} ~~expected~~ to have encountered many of the smaller stringers in the reservoir, nor are they expected in all cases to effectively and efficiently drain the stringers which they have tapped.

(9) That to reduce the size of the spacing and proration units in the subject pool from 640 acres to 320 acres would result in numerous additional wells being drilled in the pool, and would greatly enhance the chances of tapping all of the productive stringers in the reservoir, and could also improve the drainage of gas from stringers previously tapped by existing wells.

(10) That the wells presently completed in the Catclaw Draw-Morrow Gas Pool are not effectively and efficiently draining the 640-acre spacing and proration units assigned to them, but if 320-acre spacing and proration units are adopted for said pool, the wells in the pool should effectively and efficiently drain the 320-acre spacing and proration units assigned to them.

(10) That according to the evidence submitted in this case, approximately 2 billion cubic feet of additional gas may be expected to be recovered by each additional well drilled as the result of rescinding the existing pool rules and developing the Catclaw Draw-Morrow Gas Pool on 320-acre well spacing and proration units.

(11) That the rescission of the Special Pool Rules for the Catclaw Draw-Morrow Gas Pool as promulgated by Division Orders Nos. R-4157, R-4157-A, and R-4157-B is in the public interest and will not cause but will prevent waste, and will not impair but will protect correlative rights.

(12) That such rescission should take effect on March 1, 1980, and after that date the Catclaw Draw-Morrow Gas Pool should be governed by the provisions of Rule 104 C II(a) of the Division Rules and Regulations.

(13) That the location of any well completed in or drilling to the Catclaw Draw-Morrow Gas Pool on or before _____ 1980, which location is not in compliance with the aforesaid Rule 104 C II(a) should be approved, and that each operator in the pool should have 30 days after _____, 1980, in which to file new plats for each of his wells, showing the location of the well and dedicating thereto 320 acres, more or less, comprising any two contiguous quarter sections of a single governmental section.

(14) That the Texas Oil & Gas Corporation Catclaw Draw State Com Well No. 1, located 660 feet from the South line and 660 feet from the West line of Section 18, Township 21 South, Range 26 East, NMPM, approved as an unorthodox location and subject to an allowable factor of 0.35 for 640-acre spacing should receive an allowable factor of 0.70, if the W/2 of said Section 18 is dedicated to the well under the herein-approved 320-acre spacing. Any challenge to an ^{allowable} ~~acreage~~ factor of 0.70 for said well should be the subject matter of a separate case and should not be considered as part of Case No. 6751 nor as an attack on any part of ^{this} Order No. R-4157-C except that part of ^{this} ~~said~~ order ^{that} ~~as~~ relates to such ^{allowable} ~~acreage~~ factor.

date of entry

date of entry

(16) That Rule 1 of the Special Rules and Regulations for the Catclaw Draw-Morrow Gas Pool as promulgated by Division Order No. R-1670-O, and as amended by Order No. R-4157-B, should be amended to read in its entirety as follows:

"RULE 1. Each well completed or recompleted ^{OK} ~~or recompleted~~ in the Catclaw Draw-Morrow Gas Pool or in the Morrow formation within one mile thereof and not nearer to nor within the boundaries of another pool producing from the Morrow formation shall be spaced, drilled, operated, and prorated in accordance with the rules for the Catclaw Draw-Morrow Gas Pool as set forth herein."

(17) That Rule 2 of the Special Rules and Regulations for the Catclaw Draw-Morrow Gas Pool as promulgated by Division Order No. R-1670-O should be amended to read in its entirety as follows:

"RULE 2. Each well shall be located not closer than 660 feet to the nearest side boundary of the dedicated tract nor closer than 1980 feet to the nearest end boundary nor closer than 330 feet to any quarter-quarter section or subdivision inner boundary."

(18) That Rule 9 of the aforesaid special rules should be amended to read in its entirety as follows:

"RULE 9. A standard unit consisting of 320 acres shall be assigned an acreage factor of 1.00, provided however, the acreage tolerances provided in Rule 5(A) shall apply."

(19) That Division Orders Nos. R-4157, R-4157-A, and R-4157-B should be rescinded.

IT IS THEREFORE ORDERED:

(1) That the Catlow Claw-Morrow Gas Pool is hereby defined as comprising the Morrow formation underlying the following described lands in Eddy County, New Mexico:

~~4000~~

TOWNSHIP 21 SOUTH, RANGE 25 EAST, NMPM

Section 1: All

Section 2: Lots 9 through 16 and S/2

Sections 11 through 14: All

Sections 23 through 28: All

Sections 34 through 36: All

TOWNSHIP 21 SOUTH, RANGE 26 EAST, NMPM

Sections 17 through 20: All

Section 30: All

(2) That Division Orders Nos. R-4157, R-4157-A, and R-4157-B are hereby rescinded.

(3) That the Catclaw Draw-Morrow Gas Pool shall hereinafter be governed by the provisions of Rule 104 C II (a) of the Division's Rules and Regulations.

(4) That Rule 1 of the Special Rules and Regulations for the Catclaw Draw-Morrow Gas Pool as promulgated by Division Order No. R-1670-0 and amended by Division Order No. R-4571-B is hereby amended to read in its entirety as follows:

"RULE 1. Each well completed or recompleted or recompleted in the Catclaw Draw-Morrow Gas Pool or in the Morrow formation within one mile thereof and not nearer to nor within the boundaries of another pool producing from the Morrow formation shall be spaced, drilled, operated, and prorated in accordance with the rules for the Catclaw Draw Morrow Gas Pool as set forth herein."

(5) That Rule 2 of the Special Rules and Regulations for the Catclaw Draw-Morrow Gas Pool as promulgated by Division Order No. R-1670-0 is hereby amended to read in its entirety as follows:

"RULE 2. Each well shall be located not closer than 660 feet to the nearest side boundary of the dedicated tract nor closer than 1980 feet to the nearest end boundary nor closer than 330 feet to any quarter-quarter section or subdivision inner boundary."

(6) That Rule 9 of the aforesaid special rules is hereby amended to read in its entirety as follows:

"RULE 9. A standard unit consisting of 320 acres shall be assigned an acreage factor of 1.00, provided however, the acreage tolerances provided in Rule 5(A) shall apply."

1 month after date of entry
(7) That the locations of all wells drilled and completed in the ^{Catclaw Draw} Morrow Gas Pool are hereby approved.

(8) That the operator of each well in the Catclaw Draw Morrow Gas Pool shall have until _____, 1980, to file with the Artesia District Office of the Division new Forms C-102, Well Location and Acreage Dedication Plat^{for each of his wells,} showing thereon the location of the well and the acreage dedicated thereto pursuant to this order. Failure to so file such plats will subject the well to cancellation of allowable.

(9) That the Texas Oil and Gas Corporation Catclaw Draw State Com Well No. 1, located 660 feet from the South line and 660 feet from the East line of Section 18, Township 21 South, Range 26 East, NMPM, Eddy County, New Mexico, shall receive an allowable factor of 0.70 effective March 1, 1980, provided Forms C-102 have been filed for said well dedicating thereto the W/2 of said Section 18.

(10) That any challenge to the aforesaid allowable factor of 0.70 for said Catclaw Draw State Com Well No. 1 shall be considered as a separate case by the Division and not as an attack on any part of Division Order No. R-4157-C except Order No. (8) above relating to the allowable factor.

(11) That this order shall become effective at 7:00 o'clock a.m. March 1, 1980.

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

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